SCHOOL OF POSTGRADUATE STUDIES

EFFECTIVENESS OF IMPLEMENTING TARGETED HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) INTERVENTIONS IN HIGHER TERTIARY EDUCATION INSTITUTIONS IN ZIMBABWE

BY

FLORANCE SHUMBA

DBA684111

SUPERVISORS:

PROF. JUVENALIS TEMBO

PROF. KOPANO MUKELABAI

A Thesis submitted to the School of Post Graduate Studies for the Degree of the Doctor of Philosophy in HealthCare Management

2022

DECLARATION OF PLAGIARISM

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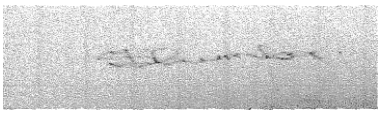
STUDENT NAME: FLORANCE SHUMBA

DATE: 28th Sepetember 2022

SIGNATURE 

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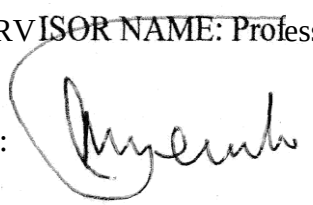
FIRST SUPERVISOR NAME: Professor JuvenalisTembo

SIGNATURE: 

DATE: 28.09 2022

SECOND SUPERVISOR NAME: Professor Kopano Mukelabai

SIGNATURE:

DATE:

I ……and on behalf of the University of Lusaka do hereby confirm that I have read and examined the Thesis written by Florence Shumba and jointly supervised by Professor Juvenius Tembo and Professor Kopano Mukelabai, I therefore approve this research work.

NAME:

SIGNATURE:

DATE:

DEDICATION

I dedicate this thesis to my late Father, Isaiah M. Chidzonga, who believed in me and my encouraged me always to work hard to achieve my goal. Dad, I miss you and thank you for all the sacrifices you made for me.

ACKNOWLEDGEMENTS

The accomplishment of this doctoral thesis was feasible with the assistance of several individuals some of whom are unspecified, to whom I am sincerely grateful. In particular, I would like to express my sincere gratitude to all of them. First, I am indebted and grateful to Professor JuvenalisTembo, my academic supervisor, for his patience, invaluable guidance, scholarly inputs and consistent encouragement throughout the research work. I am also extremely grateful to my co-supervisor, Professor Kopano Mukelabai, for his invaluable input and encouragement. I would also like to thank the UNILUS Graduate School Dean and staff, for the academic support they provided. This thesis completion was possible with the generous facilitation received from all relevant staff members of the University of Lusaka. I would also like to thank and acknowledge all my friends for their support and willingness to render assistance. I owe a lot to my brothers, who encouraged and helped me at every stage of my personal and academic life, and longed to see this achievement come true. I am very much indebted to my immediate family for their technical, moral, professional support and the extended family members for their support and patience. I acknowledge and thank my institution the National University of Science and Technology in Zimbabwe, for the financial support and time provided to engage in this endeavor My field of study was made less obstacle-ridden by the continuous presence of select individuals such as, Paul S.S. Shumba, who was there from the very start, sharing technical and professional insights from decades of regional field experience in the study area. Finally, yet importantly, my sincere gratitude is to each participating respondent in this study, whose cooperation and articulate responses made this study a reality and enabled me to complete this work. Above all, I owe it all to the Almighty God for granting me the wisdom, good health and diligence to undertake this research task to completion.

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LIST OF ABBREVIATIONS

AIDS	-	Acquired Immune Deficiency Syndrome
ART	-	Antiretroviral Therapy
ARV	-	Antiretroviral
CDC	-	Centres for Disease Control and Prevention
CEA	-	Cost-effectiveness analysis
CA	-	Cost Analysis
DALY	-	Disability Adjusted Life Years
IEC	-	Information. Education, Communication
GDP	-	Gross Domestic Product
HCT	-	HIV Counselling and Testing
HIV	-	Human Immunodeficiency Virus
NAC	-	National AIDS Council
STI	-	Sexually Transmitted Infection
UNAIDS	-	Joint United Nations Programme on HIV/AIDS
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
UNICEF	-	United Nations Children's Emergency Fund
UNGASS	-	United Nations General Assembly
WHO	-	World Health Organisation
QALYs	-	Quality Adjusted Life Years gained ever-changing

ABSTRACT

HIV and AIDS acknowledged as one of the worst global pandemics to date, has had very severe adverse impacts on the socio-economic development and health of populations in Sub-Sahara Africa, including in Zimbabwe. On this account, the present cross-sectional, mixed-methods study considered determining the implementation of effective HIV/AIDS prevention interventions in limited-resource settings to reduce HIV/AIDS incidence among the population in higher tertiary institutions in Zimbabwe. The various behavior change interventions previously introduced in the general population in Zimbabwe excluded specifically students and employees in higher tertiary institutions. The structures and resources, knowledge and awareness, sexual behavior practices, attitudes, and perceptions on condom use, are the key factors known to facilitate the implementation of effective HIV/AIDS interventions. This study's main objective is to determine the effective implementation of HIV and AIDS interventions in higher tertiary institutions in Zimbabwe. It explored the extent to which this population agreed or disagreed that the aforementioned factors are the driving forces behind the successful implementation of effective interventions. The study also identified the preferred HIV/AIDS prevention intervention programmes for this targeted population.

Explanatory research design guided the data collection, analysis, and interpretation, with greater emphasis on the quantitative aspects. Quantitative and qualitative methods were used with explanatory sequential mixed methods research design. The respondents consisted of students and employees from five universities who consented to participate in the study. A sample of 314 respondents was purposively drawn from the population of students from the five universities . A structured survey questionnaire was used to collect quantitative data. Quantitative analysis was conducted with version 21.0 of the Statistical Package for Social Sciences (SPSS) producing descriptive statistic means, percentages, tables, t-tests, p-values, correlation, regression analysis, factor analysis, and eigenvalues information. Qualitative data analysis from eight focus discussions (FGDs) with the study group and secondary data was facilitated by using content/thematic analysis.

The findings: Contribution of the factors to effective HIV/AIDS interventions;(i) structures and resources the students and staff in higher tertiary institutions both agreed that the government local and international development partners , collaborate to provide the effective resources and structures for the implementation of HIV/AIDS intervention programmes therein. Institutions and family members lack knowledge of available structures, resources for implementing HIV/AIDS interventions (ii) Knowledge and awareness of HIV/AIDS: The respondents further agreed that knowledge and awareness contribute to implementing HIV/AIDS effective interventions. Female respondents showed higher levels of HIV/AIDS knowledge but lower levels of awareness of HIV/AIDS prevention interventions than males. (iii) Sexual behaviour practices: All agreed that sexual behavior/practices positively influence the choices of desired HIV/AIDS prevention interventions. (iv)Attitudes, perceptions, condom use: Both students and employees further agreed that attitudes and perceptions on condom use greatly impact the choice of the desired HIV/AIDS interventions. Correlation analysis shows significant positive relationships between the variables: knowledge, attitudes, perceptions, and social norms on HIV/AIDS, influenced by the level of education, awareness about HIV/AIDS, and transmission modes. (v) Most preferred HIV/AIDS interventions: The study identified desirable and effective interventions as abstinence, being faithful, consistent condom use, voluntary testing, counseling, and continuous HIV/AIDS education.

The study concluded that factors structures, resources; knowledge and awareness; sexual behaviour practices; attitudes, perceptions, condom use contribute to effective implementation of HIV/AIDS prevention interventions in higher tertiary institutions. The identified most desirable effective HIV/AIDS interventions are abstinence, being faithful, consistent condom use, voluntary testing and continuous HIV/AIDS education. The challenges faced in the implementing of HIV/AIDS programmes include lack of information on structures, resources and limited data on targeted continuous HIV/AIDS education based on gender. Implications of the study for the collaboration of the government with development partners to disseminate information on available structures and resources for the effective implementation of HIV/AIDS prevention interventions. Institutions could utilize information derived from students and employees to empower them with knowledge and awareness about HIV/AIDS. In addition, include a framework for implementing effective HIV/AIDS interventions and policies. Policymakers could use the framework to formulate a policy to improve the implementation of HIV/AIDS programmes. Implications for further research studies were to focus the on engagement of policymakers in the regulation and development of a framework to guide the implementation of HIV/AIDS interventions in the higher tertiary institutions. Further, the policymakers must validate the research including the conceptual framework proposed in this study.

Keywords: HIV; AIDS; adverse impact; socio-economic; effective interventions; tertiary institutions; factors; knowledge; awareness; structures; resources; sexual behaviour; quantitative, qualitative, mixed methods; structures questionnaire, focus group discussions, descriptive statistics, abstinence; being faithful; condom use:

CHAPTER ONE: BACKGROUND TO THE STUDY

1.0 Introduction

During the past decade, the world has witnessed the adverse effects of the HIV/AIDS pandemic that has drastically eroded the limited available resources due to population morbidity and mortality. The adverse impact of the pandemic has been most profound in sub-Saharan Africa, including Zimbabwe (UNAIDS Report, 2012). Sub-Saharan Africa, since 2010, witnessed an unprecedented decrease of over 30% in the number of HIV/AIDS infections. There is a need for increased efforts towards a reduction of new HIV infections among the nations (UNAIDS Report, 2012). HIV and AIDS was initially classified as an epidemic, as a condition affecting human beings, by various research bodies (World Health Organisation Report, 2012). Research on HIV and AIDS over the years has covered a wide range of topical areas, from strictly medical studies to the social, economic, demographic and cultural determinants of the disease (UNAIDS Report, 2014). The effective programming of HIV and AIDS prevention interventions, supported by best practices in the population, has eased in reducing the spread of HIV (UNAIDS Report, 2014). UNAIDS Report (2019) posits that various prevention interventions introduced target behavioural change to reduce the risk of contracting HIV/AIDS.

The primary objective of this study was to evaluate the contribution of the structures, resources, knowledge, awareness, sexual behaviour practices, attitude, perception to condom use to effective implementation of HIV and AIDS intervention programmes. The study further sought to establish whether the students and employees in higher tertiary institutions agreed that these factors contribute to the effective implementation of HIV/AIDS intervention programmes. Structurally, the appropriate effective interventions desired by the young adults must be within the scope of the multi-sector National HIV and AIDS policy framework and the available resources. Currently there is a generic approach to address the HIV and AIDS prevention interventions applied to tackle the spread of HIV and AIDS among the Zimbabwean population (UNAIDS Report 2013). Although some interventions have worked in the general population, these interventions are not appealing to the young adults in universities (NAC Report 2013). This is because the interventions fail to meet the needs of young adults resulting in not associating themselves with such interventions. Further, the youth in universities are very mobile and in need of the current HIV/AIDS information to enable them make informed decisions on HIV/AIDS prevention methods. Access to the information on time is very critical

for them to facilitate decision making with respect to protecting themselves against contracting HIV infection. The young adults in universities are technology orientated, and need quick access to source of information on interventions to make decisions on reducing risks of contracting HIV/AIDS infections. Most students prefer electronic information because of ease and quick access than hard copy materials. The interventions among the general population address problems associated with information from hard copy material making it difficult to access information without a copy. The students in tertiary institutions are equipped with technological expertise and easily access information anywhere, anytime without difficulty. In addition, the generic general population interventions have not been easily accessible and not effective among the students in higher tertiary institutions (NAC Report, 2018). The implementation led to realisation that the provision of generic interventions was not appropriate for some segments especially the mobile population which is always travelling. Furthermore, creating a need to establish HIV and AIDS prevention interventions targeting the unique captive *and mobile*) population in the universities classified under the higher and tertiary institutions sector (NAC Report, 2018).

Governments and stakeholders in Sub-Saharan Africa have been greatly concerned by the adverse impact of HIV and AIDS since the mid-1980s (UNAIDS Report 2011). Since then, the increase in new HIV and AIDS infections have resulted in extremely high costs of HIV and AIDS prevention programs implementation by African governments and development partners. In the last decades, billions of dollars were spent on HIV/AIDS infection preventative programme initiatives (UNAIDS Report, 2014). As a result, over the years, there has been a high-level global concern with the HIV and AIDS epidemic and its adverse effects on health security, economic growth and food security of the countries. Countries in Sub-Saharan Africa, including Zimbabwe, experienced the worst, most adverse effects of HIV/AIDS, severely affecting the standard of living of populations (WHO Report, 2016).

The global effects of the HIV/AIDS epidemic are devastating especially in developing countries and they need addressing with urgency to redress the situation. Zimbabwe is a developing country with inadequate economic and social funding to redress the HIV/AIDS epidemic (NAC Report, 2016). In addition, it has one of the highest HIV prevalence in sub-Saharan Africa at 12.8% in 2019 (UNAIDS Report, 2019). The population in the age group of 15 to 24 years is the most vulnerable to HIV/AIDS with a high HIV/AIDS prevalence rate. The above age group enrolled in the higher and tertiary educational institutions away from their familiar environments in the country (NAC Report, 2019). In addition, the new environment at

the university coupled with a lack of skills in decision making on HIV/AIDS interventions are challenges for young adults to choose on protecting themselves from HIV/AIDS infections. One dimension of necessity is the significance of the youth in tertiary institutions to Zimbabwean society and thus the need to protect these young lives through appropriate interventions, against the danger of HIV/AIDS pandemic given their vulnerability of young people. It is therefore necessary to explore students' understanding of HIV/AIDS. This will enhance their appreciation for the value of intervention measures and hence contribute to effectiveness of intervention programmes administered to them.

1.1 Global picture of HIV/AIDS

HIV and AIDS epidemic remain the most elusive diseases in terms of mitigation challenges, treatment, cure, and devastating complex conditions affecting populations, communities, families, individuals and nations globally. An estimated 20 million people have died since the start of the epidemic and 60 million people infected with HIV in the world (UNAIDS Fact Sheet, 2014). The nature of the spread and exponential growth of the HIV/AIDS epidemic brought the world together to look at possible ways to work together to try and control the outbreak. Through activism and research of HIV prevention programmes, the world witnessed a reduction of the HIV infection rates. Global commitments and clear goals, set by countries through UNAIDS, WHO and other related agencies, paved the way for the global HIV and AIDS response (UNAIDS Report, 2013). The UNAIDS Report (2013) asserts that 35.3 million people were estimated to be living with HIV by the year 2012, meaning that since the start of the epidemic, around 75 million people were infected with HIV. Due to the global fight against HIV, the number of new HIV infections fell by 33% since 2001 worldwide. In addition, new infections among children declined by 52% between 2001 and 2012 (UNAIDS Report, 2013). The infection reduction is due to the implementation of increasingly effective HIV prevention programmes supported by some of the critical programmatic actions for HIV prevention practised in most countries.

The following are some of the HIV and AIDS key prevention programme initiatives in various countries guided by UNAIDS, WHO, CDC and other development partner guidelines and protocols:

- Safe sex to prevent sexual transmission;
- Prevention of mother to child transmission of HIV and AIDS;
- Use of new needles to prevent transmission through injectable drugs;

- Screening of HIV in blood meant for Blood Transfusion Banks to ensure the universal safety of emergency blood supply (UNAIDS Report, 2015).

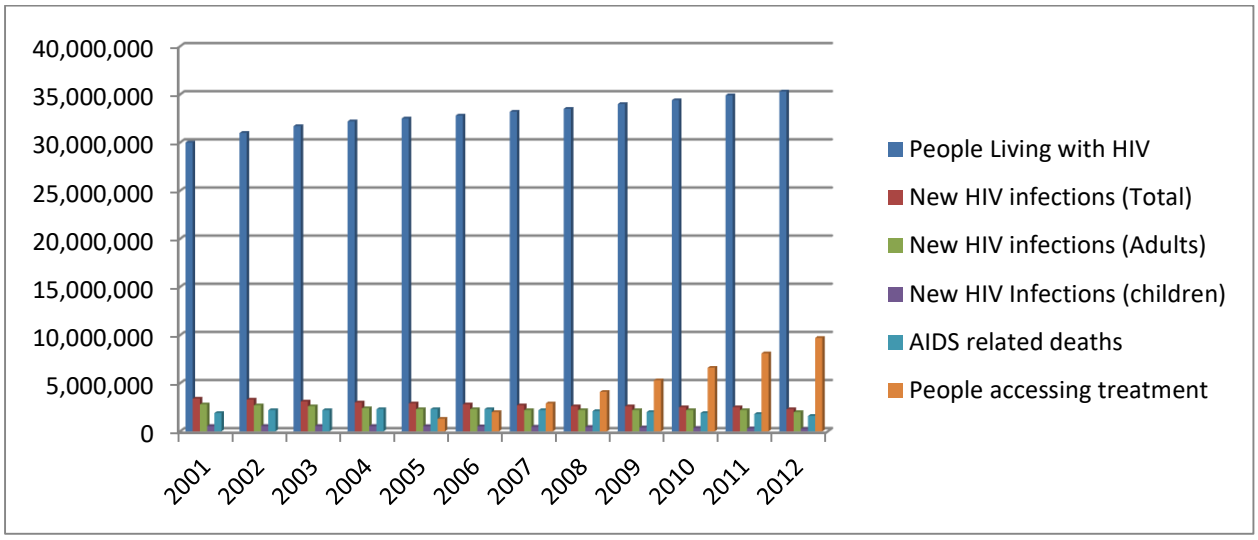
The decline in HIV and AIDS incidence was due to availability of healthcare settings to prevent transmission of HIV, encouraging access to voluntary HIV counselling and testing. The preceding promoted the principle of confidentiality and consent for the clients (WHO Report, 2013). The integration of HIV prevention into AIDS treatment services supported by HIV related information and education help individuals protect themselves from infection. The programmes now focus on the future, which is the young people, to curb the epidemic from spreading. UNAIDS Report (2013), estimated that only fifteen countries worldwide account for 75% of people living with HIV. These HIV positive people are to access HIV treatment services if the programme is to be a success. Most of those affected, 80% are in Sub-Saharan Africa.

The introduction of antiretroviral therapy treatment and other prevention methods have prolonged the life span of HIV positive people and decrease new HIV infections (UNAIDS Report, 2013). Among the estimated 35 million people living with HIV worldwide, 0.8% are adults aged from 18 to49 years. Out of this figure, 3.2 million are children under 15 years; 4 million are young people aged between15 to 24 years, while 29% are adolescents aged between 15 to 19 years (WHO Report, 2013). When classified by gender, women are the most affected, with 16 million women aged 15 years and older reported to be living with HIV. The main factors contributing to high proportions of women living with HIV/AIDS in Sub-Sahara Africa are social, political, economic and technological factors. In addition, sub –Saharan region mainly practices heterosexuality leading to heterosexual transmission of HIV, increases vulnerability and the risk of HIV infection among adolescent girls and young women (UNAIDS Report, 2013).

Unlike other regions of the world, more women are living with HIV than men in Sub-Saharan Africa (UNAIDS Report, 2013). This implies that more women than men are at risk of contracting HIV in this region than in other regions. Furthermore, HIV/AIDS is prevalent among populations in the following categories: sex workers, gay men, transgender populations and drug addicts who inject drugs.

The figure 1.1 summarises global HIV burden, estimated percentage of people living with HIV, new infections, AIDS-related deaths and people accessing treatment by 2013.

Figure 1:1 Global Statistics on the Status of HIV and AIDS Burden (2001-2012)



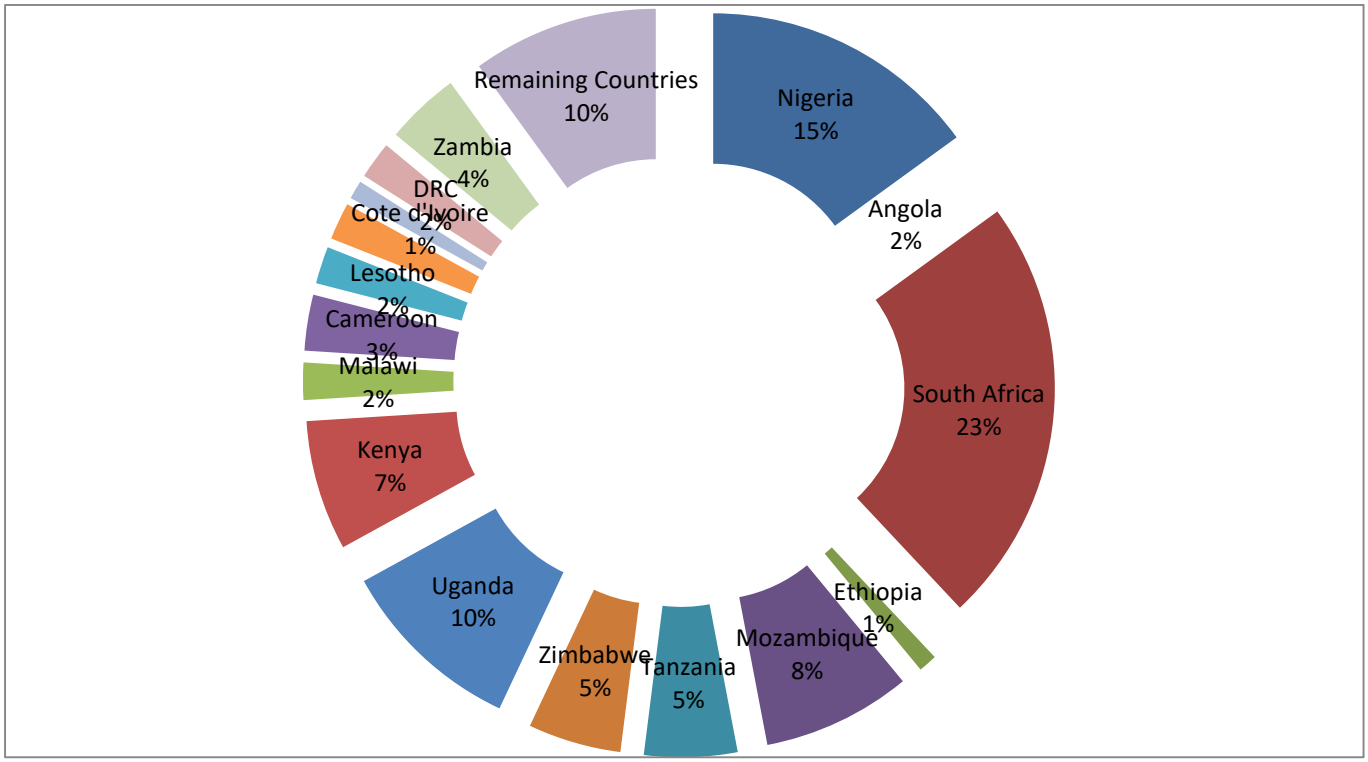
Source: ***UNAIDS Annual Report, 2013***

1.2 Africa: HIV and AIDS context

The Sub-Saharan African region is the most affected by the HIV pandemic, accounting for 24.7 million people living with the virus; thus, one in every twenty adults is living with the illness. While in the Asian and Pacific regions about 4.8 million people are living with HIV translating to the regional prevalence of HIV infection estimated at one seventeenth that of Sub-Saharan Africa, yet the population in the area is higher than that of Sub-Saharan Africa (UNAIDS Annual Report,2013). Differing factors are affecting the regional communities such as political, economic, social and technological status, which affect the spread of HIV in Sub-Saharan Africa. The most vulnerable, at high-risk people to HIV infection need maximum access to prevention and treatment services to reduce the infection. Few people access these services due to different factors affecting the Sub-Saharan region. In some cases, condom access to young adults was very low due to variations in condom availability and differing countries regulations regarding access by young adults (UNAIDS, 2013). *Figure No.1.2*depicts the estimated proportion of new HIV infections by country for fifteen African countries (UNAIDS Report, 2013).

Figure1. 2: New HIV Infection Rate Estimates in sub –Sahara Africa, UNAIDS 2013

The impact of HIV/AIDS in Africa



Source: UNAIDS Annual Report, 2013.

The statistics on the adverse effects of HIV/AIDS worldwide are overwhelming. According to the United Nations Agency for AIDS (UNAIDS, 2001), an estimate of over 40 million people were living with HIV/AIDS in 2001. Since the 1980s nearly 25 million people are reported to have died of AIDS-related illnesses and over 15 million children under the age of 15 years have lost their parents, leaving the children without anyone to guide them (UNAIDS Report, 2001). Every nation in the world is affected by the pandemic; Africa being the most affected by HIV/AIDS with 28 million people living with HIV/AIDS. In particular, Southern Africa has been the most hit characterised by highest HIV adult prevalence in the world (UNAIDS Report, 2014).

World Bank Report, (2002) reports that over two-thirds of the HIV related deaths are from Africa. Almost one in every ten adults in sub- Sahara Africa is HIV positive (UNESCO, 2002). The infection rates are higher in some countries such as South Africa, Botswana, and Swaziland including Zimbabwe, which is at fifth place of the countries with the highest HIV prevalence rate in Saharan Africa (UNDP, 2012).

1.3 Zimbabwe: HIV and AIDS context

Zimbabwe is one of the countries in Sub-Saharan Africa that is most affected by the HIV epidemic and third country most affected by HIV in Southern Africa. However, estimates indicate that from 1998 to 2011 adult HIV prevalence dropped from 27% to 15% (ZDHS, 2010-2011). The drop in HIV infection (prevalence) noted is due to significant changes in sexual behaviour, high rates of condom use and AIDS-related deaths (Halpern *et al.*, 2011). The Zimbabwe population is characterised by heterosexual practices that are drivers of HIV transmission. The UNAIDS Report (2013) posited that heterosexual transmission occurs in regular partnerships, extramarital relationships, sex work, and accounts for the source of new adult HIV infection rates of 56%.

In the Eastern and Southern Africa sub-region, HIV infects more women than men. Zimbabwe's adult HIV prevalence among women aged between 15 to 49 years is 17.7%; while the prevalence among men in the same age group is 12.3%, indicating that HIV prevalence in women is higher than in men. Besides, within the same women's age group of15 to 49, the HIV infection is prevalent for women aged between 35-39 years while for men the 45-49 years 'age group has the highest infection rate. The background factors affecting women are: gender norms inequality and other interrelated factors such low self-risk perception, lack of knowledge of HIV status, economic disadvantages among other significant drivers of HIV risk among young women (UNAIDS Report, 2013). As a nation, Zimbabwe joined its global counterparts to embark on extensive HIV and AIDS prevention programmes at all levels in a bid to create a future 'HIV free generation' (NAC Report 2013).

The evaluation of the HIV and AIDS prevention interventions effectiveness facilitates the establishment of the most appropriate responses relevant to the specific population segments' needs. The level of education has proven to be a critical tool with the potential to achieve an HIV free generation in future. Literate individuals read more information on the subject matter, making more informed sexually related and behavioural decisions (UNAIDS Report, 2013). Furthermore, various stakeholders play a vital role in the fight against HIV/AIDS, and most are interested in HIV/AIDS treatment, prevention and mitigation areas. In Zimbabwe, implementing partners work with a well-established body NAC, in a multi-sectoral framework so that no duplication of resources and activities happens in the population but complement each other.

1.4 The main drivers of the HIVand AIDS epidemic in Zimbabwe

The youth are the backbone of any nation whatever affects the whole nation affects them. The same applies to the specific drivers highlighted in the National Strategic Framework of Zimbabwe. These drivers are multiple concurrent partnerships, adolescent and trans-generational sex, intergeneration sex, alcohol and high-risk sex practices, stigma and discrimination, gender violence and sexual abuse. The tertiary institutions as microcosms of the nation face challenges of limited funding, weak ownership, inadequate and underutilisation of strategic information management in the area of HIV and AIDS. The tertiary sector needs to play an active role in the prevention of new HIV infections. The HIV and AIDS prevention intervention programmes undertaken at all levels of the tertiary sectors to prevent new HIV infections must succeed regardless of the political, economic, social factors operating in the environment (Tea IDS, 2012).

In Zimbabwe, NAC Reports (2020) posited that the main drivers of HIV and AIDS epidemic are frequent change of sexual partners as well as having more than one sexual partner at the same period. This is due to refusal to discard the traditional beliefs of a man having more than one sexual partner. The other important drivers of HIV infection in Zimbabwe are multiple concurrent sexual partnerships especially in unfaithful marriages, which expose sexual partners to very high levels of infection. The risk of passing on HIV to a sexual partner is higher if the HIV positive partner has just been newly infected since the newly infected individual usually has a high viral load. The newly infected persons with concurrent multiple sexual partners, change partners during the period carry a high risk of passing HIV to the other partners. Another factor that fuels HIV infections in long term and marital relationships is the low levels of condom use regardless of whether couples know or do not know their HIV status. Unfaithfulness amongst most couples are reported as high resulting in the high risk of passing HIV (NAC and UNDP Report 2018). Unlike the sex practice in most countries, youth get involved in sexual activities at a young age but the majority of Zimbabwean youth start sexual activities at a later age. The gender factor plays an important role in sexual involvement at a younger age. Young women are exposed to high HIV risk because of sexual relationships with older men. Experienced men have domineering tendencies and are more likely to transmit HIV to the young vulnerable women. A NAC Report (2020), posited that the rise of intergenerational sexual behaviour led to the increase in the spread of HIV among the youth.

HIV/AIDS incidences were high besides the fact that youth in Zimbabwe get involved in sexual activities at a later age, in comparison to other youths in the region.

The HIV infection rate among young women was higher than that of men within the same age group (NAC Report, 2012). This indicated that other factors were contributing to the rise in HIV infection among women. Critically, the cultural, gender and socio-economic imbalances that exist drive the rise in HIV infection (NAC Report, 2012). This is evidenced by the fact that most of the sexually active people do not consider the current and past infection risk of their partner (NAC Report, 2012). Some of the underlying factors that make Zimbabweans vulnerable to HIV infection are due to imbalances in relationships between men and women as well as the stigma associated with HIV (Saywhat.org 2017).

1.5 Challenges faced by the youth in the tertiary institutions

Epstein *et al.*, (2001) posit that regional literature in Sub-Saharan Africa postulates the same issues affecting the tertiary education sector as a whole as the post-secondary level. This is the fact with youth crossing over to the adulthood stage that experience similar challenges.

Some of the challenges faced by youth across the board and characteristics of tertiary life experienced by students at this level are as follows: -

- the youth milestones that occur during the tertiary level are leaving the family home and going away from the watchful eyes of guardians;
- age of majority;
- negotiation of personal relationships, starting to consider a family
- entering the peak years of sexual activity and experimentation

At this level, they enter the phase of life where they are no longer a child but not yet an adult, characterised by less rules, suspension of normal life and peer pressure mounting in the process (Epstein *et al.*, 2001). Tertiary life has its own basic characteristics across the board generally, "Some of the characteristics of young adult students are that there is a mixture of sexual inexperience and sexual immaturity coupled with peer pressure which can mislead the students" (Epstein *et al.*, 2001). Some of the students coming to urban life for the first time need to adjust to the environment. Knowledge on HIV/AIDS information is limited for students from rural backgrounds because their communication media faces challenges of disseminating information and could be outdated (Epstein *et al.*, 2001).

Unlimited freedom in the hostels or houses without supervision but having to make the right decision, alone, is a challenge to the inexperienced students(Cotter,2011), (Kelly *et al.*, 2001).The preceding are some of the challenges faced by students when they reach tertiary education without adding HIV infection to the equation. This generation has grown in the HIV and AIDS era and has lost parents and guardians who are key people that influence their lives (Tel AIDS Inception Document, 2010). Cotter (2011) in a cross-sectional survey study of higher and tertiary institutions on HIV and AIDS did not consider factors such as structures, resources, knowledge, sexual behaviour practises, condom use, attitude and perception contributions to the effectiveness of HIV/AIDS interventions. The study excluded mediating variables and moderating variables that would give a clear picture of the essential variables to monitor and evaluate when implementing HIV and AIDS programmes.

1.6 Goals of HIV and AIDS interventions

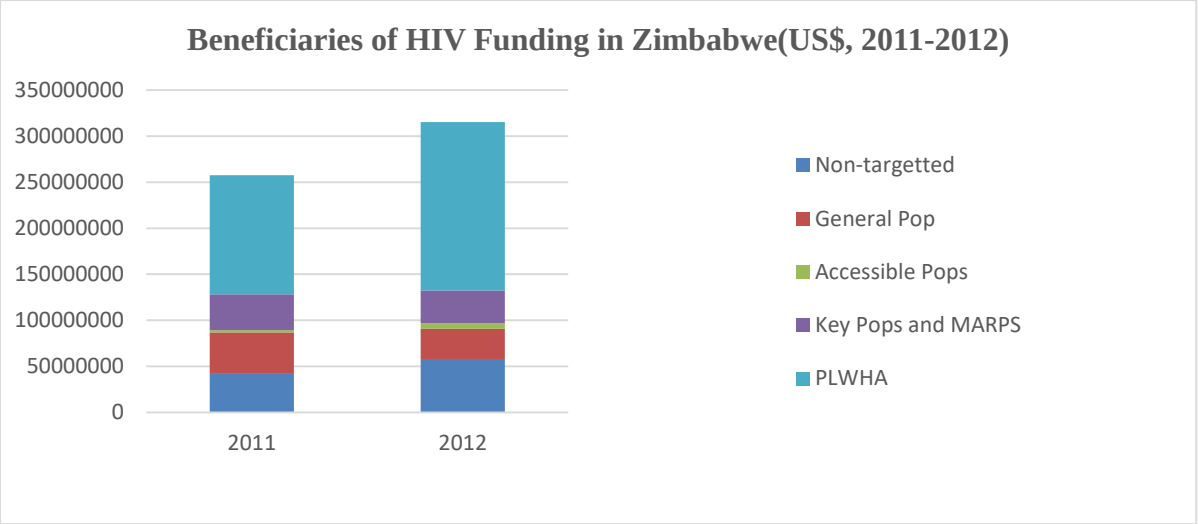
The goal of effective HIV and AIDS interventions is mainly to reduce the risk of contracting HIV and AIDS through behavioural change. Most of the HIV and AIDS interventions focus on delaying the onset of sexual intercourse, reduction of sexual partners and unprotected sex through condom use promotion. In addition, reducing the incidence of drug injecting, sharing needles and avoiding contaminated blood among the population. Reduction in these risky behaviours leads to a reduction in the transmission of HIV infection in a population (WHO, 2016). HIV/AIDS interventions aim at providing counselling, and testing of individuals, couples, groups and holding workshops, seminars that offer information, skills on sex education and condom use. In addition, HIV and AIDS interventions further, aim to change social norms by involving society and peer's leaders as well as the use of social networks in a community to disseminate HIV/AIDS information. In some instances, uses of social marketing communication and mass media campaigns have facilitated the success of HIV and AIDS interventions.

1.7 Implementing partners in scaling up HIV and AIDS treatment and prevention

Zimbabwe National AIDS Council, a government parastatal, coordinates and collaborates with several HIV/AIDS multi-stakeholder interventions and mechanisms in the fight against HIV/AIDS epidemic. The National AIDS Trust Fund is funded by the government of Zimbabwe and development partners. These donors contribute to the Global Fund and Expanded Support Programme, a basket funding mechanism from the donors (NAC Report,

2012). Funding for HIV and AIDS programmes through bilateral, multilateral agreements and international foundations also contributed towards the national HIV/AIDS response (Zimbabwe National AIDS Spending Assessment Report, 2011&2012). Most of the funding is based on the perceived causal relationship between the HIV interventions funded and the targeted populations. Figure 1.3 adopted from the National AIDS Spending Assessment (NASA) Report (2011/12), shows the HIV funding flows to respective groups in the population.

Figure1.3: HIV and AIDS Funding flows to respective beneficiaries in Zimbabwe 2011 - 2012:



Source: NASA Report (NAC 2011 - 2012)

The AIDS Levy taxes from formal employment managed by NAC, proved the most predictable source of funding for HIV/AIDS programs. Due to unprecedented political and economic factors and reduction in formal employment, the funding has been decreasing from year to year. NAC is the sole custodian of the information on HIV and AIDS programmes provided by various development partners and local non- governmental organisations and provides national expenditure financial reports on HIV/AIDS activities. The National AIDS Spending Assessment Report (NASA) prepared for stakeholders and policy makers every year reflects the expenditures. NASA reported the key findings on the total HIV and AIDS spending in Zimbabwe for 2011 and 2012 as $258,425,867 and US$314,770705 respectively (Zimbabwe National AIDS Spending Assessment Report, 2011 & 2012).

The per capita spending based on 2011 and 2012 expenditures in the entire population was $19.34 and $22.94 respectively showing an increase from the previous year.

The increase in per capita income was attributable to the increase in the HIV/AIDS source of funding from external development partners from 66% in 2011 to 70% in 2012an increase of 4%. HIV and AIDS spending activities increase was based on eight thematic areas which were prevention; treatment; orphans and vulnerable children; national systems strengthening and program coordination; human resources; social protection; enabling environment and research (NAC Report, 2012). NASA Report (2012), posited that HIV activities in Zimbabwe were aligned to relevant thematic areas. Treatment and care services consumed the most significant amount of 44% in 2011 and increased by 6% in 2012 to 50%. Treatment and care services included the following: home-based care (HBC), STI treatments as well as ART. Prevention consumed 22% and 21% in 2011 and 2012 of total funding respectively, which included crosscutting programme management and national systems strengthening activities. Lastly, orphans and vulnerable children accounted for the balance each year (NAC Report, 2012). HIV and AIDS prevention interventions play a pivotal role in addressing the reduction of HIV and AIDS among six broad categories of beneficiaries of the services (NASA Report, 2011&2012). The six groups identified are people living with HIV and key populations that are commercial sex workers, people who inject drugs, men who have sex with other men (MSM), and friendly communities refer to secure access to schools, colleges, employees and the general population. Universities reclassified under the general population that do not have specific HIV and AIDS prevention interventions. The universities have a challenge in identifying and implementing of effective desired HIV/AIDS interventions for the target population since they classify under general population interventions. The management of HIVand AIDS intervention programmes is affected by operating factors in the environment mainly structures, resources available, HIV/AIDS knowledge and awareness level, sexual behaviour, perception, attitude, condom use among the population. Any change in the preceding factors affects the success of HIV/AIDS intervention programmes.

1.8 Inadequacies of past HIV/AIDS intervention programmes

Past HIV/AIDS intervention programmes focused on general population based on the assumption that the needs of population and prevailing environmental factors were uniform.
The previous HIV/AIDS interventions were not classified into biomedical and behavioural categories making it difficult to identify the effective interventions in a population. The previous HIV/AIDS programmes were more aligned to biomedical than behavioural making it difficult for the youth in tertiary institutions to accept them. The youth in tertiary institutions needed HIV/AIDS interventions that integrated with their daily activities and change their behaviour. This was not the case with the previous HIV/AIDS interventions which were more aligned to biomedical area (NAC Report, 2012). These same interventions were implemented on the population without consideration of their interventions preferences. This led to low uptake of the provided HIV/AIDS interventions in the population (NAC Report, 2013). The population was classified into groups based on the risks of contracting HIV infection within the group. The riskiest behaviour groups were identified and grouped accordingly leaving out young adults in tertiary institutions under general population. In addition, intervention programmes focused on specific population segments; sex workers, gay group leaving out youth in tertiary institutions classified under general population.

1.9 Statement of the Research Problem

The escalating HIV and AIDS incidence among the populations in higher tertiary institutions and the limited resources allocated to fund prevention intervention activities add to the challenge of effective implementation of the desired HIV/AIDS interventions (NAC Report 2013).The absence of on explicit policy and user-friendly targeted HIV interventions, adversely affect the education sector (UNESCO Report, 2014).One dimension of the necessity is the significance of the youth and employees in higher tertiary institutions contribution to development in Zimbabwean society. There is need to protect these young lives through appropriate, effective interventions, against the adverse effects of the HIV/AIDS pandemic given their vulnerability as young people. A review of HIV/AIDS interventions in Zimbabwe has revealed some glaring gaps in the classification of population groups for specific intervention targeting purposes. Their classification with the general population denies the unique population in higher tertiary institutions access to effective HIV/AIDS interventions (NAC Report, 2013). In response to the noted gaps, this study evaluated the contribution of the

structures, resources, knowledge, awareness, sexual behaviour practices, attitude, perception to condom use to effective implementation of HIV and AIDS intervention programmes.
In addition, the study attempts to establish whether the students and employees in higher tertiary institutions agreed that these factors contribute to the effective implementation of HIV/AIDS intervention programmes.

The HIV and AIDS epidemic is a critical strategic challenge to the role and function of Zimbabwe's education system as a whole, with severe adverse, socio-economic and health consequences for the country. Literature reviewed on Zimbabwe demonstrated that there was no known study which attempted to consider factors contributing to effective implementing of HIV/AIDS interventions in universities. Literature review on HIV/AIDS programmes highlighted the preceding factors as driving forces for the implementation of HIV/AIDS programmes (UNAIDS 'AIDSinfo', 2019. Construction of the problem statement facilitated extracting the preceding variables used in this study. What are unknown therefore are the opinion of students and employees on the contribution of the structures, resources, knowledge, awareness, sexual behaviour practices, attitude, perception to condom use to implementation of HIV/AIDS programmes.

1.10 Research questions

The following main question supported by sub-research questions served as a guide in achieving the stated objectives of the study. Due to the lack of identifiable HIV/AIDS problems in the higher tertiary institutions, answers provided in the survey opened more knowledge, which helped analyse the data using both qualitative and quantitative methods.

Main research question

- Whether implementation of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) interventions in higher tertiary institutions in Zimbabwe is effective in reducing HIV/AIDS infection?

Subsidiary research questions

- Are structures and resources contributing to effective implementation of the desired HIV and AIDS prevention intervention programmes in higher and tertiary institutions?

- Does the level of knowledge and awareness of about HIV and AIDS among the population in higher and tertiary institutions contribute towards the effectiveness of implementing desired HIV/AIDS prevention interventions?
- Do sexual behaviour practices among the students and employees in higher tertiary institutions affect the effective implementation of desired HIV/AIDS interventions?
- Do attitudes and perceptions, condom use among the students and employees in higher tertiary institutions contribute to effective implementation of desired HIV/AIDS interventions
- Which are the most current HIV and AIDS prevention programmes that are desirable to young adults?

The preceding research questions and objectives that follow guided the solution to the problem under study.

1.11 Objectives

Main research objective

- To determine the effectiveness of implementing human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) interventions in higher tertiary institutions in Zimbabwe.

Subsidiary research objectives:

- To explore whether structures and resources contribute to the effective implementation of the desired HIV and AIDS programmes in universities.
- To assess the contribution of the level of knowledge and awareness of HIV and AIDS towards the effectiveness of implementing the desired HIV/AIDS prevention intervention programmes.
- To analyse the contribution of sexual behaviour/practices towards the effectiveness of implementing desired HIV/AIDS prevention interventions.
- To determine the contribution of attitudes and perceptions, condom use towards effectiveness of implementing desired HIV/AIDS prevention interventions
- To identify HIV and AIDS prevention interventions that are desirable to the target population in the universities.

1.12 Scope of the study

The strategic importance of the youth in tertiary institutions makes it necessary to ensure that the implementation of HIV/AIDS prevention interventions is effective. The potential contribution of this generation to the future socio-economic development of Zimbabwe is of major strategic consideration in this regard. It is, therefore, necessary to explore students' understanding of HIV/AIDS pandemic and their appreciation of the value of intervention measures that contribute to effective implementation of preferred intervention programmes. The Zimbabwean tertiary education sector consists of fifteen registered universities, nine polytechnic colleges and twenty private colleges, registered with the Ministry of Higher and Tertiary Education. Random sampling facilitated the selection of five registered universities that agreed to participate in the study. The higher and tertiary institutions, in this study, refer to universities only. The population in these institutions ranges from the age of 18 years and above. The study focused on five registered higher and tertiary institutions with a mean student population of 5 000, with an average gender breakdown of 52% male to 48% female students. Table 1.1 showsinstitutions that accepted to participate in the survey according to their location, type and province. The study covered the academic period from 2014 to 2018.

Table 11: Higher and tertiary institutions that participated in the survey

Name of Institution	Type of Institution	District	Province
National University of Science and Technology	University	Bulawayo	Bulawayo
Great Zimbabwe University	University	Masvingo	Masvingo
Women's University in Africa	University – private	Harare	Harare
Catholic University	University – private	Harare	Harare
Lupane State University	University	Lupane	Matabeleland North

1.13 Significance of the study

The devasting effects of HIV/AIDS among young adults, and the absence of a cure, has led to high HIV/AIDS incidence in the population. In addition, the limitations of previous HIV/AIDS interventions with respect to the youth in higher tertiary institutions contributed to the high HIV/AIDS incidence. The rationale for undertaking this study is that the youths in tertiary institutions play a critical strategic role in the country's development. Hence, it is important to have an understanding of their views on administering effective HIV and AIDS behavioural, biomedical interventions. This study contributes to knowledge by identifying effective desired

HIV/AIDS interventions for the youth in the higher tertiary institutions to address HIV/AIDS incidence among the population.

The importance of the study is on how to reduce HIV/AIDS incidences among students and employees by exploring the effective implementation of HIV/AIDS interventions that meet the needs of the population in higher and tertiary institutions in Zimbabwe. This study is of significance to the following stakeholders: tertiary institutions students and employees, university management, government and the development partners in devising and executing HIV/AIDS prevention efforts. The contexts of higher and tertiary institutions are interpreted as the broad set of physical spaces within which management, students and lecturers interact as adults formally and informally in the community. The national response to fight the HIV and AIDS epidemic is mostly generalised due to poor funding and lack of qualified personnel in the HIV and AIDS field (UNAIDS Report, 2010).

Most of the HIV and AIDS prevention interventions aim at confronting the spectre of the HIV and AIDS pandemic in all social and economic sectors and the entire population. HIV and AIDS incidence is high among the population in universities (NAC Report, 2016). The key attributes and variables that facilitate making choices of the desired effective HIV and AIDS prevention programmes are not identifiable for effective HIV and AIDS prevention interventions in universities.

Generally, HIV and AIDS programmes research in Africa ignored key models and theories that are essential in establishing indicators for planning, implementation, monitoring and evaluation of HIV and AIDS prevention intervention activities (Kelly, 1999). Research on HIV and AIDS interventions neglected to explore how lecturers and students' knowledge, behaviour, attitudes and perceptions on HIV/AIDS affect the crucial role they play respectively in HIV/AIDS prevention and intervention activities. Some of the literature gave the impression that education could solve the problem of an increase in HIV infection rates because of acquired knowledge assumed to influence the attitudes needed to address the threat of HIV. The literature review presented in chapter two, highlights several limitations to this type of research, especially in HIV and AIDS prevention interventions specifically for higher and tertiary institutions.

The current study attempts to address some of the noted limitations of HIV and AIDS prevention interventions by using theoretical and conceptual frameworks as a basis for initial inquiry into factors contributing to the implementation of effective desired HIV and AIDS

interventions that can reduce high infection rates. The use of key theories: Theory of Planned Behaviour (TPB), Theory of Attitude Functions, Health Belief Theory, as concepts of evaluation of health care programmes from an accounting, economic point of view facilitated in identifying effective HIV/AIDS interventions for the target population. The findings from the study facilitate the determination of the actual perspectives regarding the HIV and AIDS epidemic and most effective, desired high impact HIV/AIDS prevention interventions for the students. The study contributes to efforts for meeting the HIV prevention needs of young adults in higher tertiary institutions to minimise the adverse impact (morbidity and mortality) of the HIV and AIDS epidemic; supports informed decision-making and policy to meet HIV prevention needs for the tertiary education sector in Zimbabwe. The findings will be availed to policymakers for informed decisions on formulation of appropriate HIV/AIDS policy for tertiary institutions in the country. The study findings guide higher tertiary institutions, parents/guardians and other key stakeholders in terms of developing HIV/AIDS prevention, care and support services for current and subsequent generations. The study will contribute to supporting academic achievements (through-reduced HIV and AIDS-related morbidity and mortality) of this target population to enable them graduate, contribute to national development, as well as achievement of an HIV/AIDS-Free Generation (UNAIDS Report 2012).

Study Stakeholders:

The study's aim is to generate and contribute evidence on identifying the effective implementation of desired HIV and AIDS prevention interventions that meet the needs of the population under study. In addition, it aimed at efficient utilisation of available limited resources to support the implementation of the effective HIV and AIDS interventions for higher and tertiary institutions in Zimbabwe. The study also contributes to the available literature on HIV and AIDS prevention programmes for young adults, especially those in higher tertiary education sectors. Numerous empirical studies exist on investigating the effective implementing identified HIV and AIDS prevention interventions in general. Few studies exist on HIV/AIDS interventions at higher and tertiary institutions in developing countries, especially in the Southern African Developing Countries (SADC) region. The results from this study also add value to the existing literature specifically from this region and particularly Zimbabwe in formulating HIV/AIDS policies that accommodate key stakeholder-driven

preferences on HIV/AIDS interventions for higher tertiary institutions. The study generates beneficial HIV/AIDS information to several stakeholders as explained below. These include but are not limited to the following: students, universities, donor communities and government structures and organisations.

Tertiary Education Students

The programmes to prevent HIV infections among young people will be more effective if they include youth-friendly prevention approaches that emphasize sexual education, knowledge, attitudes and practices of HIV and access to sexual and reproductive health services. The involvement and participation of higher tertiary institutions young adults in the design, implementation, monitoring and evaluation of HIV prevention policies, services and programmes, enhance their ownership as well as leadership skills. These will equip them to demand youth-friendly health services and programmes of high impact, most appropriate for their needs.

Universities

The universities can develop and implement the most appropriate HIV and AIDS interventions that are effective and yield positive results by reducing HIV and AIDS incidences among their student population. In addition, the study brings more insights on developing a conceptual framework on HIV and AIDS prevention interventions for the universities. The findings help the researchers, academics in designing an appropriate model to use in establishing effect and possible beneficial HIV and AIDS prevention programmes in tertiary institutions and the general population.

Government and key stakeholders

The study highlights the optimal mix of evidence-based interventions targeted at the appropriate community, the young people to minimise new HIV infections and AIDS-related deaths. The country would get the most out of the available funding by providing the optimal mix of evidence-based HIV interventions and prevention programmes.

In short, effectiveness of HIV prevention includes the introduction of interventions when HIV prevalence is low among a targeted specific group. In addition, it involves applying some of the following targeted strategies to reduce HIV incidence rate:

- condom use promotion;
- voluntary testing and counselling;
- peer education;
- screening blood supply;
- Abstinence, be faithful, always use a Condom (ABC).

The various stakeholders also benefit from implementing informed HIV/AIDS prevention strategies that are cost-effective, and when efficiently managed, they produce positive results. Policymakers will make informed policy decisions with a positive strategic outlook, nationally.

1.14 Context of the problem

Zimbabwe attained its independence in 1980 at a time when HIV and AIDS were unknown to the world until 1983 when it was known. HIV and AIDS cases first were recorded in the country by the middle of 1986 at a slow pace. The young nation at the time endeavoured to consolidate the hard-won independence, expanding the nation socially and economically, which (UNDP report, 2010). It was still at its infancy stage in the area of family planning and public health in general. The technology related to HIV knowledge, attitudes and practice, including voluntary testing and counselling, was still very new and limited in scope. There were limited available resources targeted towards improving the health and education sectors for the new growing population at the time.

By the mid-1990s, increasing cases of HIV and AIDS infections among young adults were recorded. The noted key drivers of the increase in rates of HIV infection among the population were reckless cultural, sexual behaviours of the young people and adults, which encouraged multiple concurrent sexual partnerships (NAC Report, 2010). Many young people infected with HIV subsequently died of AIDS. The labour force was most affected, leading to considerable declines in economic productivity, which eventually led to a decline in economic growth due to chronic illnesses.

Zimbabwe has an estimated total population of 12.7 million people and is among the countries in Sub-Saharan Africa most affected by the HIV and AIDS epidemic and in the world ((Draft Census Report, 2012). The estimated HIV prevalence among age groups15 years and above in 2011 was 13.1% according to the National HIV Estimates (2011). An estimated 1,159,097

adults and children were living with HIV and AIDS in 2011.By the end of 2011, an estimated population of 597,293 adults and children were in urgent need of Antiretroviral therapy (Declaration of Commitment on HIV and AIDS 2011).

The government subsequently declared an HIV and AIDS epidemic, a serious socio-economic problem that needed urgent attention. Programmes on HIV prevention, testing and treatment started and were integrated with family planning services by the Ministry of Health and Child Welfare. Zimbabwe joined the rest of the world in the fight against HIV and AIDS at the United Nations General Assembly (UNGASS) in 2001.A Declaration of Commitment on HIV and AIDS at the twenty-sixth United Nations General Assembly Special Session on HIV and AIDS (UNGASS) was adopted by 189 member states, including Zimbabwe in 2001. Despite implementing several aggressive HIV and AIDS intervention prevention programmes in the country, nothing was targeting the higher tertiary institutions. No study previously exists to set a base to establish the appropriate effective HIV and AIDS prevention interventions that meet the needs of the population in higher and tertiary institutions. This study aims to operationalize the effective and relevant desired HIV/AIDS prevention interventions for higher and tertiary institutions target populations going forward.

1.15 Assumptions

The study had the following assumptions: The students and employees in the higher and tertiary institutions are aware of the structures, resources, and policies in place, the students have knowledge and awareness of HIV/AIDS prevention intervention programmes that can contribute to effective implementation of intervention measures. There are no targeted HIV and AIDS prevention campaigns for students with an impact on the decision of effective implementation of desired HIV/AIDS prevention interventions in institutions. The identified desired HIV/AIDS interventions lead to reduction in student morbidity, mortality that will facilitate their graduation and subsequent contributions to the economic development of Zimbabwe. The mixed-methods used for the study facilitated more in depth quantitative and qualitative information on HIV and AIDS interventions desired by the young adults in higher and tertiary institutions in Zimbabwe. HIV and AIDS area uses specific terms that are not commonly found in other areas of study. These terms are explained in the following paragraph.

1.16 Definition of terms

The following are terminologies in this study:

Abstinence refers to a healthy, ethical, moral or legal choice to refrain from sexual intercourse, which includes oral, vaginal, or anal sex (Rossi, 2009). In this case, abstinence refers to a healthy choice to refrain from all sexual intercourse activities by individuals as a way of protection from HIV infection.

Acquired Immunodeficiency Syndrome (AIDS) refers to the progressive failure of the immune system that causes the infected person to die from either malignancies or opportunistic infections (CDC, 2020). Once HIV infects a person, it goes through stages of early infection symptoms to living in the body, gradually if not interrupted matures by weakening the human immune systems and an individual gets various infections leading to a stage called AIDS eventually to death.

Age-disparate refers to the sexual partner's age difference in a relationship. This covered age and relationships as essential variables in HIV/AIDS. The variable is associated with the spread of HIV in the population. In addition, age-diverse relationships refer to relationship links with the age gap between sexual partners is five years or more.

Antiretroviral therapy is the treatment or viral suppression of HIV with a combination of drugs in an infected individual. A human being responds to a stimulus by nature. An individual infected with HIV can get special treatment known as therapy or medication, which reverses the behaviour of the virus.

Attitudes is a belief in an act and reacting consistently to a stimulus, whether favourable or unfavourable (Altman, 2008). In the context of HIV/AIDS attitude is an act that facilitates intention to behave in a particular way to make a decision on perceived risk and choice of the effective HIV/AIDS interventions.

Awareness and Knowledge of HIV/AIDS refers to the consciousness and understanding of HIV/AIDS existence in the population and work together to contribute towards understanding and being aware of HIV/AIDS impact on the community (NAC Report, 2014).

Behaviour change communication refers to communication messages that affect the behaviour of an individual. In the HIV/AIDS context, it refers to the promotion of tailored messages, personal risks assessment, increased dialogue, and a sense of ownership and message interactive processes that influence the behaviour of individuals positively (CDC, 2019).

Concurrent sexual partnership refers to an individual with at least two partners or more within six months. The individual uses a condom to prevent the transmission of HIV infection (WHO, 2016).

Condom is a device that provides dual protection against pregnancy and sexually transmitted diseases, including reducing the transmission of HIV (WHO, 2016). Using a condom also prevents the transmission of HIV transmission.

Counselling is an interpersonal dynamic communication process between a client and a trained counsellor. This involves trust between two parties, the client and the trained counsellor so that the client can state their problems without fear (CDC, 2020).

Effectiveness refers to the performance of activities that cause a change in a positive way. In the case of HIV/AIDS programmes, it relates to the intervening activities that create a positive difference in the HIV/AIDS incidence in a population (CDC, 2014).

Effectiveness analysis in the context of HIV/AIDS refers to pointing the interventions that offer positive results, the best value for money and priority setting for the HIV/AIDS interventions. In this study, effectiveness refers to the benefits derived from using the preferred HIV interventions at the expense of the other interventions contributing to the prevention of HIV/AIDS (WHO Report, 2016).

Epidemic refers to an unusual increase in the number of new cases of a disease in the population (CDC, 2019).

High-Risk Behaviour is the way an individual acts or conducts oneself without regard to risks involved in the course of actions. In the case of HIV/AIDS, it refers to sexual behaviours that increase the risk of infecting other individuals with HIV in the course of daily life (CDC, 2020).

HIV and AIDS interventions refer to the activities that are designed and implemented to halt the transmission of HIV among the population and the stopping of the virus from developing into AIDS another stage through opportunistic infections. The interventions serve the purpose of protecting the human body from getting HIV and delaying an illness from weakening the human immune system, hence getting infections that lead to deterioration of the human immune system leading to AIDS (UNAIDS Report, 2018).

Human Immunodeficiency Virus (HIV) is a virus that attacks cells, which help the body fight infection, weakening the body and making a person more vulnerable to other infections and diseases. Contracted through contact with body fluids of a person infected with HIV during unprotected sex without a condom or HIV medicine to prevent or treat HIV, or by sharing

injection drug equipment. The human body cannot get rid of HIV and there is no effective HIV cure. Once in the body HIV stays for life. If not treated HIV lead to the disease AIDS (CDC-HIV Basics, 2021).

Incidence is the number of new cases of the disease, while the incidence rate refers to the number of new cases of a disease that occur during a specific period (CDC, 2012).

Intention in HIV/AIDS area refers to the personal drive to perform specific conduct or act motivated by attitude, perception of an individual. In the case of this study it refers to intention to behave in a particular way so as to avoid been infected with HIV. (Janzen, 2011).

Interventions are a systematic set of activities that are being intended to halt the transmission of HIV among the population (Janzen, 2011).

Knowledge, education or experience refers to the ability to have information, understand it with a clear perception of HIV/AIDS (CDC, 2012).

Resources/Inputs are the financial, human, HIV/AIDS prevention intervention programmes, materials and equipment that facilitate the implementation of the activities to reduce the HIV/AIDS incidence (CDC, 2018).

Sexual Behaviour refers to an act by an individual, which is sexual in nature with an increased risk of acquiring HIV through unsafe sexual encounters (CDC, 2020).

Risky Sexual behaviour: Sexual acts associated with a high probability of contracting a disease, such as HIV/AIDS (CDC, 2020).

Socio-demographic variables: this is a term that refers to the elements that identify the population characteristics in general. The socio-demographic for this study is a profile of the student's status, age, gender, ethnicity, marital status and education level attainment (CDC, 2010).

Structures in relation to HIV/AIDS prevention intervention refer to the supporting systems, policies, frameworks and organisations in place that supports activities to reduce HIV/AIDS incidence in the population.

Subjective norm refers to a personal standard variable of the theory of planned behaviour, that relates to perceived social pressure to engage or not engage in behaviour (Janzen, 2011).

Perceived behavioural control: - Refers to an individual's understanding of his or her competence to perform a particular action (Janzen, 2011).

1.17 Organisation of the Thesis

The organisation of the study is as follows:

Chapter 1: Background to the study: The chapter addresses the background to the research problem, statement of the research problem, research objectives, research questions, scope of the study, significance of the study to the various stakeholders and the key assumptions on which the study is based.

Chapter 2: Literature Review: This chapter first defines the terms and concepts that are relevant to the study. Next, the chapter presents empirical studies on various HIV and AIDS prevention interventions programmes, focussing on young adults and their findings. Various literature on HIV and AIDS prevention interventions emphasized the importance of tailor-made prevention interventions for young adults, which proved to be successful. The chapter also highlights the apparent gaps from the literature that need further addressing in relation to the present study.

Chapter 3: Theoretical and Conceptual Framework: This chapter presents the relevant theories on HIV and AIDS prevention interventions. The conceptual framework for the study articulates the variables and their relationships. The presentation of the hypotheses tested derived from the conceptual framework are also presented.

Chapter 4: Research Methodology: This chapter details and justifies the methods used in collecting, and analysing the data. It begins by describing the research, process and philosophy that guided the methodology. Then the research design and target population, followed by a description of the methods used to collect and analyse the findings are presented.

Chapter 5: Data Presentation and Analysis: The chapter covers the presentation and analysis of data aligned to the research questions. This involves the grouping of data using the bracketing methodological device of phenomenon inquiry. The quantitative section used statistical tools to ensure that relationships among variables clearly explained, in line with the study objectives. Regression analysis established various relationships among variables to the interventions. In quantitative data analysis, SPSS 21 software facilitated statistical results.

Qualitative and quantitative data was analysed to establish the relationships among variables, significance levels and gaps. The qualitative data from informal interviews, focus group discussions and document reviews facilitated the analysis.

This chapter considers the findings and their interpretation guided by the respective research objectives, supported by relevant questionnaire responses and the research findings. The study also identified the contribution to knowledge and subject matter gaps that need to be addressed further. The chapter also revisited the literature review to analyse cases similar to the study, establishes the limitations from previous studies, and compares them to the results of the current study, to establish trends or differences thereof.

Chapter 6: Conclusion and Recommendations: Finally, chapter 6 presents the summary of the study findings, the conclusion on the findings guided by research objectives and gaps in the study with recommendations. This chapter elaborates on recommendations, how they relate to the findings from the study population and the various stakeholders involved in the study. Areas for further research articulating the need to investigate more on areas not covered by this study are also included.

1.18 Summary of the chapter

Chapter 1 addresses the problem faced by higher and tertiary institutions concerning HIV and AIDS infections rates and applicable prevention intervention programmes for the target population. The discussions on the context of the problem, research questions and objectives, scope and significance of the study, assumptions, limitations and organisation of the study are covered. The next chapter guided by the research objectives to explore the literature on HIV and AIDS prevention interventions.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Chapter two presents an overview of the literature and explores the view of diverse scholars that have researched the phenomenon of HIV/AIDS prevention interventions applicable to young adults in higher and tertiary institutions. The purpose of the literature review is to enable the researcher to establish how other researchers have examined a similar phenomenon and ascertain what is already known (Easterby-Smith et. al; 2015). This chapter exposes any knowledge gaps in the implementation of HIV/AIDS interventions in higher tertiary institutions. The chapter commences with a review of empirical evidence of factors structure, resources, knowledge awareness, sexual behaviour practices, attitudes, and perception of condom use that support the implementation of HIV/AIDS interventions. A desk literature review was carried out through peer-reviewed journal articles, textbooks, reports on HIV/AIDS and published theses on the phenomenon. Higher and tertiary institutions or universities are characterised by a population of young, inexperienced individuals who are more adventurous in life with risky sexual behaviour prone to HIV/AIDS infection (UNAIDS Report, 2012).

2.1 Structures and inputs in HIV and AIDS interventions

The structured HIV and AIDS programmes and policies are elements that facilitate operationalization for structures and inputs in the implementation of effective HIV/AIDS prevention interventions in a population (CDC 2018). In a report by Centre for Diseases Control (CDC) 2017, a framework Sero-status Approach to Fighting Epidemic (SAFE) facilitates the formulation of guidelines on HIV and AIDS interventions. SAFE is a basic, tested framework based on the general population assumptions for the implementation of HIV/AIDS intervention programmes (UNAIDS Report, 2018). In addition, SAFE classifies HIV/AIDS interventions into behavioural, biomedical, and structural without considering the driving forces behind each intervention, an area this study considers. The framework is relevant to this study by grouping HIV/AIDS interventions into characteristics categories, useful for this study. SAFE lacks foresight of factors facilitating the implementation of HIV/AIDS, the grouping of the population to specific group's characteristics. Further, SAFE does not apply behavioural theories in the interventions.

2.1.1 The structured HIV and AIDS prevention programmes

The Zimbabwe National HIV and AIDS Strategic Plan 2015-2020 (ZNASP) is based on the principles of the international development partner's framework guiding all stakeholders engaged in HIV/AIDS prevention interventions (Zimbabwe Policy on HIV and AIDS 2018). Zimbabwe was the first country in the region to establish a national Fund for HIV and AIDS catering to the fight against HIV and AIDS in developing countries. National AIDS Council (NAC) a government organisation, manages the funds providing the government with the latest information on current global developments in HIV and AIDS. The Southern African Development Community countries, including Zimbabwe, designed HIV/AIDS policies based on the SAFE framework to fight against HIV/AIDS incidence among the general population (UNAIDS Report, 2018). In both the SAFE framework and Zimbabwe strategic plan classification of the HIV/AIDS interventions was based on the general population and special group assumptions. ZNASP differed in operations of the HIV/AIDS interventions by establishing a trust fund to support the implementation of HIV/AIDS interventions. The classification of structures and inputs fail to consider the mediating and moderating variables for effective implementation of HIV/AIDS interventions, a gap this study considers.

2.1.2 HIV and AIDS policy development

Mitigation structures; the Constitution of the Republic of Zimbabwe, the National Policy on HIV and AIDS, the Labour Act, Southern Africa Development Community (SADC) Protocol guide HIV and AIDS policies exist, addressing the HIV/AIDS epidemic havoc on the economy (NAC, 2018). An HIV /AIDS policy defines an organisation's position on HIV /AIDS interventions, presents the organisation's response to the legal framework and ensures fairness (NAC, 2015). In addition, HIV/AIDS policies and programmes consider the HIV/AIDS impact on women and girl-child lives (UNAIDS Report 2018). The fundamental principles of consultation and inclusivity encourage full participation-ownership by all stakeholders supporting the effective implementation of HIV/AIDS programmes. UNAIDS Report (2018) cited that South Africa, Zambia, Kenya, Malawi and Zimbabwe sponsor the majority of the HIV response domestically. NAC Report (2015), concur with UNAIDS (2018) on the acceptability of the preferred HIV/AIDS interventions, reduction in HIV/AIDS incidence, efficient utilisation of funds indicating full participation-ownership of stakeholders (NAC Report, 2015).

In a report by UNAIDS (2015), the classification of the various HIV/AIDS interventions assists to align with the factors that exacerbate HIV/AIDS in the population. HIV and AIDS interventions are formulated based on the characteristics and variables; socio-economic, demographic elements, behavioural factors, HIV/AIDS knowledge, risk and communication for a population (UNAIDS Report 2015). The findings from the report were more focused on the formulation of HIV/AIDS interventions for the general population and not classified into a particular group. The report identified three key areas to classify HIV/AIDS interventions namely: structural, biomedical, and behavioural. The report lacked an explanation of the variables involved in the classified HIV/AIDS interventions. An area this study considered to extract factors contributing to the effective implementation of HIV/AIDS interventions. NAC (2015) concentrated on biomedical variables; voluntary counselling, testing, Anti- Retroviral Therapy (ART) and the use of condoms contributing to the HIV and AIDS interventions (NAC Report, 2015). The NAC report considered only biomedical interventions yet HIV/AIDS interventions operate in a group of all HIV/AIDS interventions categories because their variables are interrelated. The findings from reports relate to this current study in addressing HIV/AIDS interventions in part. They focused more on the general population, not students in higher tertiary institutions. They failed to differentiate the intervening variable from mediating and moderating variables of structures and resources, a gap addressed in this current study. The predominant literature on HIV/AIDS structures, and resources is from reports with few published academic papers in this area.

2.1.3 Ministry of Higher and Tertiary Education HIV and AIDS policy

The backbones for the formulation of the Ministry of Higher Tertiary Education (MOHTE) policy are the National HIV/AIDS policy and strategic plan. Briefly, the policy articulates components to include in HIV/AIDS programmes for professional training, where sport and recreation are included as part of HIV/AIDS awareness programmes. The ministry of higher and tertiary education implemented designed HIV/AIDS prevention programmes based on the general population's perceptions.

The HIV/AIDS policy formulation lacks inputs from higher and tertiary education students and is incompatible with the uniquely specific students' needs, an area this study addresses on effective desired HIV/AIDS interventions. CDC (2016), the success of HIV interventions depends on the established structures in operation that attempt to meet the service needs of the various stakeholders. Public funding of HIV/AIDS entails mobilized efforts of national and international governing bodies, supported by the assistance of local stakeholders to achieve the national goals of reducing HIV/AIDS incidence in the population (CDC, 2015). In addition, HIV/AIDS policy formulation lacks any reference to an established framework to support its operations. In terms of HIV/AIDS policy formulation, a mismatch was identified between HIV/AIDS policy required by students, and employees and the policy provided university. The current study sought to come up with a model that would explicitly spell out the requirements of students, and employees for effective implementation of HIV/AIDS programmes.

The Hargraves *et al.,* (2006), survey of the economic structures and HIV among women noted commercial structures create a risk environment for HIV through women's financial dependence on men. Strathdee *et al.* (2015), survey of the structures in risk environments and HIV infection noted that the structures in risk environments affect the spread of risks and HIV infection among the general population. This survey of the general population failed to highlight the relation of structures and the environment to reduce the risk of HIV/AIDS infection. Moreover, the needs of all groups in the population were assumed to be uniform and the environmental structures, and resources were suitable for all groups; conceivably misleading identification of the structures and resources contributed to the effective implementation of HIV/AIDS interventions in different groups. Strathdee (2015) concurs with the findings by Hargraves (2006) addressing environmental risks, structures and resources supporting HIV/AIDS interventions. In contrast, Hargraves addressed women's groups in the population as opposed to the general population. The above studies are relevant to this study in addressing structures, and resources supporting HIV/AIDS intervention. In addition, a gap was noted in disregarding the mediating, moderating variables that facilitate structures, resources to effectively implement the desired HIV/AIDS interventions were neglected.

Gupta *et al.,* (2014), and Strathdee *et al.,* (2015) in surveys indicate that structures such as government policies, donor frameworks and resources consisting of HIV/AIDS education

programmes, communication modes, and funds influence the effective implementation of HIV/AIDS interventions. both studies' results agree structures and resources influence the implementation of HIV/AIDS interventions. Gupta's study on students in the universities is relevant to this current study; Strathdee studied the general population. Both studies neglected the characteristics of structures, and resources that have an impact on choices of the HIV/AIDS interventions. Gupta *et al.,* (2014) in a mixed-methods study of HIV and AIDS among college students posited that HIV/AIDS policies facilitate structures of government, and donor communities to support the effective implementation of HIV/AIDS programmes. These structures government, donor communities, changes in social, economic, political and environmental factors delineate HIV risk and vulnerability in specific settings (Gupta *et al.,* (2014). Gupta's study is more relevant to the current study in addressing structures. Hallman (2006), posited that educational policies to retain children in school for a long-time lower HIV infection risks. Gupta's findings on the impact of policies support Hallman's (2006) findings concerned with risky environment and HIV. These studies neglect to address the strength of a moderating variable communication and mediating variables supporting structures, and resources in implementing effective HIV/AIDS prevention interventions. This is an area addressed in the current study. Prata *et al.* (2014), in a cross-sectional mixed methods study, concluded the educational institutions' setups contributed to understanding the use of effective HIV/AIDS interventions due to a higher level of education. Prata studies are more appropriate to this study in addressing a specific group of students, the main focus of this current study. Prata *et al. (2014)* concurred with Strathdee *et al.,* (2015) in addressing structures and resources supporting the effective implementation of HIV/AIDS interventions.

The inadvertent exclusion of students and employees in higher tertiary institutions as a specific group led to ignoring structures and resources appropriate for their unique environment to meet their needs an area this current study is covering. These studies did not assess the suitability and availability of the structures and resources plus excluding identification of the mediating variables and moderating variable communication contribution to implementing HIV/AIDS interventions.

2.2 Knowledge and awareness of HIV and AIDS

Knowledge and awareness of HIV/AIDS are factors that support behavioural interventions, and contribute to effective HIV/AIDS interventions. Further education of HIV/AIDS characteristics, its life cycle, its existence, transmission, counselling and testing, effects, facilitates knowledge, awareness contributes towards effective implementation of HIV/AIDS interventions. The HIV intervening variables, knowledge and awareness are moderated by communication to effect selection of the desired HIV/AIDS prevention interventions (Fisher *et al.*, 1991). The characteristics of HIV/AIDS by Fisher did not provide elements facilitating knowledge, and awareness of HIV/AIDS contribute to effective HIV/AIDS interventions, hence this gap needed to be addressed. The study is relevant to the current study in addressing knowledge, and awareness of HIV/AIDS. CDC, (2010) knowledge involves the acquisition and assimilation of useful facts on a particular issue in different forms. The experience in HIV/AIDS comprises identifying the virus characteristics, its transmission, the illness incubation stages, infection prevention, treatment and sexual behavioural activities, attitudes and perceptions, condom use on HIV/AIDS (WHO Report, 2020). UNAIDS Report (2019), the youngest adults lack knowledge of the modes of HIV transmission and were ill-informed of protective methods against the risk of HIV infection. The reports failed to highlight the cause among young adults of ignorance of modes of transmission and mediating variables involved with knowledge of HIV/AIDS, a gap the current study considered.

Asaduzzaman *et al.*, (2016) in a mixed-methods survey of women on the level of HIV/AIDS knowledge and awareness in Bangladesh, noted the level of HIV/AIDS knowledge contributed to the prevalence of the HIV epidemic. The educational status, and mass media access was significant on perceptions, negatively affecting awareness of HIV/AIDS, leading to low adequacy of HIV/AIDS knowledge among women. Perception drives attitude leading to behaviour change, eventually seeking more knowledge about a particular situation in line with the theory of behaviour. This study was relevant to this current research in addressing knowledge and awareness, perception, HIV incidence, neglected attitude, mediating variable information on HIV/AIDS, and moderating variable communication creating a gap that the current study considered.

Azagoh-Kouadio *et al.*, (2020) a study of HIV-positive adolescents posited that the level of knowledge, attitude, and practice regarding HIV transmission was insufficient. The study failed to highlight the elements engendered by low knowledge, attitude, and practices leading to HIV transmission among the respondents. The mediating variables addressing the improvement of

knowledge and awareness of HIV/AIDS, perception were ignored creating a gap this current study considered.

TeijaKorhonen *et al.*, (2012) in a quantitative study of university students' knowledge and attitudes towards HIV/AIDS posited that students were familiar with HIV / AIDS transmission but had some misconceptions concerning HIV /AIDS in general. The study relevant to the current study failed to articulate the misconceptions on: HIV /AIDS, elements supporting the knowledge of the students, an area addressed in the current study. The omission of the mediating and moderating variables misdirects the identification of the elements related to changes in levels of knowledge and awareness. The study discounted the dynamics of knowledge and awareness mediating, moderating variables that facilitate the understanding of HIV / AIDS among the population. Azagoh-Kouadio (2020), studied populations with basic knowledge of HIV/AIDS, yet they exhibited a low level of understanding of HIV/AIDS transmission, making the study incompatible with the current study population. Teija-Korhonen, study population are students in university who have similar characteristics and making the study relevant for the current study.

AVERT (2018), studies on knowledge of HIV/AIDS addressed transmission modes, testing, exposure and risky behaviours that lead to contracting the virus. The sexual health services provided the necessary information on HIV/AIDS, resulting in a higher percentage of general knowledge on the nature of HIV/AIDS. In HIV/AIDS area, knowledge work together with awareness to have impact on reducing HIV incidence.

Further, awareness of HIV/AIDS included prevention methods, treatment, care, and counselling empowerment of the affected and infected individuals (NAC Reports, 2020). Despite a high level of HIV knowledge in many parts of Zimbabwe, a cross-sectional mixed-methods study on behaviours among the people indicated no meaningful change in HIV incidence (Campbell, & Gregson, 2010). This study did not consider the mediating, moderating variables to establish the knowledge level trends, educational level and environment wherein the respondents reside.

The exclusion of mediating and moderating variables for intervening variables' knowledge and awareness leads to ignorance of the items facilitating their improvement and sustainability. A mixed-methods cross-sectional study of adolescent pupils in Ghana noted that knowledge and awareness about HIV/AIDS were crucial in preventing the spread of the virus amid high sexual activity, the imminence of contracting the disease among the study group (Oppugn Asante *et al.*, 2013).

Bandawe and Foster (1996), studies on HIV/AIDS in third world countries, indicated that HIV/AIDS incidence was highest among females aged between 15 to 19 years there. Additionally, among the public AIDS means the same as HIV and AIDS in most African communities. The key to a high level of HIV/AIDS awareness in a population depends on knowledge of the terms applied to interpret the definition of HIV/AIDS. Baume and Jabari (2013), in their survey, noted that necessary information on the nature of HIV/AIDS was supported by numerous HIV/AIDS educational campaigns and advertisements in mass media. This indicated that 73.3% of the respondents correctly stated the meaning of the acronym HIV. The preceding findings concur with Bandawe *et al.*, (1996) that grey areas exist in differentiating HIV from AIDS. Furthermore, low knowledge and awareness of HIV/AIDS led to a nebulous understanding of modes of transmission, exposure and risky behaviours leading to contracting HIV.

The preceding studies failed to identify the mediating and moderating variables facilitating change in the level of knowledge and awareness among the population, considering knowledge as directly influencing acceptance of HIV/AIDS programs. The mediating variables' attitudes, and the perception that influence intention to acquire more knowledge on HIV/AIDS were ignored leading to naïveté on the subject.

Oppong *et al.*, (2013) in a survey of university students in Ghana posited that students showed a high level of HIV/AIDS knowledge and awareness with an inconsistent level of knowledge among the students. The students identified transmission modes and preventative measures but were misinformed about the causative agent of AIDS, an area this current study addresses. The study did not critically consider the relations of mediating variables and moderating variables facilitating knowledge and awareness to understand, and contribute to the effective

implementation of HIV/AIDS intervention programmes, creating a gap to be considered in the current study.

Zimbabwe Demographic and Health Survey (2015) reported that knowledge about HIV/AIDS was generally widespread and relatively high among the population. The perception of prevention of HIV transmission among the population using a condom differed between males and females. Misconceptions about HIV transmission exist in the population (AVERT, 2013).

A cross-sectional mixed-methods study on knowledge and awareness of students in Ghana indicated the existence of expertise for HIV as a virus that replicates and lives for years in the human body with scores: female (96.7%) male (76.7%) respectively. It failed to establish the variables separating HIV/AIDS knowledge and awareness programmes among the population (Oppong *et al.*, 2013). The gap in HIV/AIDS knowledge and awareness needs addressing, an area this current study considers.

Oguogho Cletus (2014) used the WHO- HIV Knowledge Questionnaire, in a descriptive mixed-methods study on knowledge and perception by first-year university students establishing a correlation between gender and correct answers. A significant association was found ($p=0.043$) between participants' age and knowledge about HIV, indicating that as age increased, knowledge also increased. The study ignored gender and marital status with knowledge and perception, attitude, and intention, establishing the segment that needed educational assistance.

Lena Faust et.al (2018)'s systematic review study assessing the effect of HIV educational intervention on HIV related knowledge, condom use and HIV incidence in sub-Saharan Africa posited that interventions were effective at improving HIV related knowledge. Peer education-based interventions effectively facilitated the uptake of HIV related knowledge and increased participation in preventive measures. The study discounted knowledge, awareness mediating variables and moderating variables that facilitate uptake of interventions.

UNAIDS Report, (2015) indicated Mozambique misunderstood the transmission of HIV only through sexual activities among the population. This led to the stigmatisation of the

individuals' deterring them from undertaking HIV counselling and testing (VCT). Epstein et al, (2001) noted that students from rural backgrounds coming to urban life for the first time had limited knowledge of HIV/AIDS information because their communication media faced challenges in disseminating information and perhaps outdated.

2.2.1 Transmission of HIV/AIDS

Haroun *et al.*, (2016) in a cross-sectional survey of students at a university in the United Emirates, noted that students had knowledge and awareness of HIV and AIDS. The findings indicated students had knowledge of HIV infection, transmission modes and prevention interventions available. The students had misconceptions on transmission modes; use of a public toilets and mosquito bites. Results on getting infected with HIV through use of public toilet, 31.9% of females and 18% of males supported the notion, (a p-value of $p<0.00$), indicating higher misconceptions among females than males. Similar levels of knowledge about the methods of transmission of HIV/AIDS between male and female students showed a proportion of males believing mosquito bites were a mode of HIV transmission with a value of $p=0.008$. In contrast, females thought that HIV could be transmitted by using public toilets, scoring a $p<0.001$ value. There were no significant differences in responses between single and married students on the methods of transmission of HIV, except married respondents being more likely than individual students to incorrectly consider that touching an HIV positive person leads to infection (13% vs. 9%; $p = 0.032$). Female knowledge levels scored on average higher percentages compared to males in the study. The study excluded analysing the factors: mode of transmission with the age group of the population, level of education, economic, social, technologies affecting the population's decision-making process. Furthermore, the transmission was not classified as mediating or moderating variable making it difficult to associate its impact on knowledge. The study ignored the social norms, attitudes and perceived behaviour regarding HIV/AIDS knowledge acquired (Haroun *et al.*, 2016).

Reddy *et al.*, (2010) in a mixed methodology cross-sectional study on knowledge and awareness of HIV/AIDS in South Africa's higher and tertiary institutions, found that young adults knew condom use prevented transmission of HIV infection. Mbelle *et al.*'s, (2014) cross-sectional study of the population in South African Higher Tertiary Institutions established a high knowledge level of HIV transmission. Accessibility to HIV prevention and treatment at most institutions in South Africa was evidenced (Mbelle *et al.*, 2014). Simultaneously, students

demonstrated a profound knowledge of medicines reducing the risk of HIV infection. The prevalent initiatives to improve expertise about HIV and AIDS concentrate on providing information on modes of transmission, preventive methods and proven behaviours to reduce susceptibility among the population (Mbelle *et al.*, 2014).

UNAIDS launched programmes, that integrate with current interventions on knowledge and awareness such as becoming a responsible teen (BART) (CDC, 2011), knowing your epidemic; know your response (Wilson and Halpern, 2008) in the fight against HIV/AIDS. These programmes were aligned with HIV/AIDS prevention interventions desired by young adults, but not the environmental needs of students in higher tertiary institutions. The study failed to highlight the driving forces behind the success of the HIV/AIDS intervention, an area this current study addressed.

These studies' notable gaps were: understanding the relationships of mediating, moderating variables involved in HIV/AIDS knowledge and awareness. Knowledge of HIV/AIDS is foundational in addressing ways to reduce HIV incidences within a population. Knowledge, awareness influences sexual behaviours, exploring attitudes, perception towards condom use and prevention interventions in use among the population (NAC Report, 2015. NAC (2015) findings on HIV/AIDS knowledge and awareness show that these levels influence the effective implementation of HIV/AIDS programmes. Identifying the mediating and moderating variables helps monitor, and sustain these knowledge and awareness levels. Attitudes, perceptions and practices towards HIV/AIDS interventions are results of knowledge on HIV/AIDS acquired by individuals. Previous studies ignored mediating and moderating variables supporting knowledge and awareness variables in implementing effective HIV/AIDS interventions, an area considered in the current study.This study addresses the noted gaps through factor analysis.

2.3 Sexual Behaviour and Practices

An individual's sexual behaviour, attitudes, practices and choice of preferred HIV/AIDS interventions derive from the level of knowledge and awareness attained by that individual.

Sexual behaviour and practices are facilitated by mediating variables: age, gender, HIV/AIDS knowledge, and awareness, normative beliefs moderated by variable communication to select and implement effective HIV/AIDS interventions. Janzen (2011) concluded that sexual behaviour was affected by an individual's motivation to comply with a peer group or other expectations, which is referred to as a normative belief. Sexual risk behaviour practices: unprotected sex, early sexual debut, multiple partners, alcohol or drug-induced sexual activities, forced sexual intercourse, sexual intercourse for a reward, are leading sources of fuelling HIV among a population (NAC Report, 2015). Jansen's (2011) study and NAC Report, (2015) concur that sexual behaviour is influenced by gender, normative belief, knowledge and awareness of HIV/AIDS, which in turn, facilitate the choice and implementation of effective HIV/AIDS interventions. Shisana *et al.* (2014), established, in a cross-sectional study on HIV/AIDS of students and employees at a South African higher tertiary institution that males were more likely to have sex for the first time before the age of 15 years compared to females. Having sex for the first time was prevalent among the female respondents in the 15 to 24 years age group being the peak of sexual activity. Certain behaviours put students and staff in higher tertiary institutions at risk of HIV infection: sexual relationships between students and employees, inconsistent use of condoms, substance abuse, pregnancy and abortion. The Higher Education Association Institution's Department of South Africa (HEAIDS) Report (2014), reported that the vast majority of the institutional population relationships were heterosexual. There was a stronger tendency to have partners older or younger than both female and male, indicating the existence of inter-generational age sexual relationships activities. The above HEAIDS Report concur with NAC, Report, Jansen, (2015) on sexual behaviour practices contributing to the selection of effective HIV/AIDS programmes. Some of the HIV interventions that aim to address sexual acts include college or school-based sex education, peer education programmes, adolescent-friendly clinic initiatives, and mass media interventions (Panda *et al.,* 2009). Panda *et al.,* (2009) addressed HIV/AIDS prevention interventions in the higher tertiary institutions and highlighted sex education programmes as elements facilitating the decision of effective HIV/AIDS interventions. This area covered the aforementioned report making it relevant to this current study in addressing HIV/AIDS intervention in higher tertiary institutions. The above study did not identify the mediating

variables that facilitate sexual behaviour variables to contribute toward effective implementation of HIV/AIDS interventions, covered in the current study.

Zekariyas Sahile *et al.*'s (2015), across-sectional mixed-methods comparison study of Ethiopian university students on HIV/AIDS and sexual reproductive health (SRH) interventions education, noted a difference in understanding. The intervention groups engaged in HIV/AIDS education showed discrepancies in the understanding of HIV/AIDS issues. The intervention group had a higher understanding with significant association across the board of knowledge on HIV transmission and prevention methods. The results indicated knowledge level impacts an individual's behavioural decisions about the sexual act. Moreover, students in the intervention group had a high percentage of lifetime sexual intercourse 40.8% compared to the control group with 34.6%. Indicating knowledge level does significantly affect decisions on sexual behaviour. Further, the intervention group reported a higher percentage of condom use during sexual intercourse compared to the control group respondents' low rates of condom usage. The control group showed high risky sexual behaviours and a high percentage of sexually transmitted diseases (STD) (Zekariyas Sahile *et al.*, 2015). Behaviour was affected by an individual motivation to comply with others or group expectations, a normative belief, an essential aspect of the HIV/AIDS prevention interventions choices (Janzen, 2011). The study ignored highlighting mediating variables leading to change in sexual behaviour, an area this study covers.

2.4 Abstinence, Being Faithful and Condom Use (ABC)

Abstinence (A); Being faithful (B); Condom use (C); referred to as ABC behaviours were categorised as necessary in HIV/AIDS sexual behaviour interventions proving successful in specific environments. "ABC+" means no missed opportunities with an emphasis on target population skills and empowerment. ABC behaviours must match target audiences to succeed. "A" is defined by different people meaning: delay among youth, postpartum abstinence, "revirginisation" (secondary abstinence), non-penetrative sex (abstaining from sexual behaviours resulting in HIV transmission or pregnancy), abstinence among divorced or other

unmarried adults. “B” includes being faithful, reducing the number of sexual partners, and careful partner selection. “C” Condom use, is particularly important when not practising “A” and “B” behaviours (UNAIDS Report, 2012). An enabling environment, self-reliance, plus moral, informed decision-making capabilities abstinence, being faithful, condom use (ABC) enhance behaviours to be embodied in the development of new practices.

Uganda applied the ABC approach with observed positive results such as a decrease in HIV/AIDS incidence (USAID Report, 2011). This success was attributed to knowledge of current practices and sexual ethnography of the culture leading to natural response and acceptance of AIDS. Several messages that relate to defining (B) exist and some of them are ‘be faithful to current partner, ‘reduce the number of partners’, be careful when choosing partners, and added value to sexual behaviours (USAID Report, 2011). This report overlooked the relationship between perceptions, attitudes, behaviour change and intentions to use particular HIV/AIDS prevention methods, an area considered in the current study. Attitudes and perceptions about HIV/AIDS are interrelated with condom use, plus individual knowledge about transmission of HIV, available prevention interventions, before behaviour change.

Zekariyas Sahile *et al.*’*s*, (2015), mixed-methods study of students at Ambo University in Nigeria, noted students with higher knowledge of HIV use condoms during sexual intercourse halting HIV transmission. The students with in-depth knowledge of HIV transmission modes do not utilise condoms to reduce HIV transmission. The condom use during sexual intercourse in the last 12 months in the intervention group was higher (73.2%) compared to the control group (56.9%). Thus, indicating the significant association between attitude, perception of condom use and sexual intercourse in the last 12 months for both study groups. Condom use in the intervention group was significantly higher compared to the control group (p-value < 0.05). The findings were supported by increased records of sexually transmitted diseases among the control group and less knowledge of HIV transmission and intervention modes. This group displayed negativity toward condom use, low condom utilisation and severe problems of causal response to HIV and STIs. These findings are relevant to the current study addressing attitudes, and perceptions of condom use among students. The study addressed the positive

contribution of attitude, perception of condoms to effectively implement HIV/AIDS interventions ignoring the mediating variables (*trust, care, learning, sexual activity frequency, current HIV/AIDS messages, HIV status)* for attitude, perception of condom use. In addition, identifying a moderating variable knowledge about condom use which this study addresses.

Nwozichi *et al.*'*s* (2016) survey of Nigerian students on attitudes to condom use posited that participants showed negativity towards condom use, citing condoms ruined the natural sex act. The above study did not consider the elements in support of attitudes, perception and condom use. Zekariyas Sahil*e et al.*, (2015) and Nwozichi *et al.* (2016) similarly address the positive contribution of attitude, and perception of condom use to the effective implementation of HIV/AIDS interventions. Both studies neglect the moderating variable intention influencing particular behaviour, which this study wishes to address.

The outcome of Majeed Movahed and Seaaigheh (2010)'s cross-sectional study of students' attitudes, and perceptions towards HIV/AIDS knowledge was that knowledge from mass media, books, newspapers increased understanding, influenced attitude, perception and affected behaviour. Rahamefy *et al.*'s(2015) cross-sectional mixed methodology study, argued that university students in Madagascar did not use condoms assuming a decrease in sexual pleasure. The preceding study corroborates the conclusions of a study by (Exavery *et al.*; 2012) where self-efficacy was found to be a significant predictor of condom use. These findings are of considerable concern since documented effectiveness of condoms in preventing HIV/AIDS, and other STIs, is public information. Besides conflicting responses from participants in terms of attitudes towards condom use, they were likely to use condoms, but the consistency of use was not guaranteed. The effectiveness of condoms in preventing unwanted pregnancy is notably of more concern to females than males. The majority of females strongly agreed that the use of condoms could provide post-coital mental relief (Rahamefy *et al.*, 2015). The above studies ignored the level of HIV/AIDS knowledge in the study population about condom use and availability of condoms, gaps that this current study investigated.

Bamidele *et al.*, (2012) noted that the choice of partner influenced the eventual unsafe sex practice, especially women indicating a willingness to submit to unprotected sex when requested. The preceding study discounted mediating variables involved in sexual behaviour decision making.

A NAC Report (2018) reported gender differences in the sexual behaviours of youths and female students needing motivation and empowerment to practise safe sex. Condom use remains low among sexually active youths in Sub-Saharan Africa. Exavery *et al.*; (2012) are of the view that empowered young adults with negotiating skills to use condoms, building confidence improve their sexual and reproductive health status. Theoretical and empirical evidence suggests that attitudes towards condom use are significant predictors of the actual use of condoms (Masa & Chowa, 2014). Masa & Chowa, (2014), posited that regional studies were more aligned to high-risk populations, not a community in a captive environment with limited resources. Briefly, condom use in HIV and AIDS interventions promotes decision making on safe sexual behaviours among sexually active respondents. This provides opportunities to make correct decisions on HIV prevention interventions by young adults (Hogan *et al.* 2010).

Hogan *et al.*, (2010) study targeted sex workers on the transmission of HIV showing that efficient reduction in HIV transmission, mass media campaigns of targeted interventions like condom use promotion were beneficial to the population. UNAIDS Report (2020) indicates that some of the programmes are integrated with the current sexual behaviour/practices, attitudes and perception on condom use activities.
These use helping each other act responsibly together (HEART) (Underwood, 2004), "it is your game" and HIV/AIDS intervention programme (IYG) (CDC, 2012) and behavioural interventions (Ross D, *et al.*, 2010) to fight HIV/AIDS incidence. These studies show similarities addressing attitudes, perceptions to condom use to effectively implement HIV/AIDS programmes. These previous studies unsuccessfully addressed moderating variables that facilitate attitudes, perception on the condom's contribution towards effective implementation of HIV/AIDS intervention, an area this study considers.

2.5 HIV and AIDS Combination Prevention

There is no single HIV prevention intervention suitable for all communities and situations, a combination of diverse HIV prevention approaches maximises the effect of complementary prevention interventions (UNAIDS, 2010). The combination prevention of the HIV/AIDS prevention programmes is a systematic approach that UNAIDS recommends in achieving an effective, efficient long-lasting impact reducing HIV prevalence. Behavioural interventions theories of behaviour, networking and communication promote a reduction in the number of sexual partners. Through networking and clear communication, young adults better understand the advantage of ethical behaviour and the implications of bad behaviour in their lives. The changes in sexual behaviour and social norms combined with an increase in knowledge on HIV influenced the combination of HIV prevention programmes. UNAIDS Report (2020) narrate the global AIDS epidemic status, HIV prevention programmes are working effectively**,** evidenced by the decline in new HIV infections globally.

The interrelated HIV/AIDS prevention interventions: structural, behavioural and biomedical work together to influence behaviour, increase utilisation of services availed at various population levels to eliminate new infections (UNAIDS Report, 2020). UNAIDS Report (2020), most national prevention programmes are a collection of disjointed interventions, unconnected with other programmes seeking the same prevention targets. This notably eroded decision makers' confidence in existing prevention methods, crippling the implementers and planners from informed decisions to improve prevention programme implementation. The limited resources challenge combination prevention programmes to combat the epidemic.

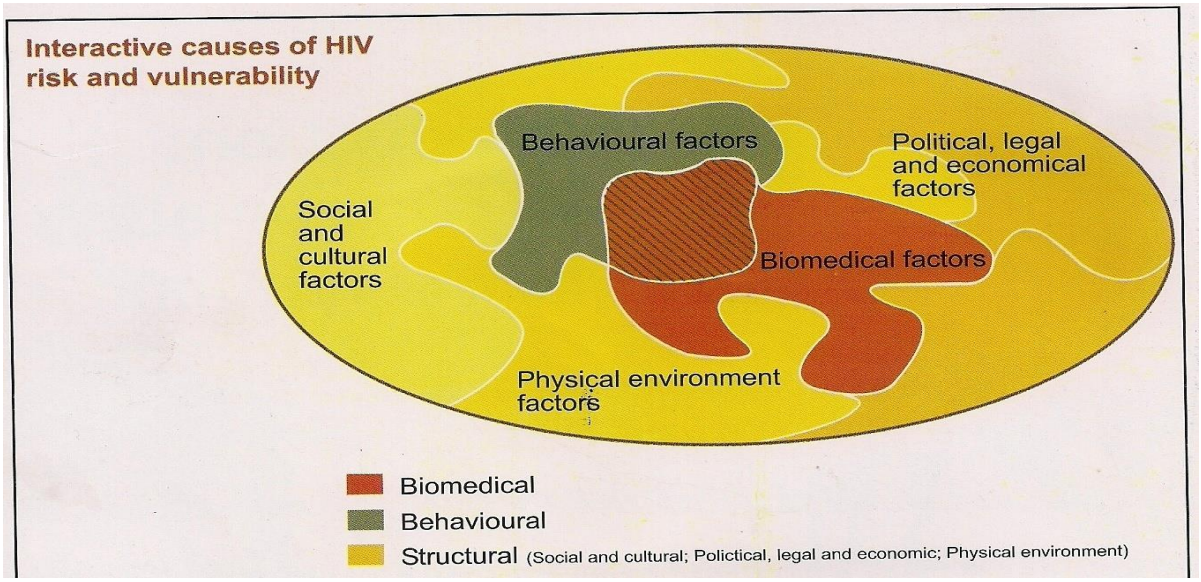
Behavioural interventions work through HIV and AIDS knowledge, the intentions to adopt risk reduction behaviour and the ability to communicate with partners to reduce the spread of HIV/AIDS (Radian *et al.*, 2011). Behavioural approaches are meant to facilitate safe sex practices including encouraging both males and females to use condoms, moreover, reducing the number of sexual partners, the frequency of unprotected sexual activity and promoting HIV testing and abstinence (WHO, 2016).

Biomedical interventions concentrate on the human body composition to reduce the risk of body infection with HIV (WHO Report, 2020). Biomedical interventions, conversely, reduce the spread of HIV and AIDS through medical drugs, harnessing the incidence or prevalence of HIV/AIDS infections (WHO, 2020). Baldur and Erdogan, (2012), Palmer (2010), Sad, *et al.*,

(2012) and Surgevil and Akayol, (2011) in their cross-sectional mixed methodology studies classified HIV/ AIDS interventions in terms of approaches, context and nature of stakeholders involved. The study responses were organised based on the meaning and nature of stakeholders, grouped into teacher-led HIV /AIDS interventions, peer-led interventions, and young adults led interventions (Saad, *et al.* 2012). Failure to group into biomedical and behavioural interventions could be misleading when it comes to mitigating HIV/AIDS interventions for the population. The present study is concerned with HIV/AIDS interventions for the Zimbabwean universities' population and classifying the responses into the nature and context of stakeholders is applicable to this study. Saad, *et al.* (2012) study discounted the students in the universities on HIV and AIDS interventions approach, an area this current study covers.

UNAIDS, (2010), a cross-section mixed-methods study in South Africa, of the effects of implementing a combination of prevention interventions on HIV testing, counselling, risk reduction and prevention methods indicated a decrease in new infections among the respondents. The results derived from post-HIV diagnosis, male circumcision for negative stakeholders and antiretroviral therapy for HIV infected persons, showed a reduction in new infections by 63% after10 years and 76% after 15 years after applying the HIV prevention combination (UNAIDS, 2010). The various HIV prevention interventions systematically interact with each other in an environment affected by these factors: behavioural, social, cultural, physical environment, political, legal, economic as well as biomedical. This area, neglected in other studies contributes towards selecting desired HIV/AIDS prevention interventions in the population. The interaction of the causes of HIV risk and vulnerability in Zimbabwe is profiled in figure 1.2 (UNAIDS Report, 2010).

Figure 2.1: Interactive causes of HIV risk and vulnerability



Adopted from: United Nations AIDS Report 2010

The preceding figure 2.1 shows the main factors affecting the spread of HIV /AIDS in both developed and developing countries. These factors classified under biomedical, behavioural and structural affect the population in the universities. The biomedical factors associated with individual health status are: being tested, counselling, treatment and individual acceptance of the activities in HIV/AIDS programmes. The behavioural factors are related to the individual's perception, attitudes, beliefs, structural elements found in the society (Long *et al.*; 2015). The most prominent HIV/AIDS drivers cutting across the entire population operate within structural factors, cultural background, gender imbalance and socio-economic environment. Frequently changing sexual partners, concurrent sexual partnerships and structural factors interaction in the physical environment leads to high HIV infection rates among the population (UNAIDS Report, 2013).

WHO Report, (2014), posited that most outcome measures, including infections, averted, life-years gained new HIV diagnoses, translated into daily-adjusted life years (DALYs) provide a consistent standard of comparison across many different types of target population intervention programmes. The students make hard choices about their sexual behaviour in a high HIV/AIDS prevalent environment. Cohen et al (2011) are of the view that biomedical interventions are effective in the prevention of HIV transmission and acquisition in a high

HIV/AIDS prevalence population. The combined HIVAIDS interventions approach proved effective in reducing HIV incidence. Ross D *et al.* (2010) revealed that mixing methods to deliver biomedical interventions in a population leads to high interventions activities uptake thus leading to a reduction in HIV/AIDS incidence in the population.

2.5.1 Educational approaches to HIV/AIDS reduction

Multi-sector approaches proved to be more fruitful in reducing HIV/AIDS vulnerability due to the different prevention approaches available. These approaches provided individuals with an extensive selection of HIV/AIDS prevention interventions suiting their needs. Technological advancement increased access to information on HIV/AIDS prevention interventions facilitating choosing the effective HIV/AIDS interventions desirable to young adults. Educative and entertaining prevention programmes like drama, quizzes, using social network groups with these activities had a positive impact on the young adult university population. These prevention programmes increased the level of knowledge and awareness among the participants (NAC Report 2014). The involvement of people living with or affected by HIV/AIDS in communication programmes, disclosure of HIV status in the same age group empowers others to test, find out their HIV status, taking precautions (NAC, 2020).

UNESCO Report, (2010) noted that people involved in successful programmes identify themselves with the programme. The successes of the HIV/AIDS prevention interventions depend mostly on the properly crafted education-based initiatives supported by the respective group, the young adults (UNESCO Report, 2010).

Most of the HIV and AIDS prevention interventions initiatives comprehensively include areas of sensitisation on HIV, counselling, testing, treatment, adherence to nutrition, care and support of both the infected and affected (UNAIDS Report, 2012). In Zimbabwe, most HIV/AIDS knowledge is acquired through health education classes, student-led HIV /AIDS clubs found in most institutions spearheaded by non-governmental organisations like Students and Youths Working in Sexual Reproductive Health Action Team (SAY WHAT), (NAC Report, 2012).

The programmes focus on protecting and promoting sexual and reproductive health rights for students in tertiary institutions plus gender balance. Most activities are designed to use participatory methods so that the stakeholders are associated with the activities (SAYWHAT, 2013). The programmes are characterised by messages, discussions and competitive debates among the target population. Zimbabwe Demographic and Health Survey (2011), students in higher and tertiary institutions have the highest new cases of HIV infection. This targeted population does not have comprehensive HIV/AIDS prevention programmes to counter the spread of HIV/AIDS. Some non-governmental organisations offer HIV/AIDS interventions, which are short, lived, due to limited financial and human resources.

The implementation of the HIV/AIDS interventions among the young adults sighted lack of programme coordination leading to excluding other population groups (NAC Report, 2018). The Ministry of Higher and Tertiary Education (MOHTE) streamlines HIV / AIDS programmes ensuring the implementation of HIV/AIDS programmes in all tertiary institutions. Programme implementation is evident in teachers' colleges, polytechnic and technical colleges but not universities.

2.5.2 Mitigation strategies for HIV and AIDS

Successful strategies targeted high-risk groups namely sex workers and their clients, others with multiple sexual partners, men copulating with men and injectable drug users.

Empirical evidence from Kenyan and Tanzanian studies on high-risk groups, established that effectiveness in implementing HIV/AIDS prevention activities, increased when the proportion of HIV positive people in the target population was identified (UNAIDS, Report 2014). Six key-targeted prevention interventions common in the Sub-Sahara Africa region were identified: sex worker interventions, male and female condom promotion, control of STDs, voluntary counselling and testing (VCT), blood safety measures and PMTCT (UNAIDS, 2020). These prevention interventions showed great impact in reducing HIV/AIDS incidence in the target population (Sweat and Greg rich et. al, 2020). Zimbabwe's National Behavioural Change programme involves all sectors of the population guiding them on addressing the main causes of HIV in human behaviour (NAC Report, 2018). The behavioural change strategy was supported by well-established guiding principles, resulting in positive behavioural change. Theories on behaviour variables were ignored in the strategy which reflected general

knowledge of the variables' contributions. UNAIDS, (2018), the behavioural approach proved to be inappropriate; everyone in the population was affected in some way and some were infected by HIV.

The vicious cycles of poverty and gender inequality are at the centre fuelling HIV/AIDS within the population; a multi-sectoral approach is necessary to break the cycle. One of the emerging multi-sectoral stakeholders in the fight against HIV/AIDS in the education sector (UNAIDS, 2018). UNAIDS (2010), child studies in various countries for the ages 5 to 14 years, not infected at birth, have the lowest HIV prevalence rate of all the population age groups. This is a period of formative stages, children need help to focus on changing or forming the attitudes, skills and behaviour, assisting them in their future health and social behaviour (UNAIDS, 2015). The World Bank reported that education offers a convenient infrastructure for delivering HIV/AIDS prevention efforts to a large number of uninfected populations (IBRD/WB, 2012). Basic education reaches a large number of stakeholders who benefit from receiving knowledge on HIV/AIDS prevention, facilitating and informing individuals' choices. HIV/AIDS early education empowers the disadvantaged and risky groups, providing knowledge and social skills for later life. Strong basic education is the basis for HIV/AIDS effective prevention (IBRD/WB, 2012).

The inverse relationship between the vulnerability of diseases such as HIV or malaria and the level of education highlights the benefits derived from the linkage (Munthali *et al.,* 2014). Munthali *et al.,* (2014), HIV prevention strategy, abstinence, mutual faithfulness, condom strategies plus behavioural change interventions strategy facilitated by reducing HIV infection in Malawi. Malawi Behaviour Change Communication (BCC) strategy focused on behaviour change interventions tailored to the needs of the stakeholders, reducing risk behaviour and vulnerability to HIV (Munthali *et al.,* 2014). The BCC development interaction process considered gender, human rights and culture in addressing community participation inputs and cultural negativity. Munthali *et al.,* 2014, ignored the theory of planned behaviour variables, making it difficult to identify mediating and moderating variables. This study is relevant to the current study, addressing the behaviour of participants, not the impact of attitudes, perceptions,

and knowledge on behaviour, contributing towards effective implementation of HIV/AIDS interventions. Thus behavioural change communication was generalised, unspecified for higher tertiary institutions.

The interactive outreach audio-visual services in HIV prevention interpersonal and interactive communication, including sign language, proved successful as the intervention included and engaged everyone in the population, regardless of age, status and ability (Monthly *et al.*, 2014). Malawi's unique intervention complements other HIV/AIDS intervention prevention programmes managed by the Malawi Social Cash Transfer Programme (SCTP). The (SCTP) was designed specifically to reach the most vulnerable members of the population to alleviate poverty and improve school enrolment. The Malawi government with Development partners fund the programme (USAID and UNICEF Reports, 2013). The typical challenge faced by HIV intervention programmes is funding, most are co-funded by development partners and governments. The sustainability of the HIV/AIDS intervention programmes is compromised unless appropriate structures developed continue internal funding when external funding stops. The challenge of low literacy uses drama to communicate with the participants the messages that could be misinterpreted.

The Abstain, being faithful, Condoms (ABC) prevention programmes were successful in Uganda, due to the concerted support of the government to understand the factors contributing to the reduced effectiveness of programmes (Green, 2003). Green (2003) posited a strategy facilitating reducing stigma and discrimination, producing a sense of togetherness in the fight. Perceptions of HIV/AIDS shifted and ABC programmes became ammunition for the HIV battle, which people were already fighting together. Through conquering stigma, and discrimination, and reducing gender inequalities, Uganda was successful in the implementation of the ABC prevention programmes. Green (2003) ignored the variables of theories of behaviour contribution towards the success of HIV/AIDS intervention programmes.

In Zimbabwe, stigma and gender inequality are common factors fuelling the spread of HIV/AIDS. The implementation of ABC prevention programmes fails due to their rejection by the population. Zimbabwe's gender inequality and resistance to change hindered the acceptance of

the ABC prevention intervention activities (Nhamo, *et al.*, 2010, p. 1665). ABC prevention interventions are most appropriate for the study because decisions made by individuals on HIV interventions mostly depend on the living environment. The disregard of the gender inequality challenge before introducing ABC interventions indicated that this was undermining prevention programmes in Zimbabwe. (Gregson, *et al.*, 2011)'s study on HIV, interventions posited that people who felt a greater sense of self-efficacy were unlikely to contract HIV infection. In Zimbabwe, the married, educated men showed the highest self-efficacy indicating the strongest elements of behavioural change to prevent HIV transmission (Halpern, *et al.*, 2011). The preceding studies aligned to sexual behaviour practices, a variable in the current study contributing to the effective implementation of HIV/AIDS interventions.

Programmes focusing on HIV/AIDS prevention intervention messaging have become common in countries affected by the HIV epidemic. Some messages are combined with drama emphasizing the impact of HIV/AIDS infection, plus the alternative interventions to redress the situation (UNAIDS Report, 2015). Ruanand Xiao (2017) in an antiretroviral treatment adherence survey posited that using adherence short message service interventions improved HIV medication, supporting the individuals to stick to the treatment programme. Ye Ruan et al. (2017) noted the acceptability and efficacy of interactive short message service as an effective reminding tool supporting and improving medication adherence in ART among individuals. These findings were relevant to this study but only covered treatment interventions but excluded other HIV and AIDS interventions facilitating the treatment programme's success including voluntary counselling, testing and financial support. The studies were unrelated to the level of knowledge and awareness of HIV/AIDS element contributions to treatment interventions.

The modes of communication under the HIV/AIDS interventions include printed and audio Information, Education and Communication (IEC) materials; performance-based interactive sessions, drama performance, sensitisation meetings, debates, and market campaigns (NAC Report, 2012). HIV/AIDS sports programmes proved popular among the population in higher and tertiary institutions, especially during competitions where information on various HIV/AIDS interventions was availed at no cost (www.saywhat.org.zw).Saywhat.org (2017),

integrated most HIV prevention interventions into sexual and reproductive health programmes especially condoms so that the target populations could easily accept them.

The integration of family planning with HIV, maternal health services, HIV voluntary counselling/testing (VCT), preventing mother to child transmission (PMTCT) (including primary care identifying infected individuals) helped to present both the horizontal and vertical transmission. The HIV and AIDS epidemic declined due to the impact of prevention programmes male circumcision with reduced disposable income an economic factor affecting spending on commercial sex. The reduction of purchasing sex, maintaining multiple sexual relationships indicated a decline in disposal income (Bateman, 2011). The Zimbabwean government's adoption of HIV /AIDS policy development, especially home-based care, accelerated the process of behaviour change since individuals witnessed the effects of HIV/AIDS in their homes (UNAIDS Report, 2020). Furthermore, access to antiretroviral therapy (ART) reduced HIV related morbidity and mortality. These strategies facilitated the implementation and success of HIV and AIDS interventions in existence among the general population, not for the student population in the universities.

2.6 Other empirical evidence from related studies

The general view of HIV /AIDS intervention programmes targeting young people in Africa, Asia, Europe and America, was important for the present study especially in identifying the scope from which the researcher explored the most suitable tested HIV/AIDS interventions for young adults in Zimbabwe's higher and tertiary institutions. The understanding in the ever-changing face of the epidemiology of HIV transmission and behavioural surveillance for an in-depth investigation highlighting preferences, social, cultural and gender contexts of the population is important in identifying effective HIV/AIDS interventions.

UNAIDS (2016), launched worldwide programmes integrating with current interventions in the fight against HIV / AIDS. These behavioural programmes are: knowing your epidemic, response; becoming a responsible teenage; helping each other act responsible; it is your game; life skills-based education.

"Know your epidemic, know your response" is a country-led investigation of relevant drivers and risk behaviours of HIV/AIDS (UNAIDS, 2007, Wilson and Halpern, 2008). The programme is aligned to knowledge and sexual behaviour practices in the current study.

Becoming a Responsible Teen (BART) is an HIV risk reduction, adolescent driven, based on the information, motivation, behaviour change model and Social Learning Theory; focusing on understanding HIV/ AIDS, individual values, making sound sexual decisions, developing skills in assertive communication and personal risk-taking (CDC) 2011). The BART programme is more relevant to sexual behaviour practices encouraging behaviour change in young adults contributing to the evidence on sexual behaviour programmes.

Helping each other act responsibly together (HEART) is designed for the youth. HEART is a campaign programme on abstinence, consistent and correct use of condoms, targeted at the population accessing multimedia Underwood *et al.* (2001); (Underwood, 2004). The programme ignores mediating and moderating variables that facilitate behaviour change contributing effectively to HIV/AIDS interventions. The programme is mostly applicable to the study due to the messages covered in the campaign. The HEART programme contributes to knowledge and awareness of HIV/AIDS in the population making it more relevant for this study.

The "It is Your Game (IYG)" HIV/ AIDS intervention programme was developed for young adults encouraging them to delay the initiation of sex and the usage of condoms, contraceptives among sexually active youth (CDC, 2011). The IYG curriculum included using computer components: a virtual world interface, educational activities quizzes, animations, peer video and fact sheets targeting determinants of sexual risk-taking (Tortolero, et al; 2010). The IYG programme addresses sexual behaviour practices, and condom use similar to variables found in the current study. The programme neglects attitudes, perceptions, and intentions contributing variables in the study of behaviour, an area covered in this study.

United Nations International Children's Emergency Fund (2013), developed a "life skills-based education" (LSBE) model promoting healthy lifestyles, lower HIV, and AIDS-related risky behaviour by providing HIV/AIDS prevention knowledge education. This model characterised by adolescents' psychosocial and interpersonal skills development is partially relevant to the current study in addressing knowledge, sexual behaviour practices as the main variables supporting HIV/AIDS activities. This programme (LSBE) excluded these elements: age, level of education, empowerment policies, social, economic and political considerations that stimulate HIV infection. The exclusion of these preceding elements reduces the level of knowledge on HIV infections a gap that needs to be considered.

Cohen *et al.* (2011**)** in the study of biomedical interventions in HIV prevention interventions, established antiretroviral therapy (ART), voluntary medical male circumcision (VMMC) and treatment to effectively prevent HIV transmission or acquisition. The study on biomedical interventions does not show the variables involved in choices of the interventions and contextual factors that impede their utilization. The study contributes to the current study by providing accepted biomedical interventions that can be considered for this study HIV/AIDS interventions. Pettifor (2013), in a survey of adolescents, implied the need to understand the biomedical prevention interventions with behavioural and contextual factors that impede uptake and adherence among adolescent populations. The findings by Pettifor (2013) concentrate on adolescent populations the focus in this study population. Cohen *et al.* (2011**)** discounted the understanding of the biomedical interventions by respondents which can affect the uptake of the interventions.

2.7 Current HIV /AIDS prevention interventions for the target population

Current Zimbabwe classifications of HIV interventions under behavioural, biomedical and structural are readily accessible to the community (WHO Report, 2020). Behavioural interventions focus on changing the way an individual thinks, acts, making constructive health decisions to protect themselves from HIV infection. These, classified under behavioural interventions, include abstinence from sexual acts, condom use, HIV voluntary testing and preventing mother to child transmission. Biomedical interventions are voluntary medical male circumcision; treatment of HIV infected individuals with antiretroviral (ARV) medicines,

prevention of mother to child transmission through treatment of the infected woman reducing the transfer of HIV to the infant. Additionally, the national behaviour change programme facilitates a reduction of sexual transmission of HIV by addressing key drivers; multiple concurrent sexual partners, age different sexual relationships, and discordant couples (NAC, 2020).

2.8 Knowledge Gap

Summary of a critique on the reviewed literature

ZNASP addressed structures, resources drafting a generalised framework used for HIV/AIDS policy without consideration of different stakeholders' needs. Moreover, the classification of HIV/ AIDS intervention into categories behavioural, biomedical, structured does not reflect the needs of the stakeholders. UNAIDS (2018) emphasizes the aligning of classifying HIV/AIDS interventions with the stakeholders. Classification of HIV/AIDS interventions contributes to this study by availing interventions from which the population in higher tertiary institutions can choose. The lack of classification of interventions with the stakeholders, characteristics of structures and resources created a gap in addressing contribution of structures, resources to effective implementation of HIV/AIDS intervention. In addition, neglecting of other impeding factors that influence relevance to HIV /AIDS prevention created gaps that the current study addressed. Strathdee et al.'s, (2015) survey of structures in risk environment and HIV incidence for the general population indicated a relationship between the environment and HIV incidence without highlighting the involved mediating, moderating variables. Hargraves (2006) addressed structures and resources for a group of women and noted that independent variables structures, resources do contribute to the effective implementation of HIV and AIDS interventions. Hargraves' study relevant to the current study considers specific group characteristics. Gupta et al., (2014), the study addressed a specific population group, the students in higher tertiary institutions, on structures, resources contributing to effective HIV/AIDS interventions. Gupta is most relevant to the current study, considered driving forces for independent variables structures, resources contribution to effective implementing of HIV /AIDS interventions, though did not classify mediating, moderating variables creating a gap in the study. The unidentified mediating and moderating variables facilitating structures,

resources contributing towards effective HIV and AIDS interventions, a gap was addressed in the current study.

Asaduzzaman et al., (2016), mixed methods survey on HIV/AIDS levels of knowledge and awareness among women, in general, posited level of knowledge, awareness contributing to the prevalence of HIV epidemic. Furthermore, highlighted respondents' educational status, mass media had a significant role on perceptions, detrimentally affecting knowledge and awareness of HIV/AIDS. Azagoh-Koudaio et al., (2020), indicated low level of knowledge, attitude, and practices leading to HIV transmission among the HIV –positive adolescents. This study considers variables and elements facilitating them to contribute to effective HIV/AIDS interventions. Azagoh-Koudaio's study ignored the theory of planned behaviour yet the elements reflect the variables found in the theory. This study considers a specific group in the population of adolescents who have similar characteristics with students in higher tertiary institutions making it relevant to the current study. Oppon et al., (2013) posited students had a high level of HIV/AIDS knowledge and awareness characterised with an inconsistent level of knowledge among them. The preceding study considered a causative agent of AIDS, an area not covered by previous studies to better understand the inconsistent level of knowledge. The study discounted mediating, moderating variables that facilitate knowledge and awareness to contribute effectively towards implementing HIV and AIDS interventions, an area covered in this study. The study is relevant to the current study by addressing students at the university level of knowledge and awareness and the causative agent of AIDS, areas important in establishing effective HIV and AIDS interventions. Lena Faust et al., (2018), a systematic review study assessing the effect of HIV educational intervention on HIV knowledge, condom use and HIV incidence for a general population, noted educational based interventions facilitated uptake of HIV related knowledge and prevention measures. The study findings from the review are prone to bias, depending on the interpretation and understanding of the subject matter by the reviewer. The findings could be misunderstood; HIV educational intervention is a mediating variable that changes the status to the independent variable HIV knowledge. The study addresses the variables found in this current study to some extent but ignores the use of factor analysis to support the findings, an area addressed in the current study. Mbelle et al., (2014) in a mixed-methods survey in higher tertiary institutions indicated HIV/AIDS knowledge and awareness have an impact on HIV transmission. The preceding study is relevant to the current study in addressing HIV/AIDS knowledge and awareness as an independent

variable and transmission as mediating variable. These studies discounted the elements that facilitate knowledge and awareness to contribute to the effective implementation of HIV/AIDS interventions, an area covered by this study. In addition, the studies failed to connect knowledge and awareness of HIV/AIDS to behavioural interventions, an area this study covers.

Sexual behaviour and practices are facilitated by knowledge, attitude, perceptions social norms, normative belief to undertake a particular behaviour. The behavioural theories Theory of Planned Behaviour, Health Model, and Social Cognitive Theory variables facilitate sexual behaviour and practices. These variables social norms, behavioural control, normative belief, attitudes, perceptions of knowledge are moderated by communication to select effective HIV/AIDS interventions. Janzen's (2011), mixed methodology survey of HIV/AIDS sexual behaviour practices concluded sexual behaviour was influenced by normative belief, knowledge, awareness of HIV/AIDS. Janzen's study concurred with Shisana et al., (2014) cross-sectional study of students in higher tertiary institutions that established normative belief influencing individual behaviour of students. Shisana highlighted elements sexual relationships, sexual behaviour practices, inconsistent condom use contributing to high HIV incidence among students. The preceding study failed to state independent, mediating, moderating, dependent variables involved in sexual behaviour and applying theories of behaviour. Zekariyas Sahile et al., (2015) cross-sectional mixed-methods study of university students on HIV/AIDS education and sexual reproductive health noted HIV/AIDS education had a positive impact on understanding risky sexual behaviour. Both preceding studies are relevant to this current study in addressing variables facilitating sexual behaviour that contributes to implementing effective HIV/AIDS interventions. The studies on the effectiveness of the HIV/AIDS interventions failed to align with behavioural theories Theory of Planned Behaviour, Health Model, and Social Cognitive Theory. Factor analysis facilitates in identifying the most prominent variables supporting the independent variables to effectively contribute to the implementation of desired HIV/AIDS interventions was ignored in the studies. Literature speculated the role of HIV knowledge in the choices of HIV/AIDS prevention interventions. The empirical question "Can HIV/AIDS knowledge and awareness provide a source of sustainable competitive advantage in choosing preferred effective intervention?" remains unanswered. The studies on effective HIV/AIDS interventions in higher and tertiary

institutions remain a challenge due to a lack of consistency in addressing the elements facilitating structures, resources, knowledge and awareness, sexual behaviour practices and attitudes, and perceptions of condom use. These knowledge gaps facilitated in designing questionnaires that impeded finding the solutions to identifying HIV/AIDS interventions characterised by effectiveness for higher tertiary institutions.

2.9 Chapter summary

This chapter conveyed a logical review of the empirical literature on the phenomenon under study. The main focus of the review was to contextualise the current study based on what is known. Further, establish the knowledge gap upon which the study could focus to contribute to new knowledge in the area. HIV/AIDS interventions implemented in Zimbabwe and other countries were analysed. The shortcomings in programme implementation that needed to be addressed were identified. In addition, best practices were evaluated from other countries which could provide lessons for higher tertiary institutions in search of effective HIV/AIDS interventions to reduce HIV/AIDS incidence in the population. The majority of these interventions target the general population and do not state specific HIV/ AIDS prevention interventions targeting students or young adults in higher and tertiary institutions. The benefits derived from the application of many HIV/ AIDS prevention interventions cannot be easily ascertained with certainty. The literature reviewed facilitated the formulation of the study's conceptual framework. The next chapter addresses the theoretical foundations and the conceptual framework that enhances the study.

CHAPTER THREE: THEORETICAL AND CONCEPTUALFRAMEWORK

3.0 Introduction

The previous chapter reviewed the literature pertaining to the overall contribution of structures and resources, HIV/AIDS knowledge, awareness, sexual behaviours practices, perception, attitudes, condom use and HIV/AIDS interventions available to the study population. This chapter presents the theories underpinning the study and the conceptual framework within which the implementation of HIV and AIDS prevention intervention programmes is evaluated. This chapter first addresses the theories and then presents the conceptual framework depicting the variables, which impinge on the effective implementation of HIV/AIDS intervention. This is followed by hypotheses derived from variables in the conceptual framework.

The study applied the Theory of Planned Behaviour (TBP), which consolidates the constructs from the Theory of Attitude Functions, Health Belief Model, Social Cognitive Theory and Theories of Reasoned Action in order to better understand sexual behaviour practices, attitudes, and the perception of this study population. Variables found in the preceding theories support the theory of planned behaviour (Janzen *et al.*, 1980).

In specific terms, this theoretical framework highlights different key theories that underlie health-related issues, evaluation of variables as well as the implementation of HIV and AIDS prevention interventions in the affected and infected populations. The key theory and concepts used as the basis for the study are namely Theory of Planned Behaviour, concepts on HIV/AIDS structures, inputs, knowledge, awareness, and sexual behaviour practices. The variables in the theory of planned behaviour attitude, perceptions, and social norms are in support of the sexual behaviour practices that contribute to the selection of effective HIV/AIDS interventions. The variables knowledge and awareness in the study interact with sexual behaviour practices, attitudes and perceptions on condom use; in turn, knowledge and awareness interact with the structures and resources. Attitude, perception and behaviour are the same variables that support the theory of planned behaviour**,** indicating a relationship exists between theories and the study variables.

This is followed by a conceptual framework, which illustrates the relationship between the study variables and the implementation of HIV/AIDS intervention variables. The hypotheses of the study are then presented.

3.1 Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour delves into human action and is guided by three kinds of considerations (Janzen *et al.*, 1980). These are highlighted as follows**:** behavioural beliefs which are concerned with the consequence of the behaviour, normative beliefs, and control beliefs. These factors facilitate or impede the performance of the behaviour of an individual (Janzen *et al.*, 1980). The cornerstone of the theory of reasoned action is the prediction of one's attitude, the behaviour elements of behavioural intention derived from social psychology (Janzen and Fish, 1975 & 1980).

The components of the above theory are behavioural intent (Bi), attitude (A) and subjective norm(SN). The focus is the behavioural intention of an individual, which depends on the person's attitude about behaviour and subjective norms (SN). This is expressed by the equation: $\mathbf{B_i = A + SN}$ where SN stands for the relevant individuals**'** or groups' perceived expectations with the intention to comply. Individual voluntary behaviour is predicted by his or her attitude towards that particular behaviour. Miller (2005) defines the three components of the theory as attitudes being the sum of beliefs about a particular behaviour, which are evaluated in conjunction with the beliefs about a particular behaviour.

SNs refer to the influence of people in an individual's socio-economic environment. While one's attributes are affected by individual opinions, behavioural intention is a consequence or result of both attitudes towards behaviour and the social norm.

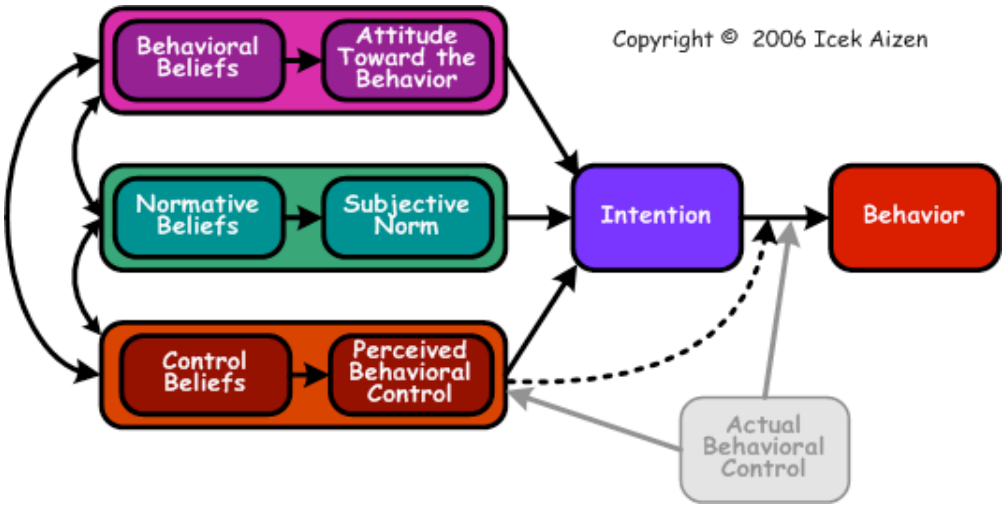
The combination of individual opinions and behavioural intentions produces or induces predictable actual behaviour. Communication is of paramount importance in human beings; as a result, it is the pivot for any activity to succeed and is influenced by attitude, perception and the social norm to yield positive results.

The TPB applies in situations where an individual has choices but the outcome is affected by external factors i.e. the family, partners, peers, communities and their household. The concepts in theory of planned behaviour are appropriate for this study at the individual level for students with the many challenges resulting from moving to an unknown environment.

The unknown environment is where the daily decision making by an individual is of paramount importance. TPB has been used to predict intended condom use in some countries.

A study of Tanzanian students, (Lugoe and Rise, 1999), argues that TPB variables played a significant part in predicting behavioural intent. The TPB is centred on the link between attitudes and behaviour, proving that attitudes will only guide behaviour in highly individual situations. According to Epstein *et.a*l., (2016) when individuals are in a state of self-awareness, they turn inward to consider their attitudes but in some cases, individuals behave according to the group wherein they belong. The preceding study was relevant to the current situation where it dealt with young adults in an institution, aware of themselves in relation to HIV and AIDS but tending to follow their group or peers. The TPB ignores the contribution of knowledge and awareness in affecting the behaviour of an individual. The elements that contribute to the variables of knowledge and awareness are vital in determining relevance to those variables involved in the Theory of Planned Behaviour. The elements that contribute to the individual behavioural factors can be classified as behavioural, normative, control beliefs (which are the mechanisms of attitude towards behaviour), SN and perceived behavioural control (leading to intention resulting in specific behaviour as shown in Figure 3.1 (Janzen, 2013). In summary, Figure3.1 shows the TPB framework variables/ factors.

Figure 3.1 Factors affecting HIV/AIDS Interventions Decision

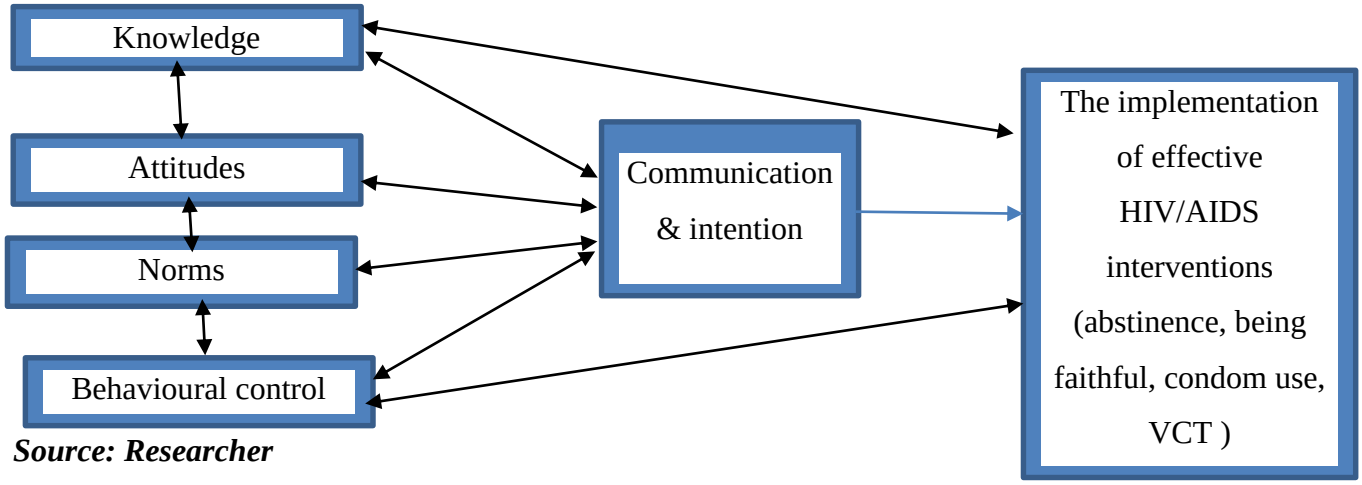


Source: Adapted from: Janzen (2013)

The Theory of Planned Behaviour elements which are behavioural, normative, control beliefs, attitudes, perception and intention are the cornerstones of the variables in this study in sexual behaviour, attitude, and perception. The Theory of Planned Behaviour delves into an individual's normative and control beliefs, which feed both subjective norm and the perceived behavioural control to create the intention to undertake an actual behaviour. This study includes sexual behavioural practices, a variable affected with those similar elements of behavioural,

normative, control beliefs and attitude, a perceived control of the above theory that contributes to the implementation of effective HIV/AIDS interventions. The study explored the elements that contributed to the behaviour of an individual. These are normative, control beliefs, attitudes and SN, which accumulate to an intention which contributes to decision making for the effective AIDS prevention interventions by the respondents. Figure 3.2 summarises an interactive model based on the Theory of Planned Behaviour constructs and the interaction with intention and communication which contributes towards the implementation of (cost) effective HIV/AIDS interventions:

Figure 3.2: Interactive Model based on Theory of Planned Behaviour constructs and intention to communicate on HIV/AIDS interventions



Source: Researcher

The independent variables of knowledge, attitudes, social-norms and behavioural control interact among themselves are moderated by communication and intention to facilitate the dependent variables (interventions) in the implementation of HIV/AIDS interventions. The dependent variables in turn facilitate the individual level decision making on the desired effective HIV/AIDS interventions implementation that will reduce HIV prevalence among the population. Any changes in the independent variables affect the implementation of the HIV/AIDS interventions in the institutions.

Relevance of Theory of Planned Behaviour to this study

Figure 3.2 depicts the variables involved in this current study and the constructs of the theory of planned behaviour. The variables pertaining to HIV/AIDS knowledge, attitudes, norms, and behavioural control facilitate intention (a dependent variable) to communicate on the effective desired HIV/AIDS interventions (an independent variable) in the implementation of the desired

HIV/AIDS programs in the target population. Three constructs support the theoretical model in figure 3.2; these are attitude, subjective norms and perceived behaviour.

The construct of attitude represents the degree to which an individual evaluates the behaviour favourable or not.

The second construct of the subjective norms refers to the different social references that exert an influence on the performance of a behaviour.

Thirdly, perceived behavioural control indicates the reflection of beliefs of the availability of resources or opportunities to perform the behaviour (Fisbein & Janzen, 2010). Attitude, social norms and perceived behaviour are constructs of the theory of planned behaviour. The correlations among knowledge, attitudes, perception, social norm and behaviour have a positive or negative impact on the decision to implement the desired effective HIV/AIDS interventions. Regression analysis of the elements of intention and communication as dependent variables with social norm, behaviour and attitude being the independent variables, helps to establish the important variables that contribute to the implementation of desired effective interventions for the target population in the universities.

3.2 The Theory of Networking and Communication

The Theory of networking and communication consolidates the other theories in studying the effective implementation of HIV and AIDS prevention programmes. Networking and Communication are the most vital tools needed to disseminate HIV/AIDS information for the benefit of the targeted population. In most cases, it is referred to as the Network Theory. A network consists of a set of actors or nodes along with a set of ties for specified friendship that links them (Wilson, 2001). In the marketing field, Network Theory describes the relationships among companies and customers, the buyers who have a common goal or need (Wilkson, 2001). Network theory also applies in the implementation and running of HIV and AIDS prevention programmes that have to be supported and accepted by various stakeholders. Harland (1996) defines network as "a specific type of relation linking a defined set of persons, events and its context depending on the relationships among network members". In view of the various definitions, networks involve relationships and interactions among members of the organisation in that network. This study involved the interaction of availed HIV and AIDS programmes through the intervening variables knowledge, attitudes, beliefs, and perceptions which were used in determining the desired effective HIV and AIDS interventions, thereby

indicating the application of the Network Theory in the process. This led to the Health Belief theory because once the respective individuals understood the consequences of the disease or epidemic, they became more aware of the risk involved and were conscious about the precautions available.

3.3 Health Belief Model (HBM)

The Health Belief Model is concerned with individually perceived risk, a concern for their health and the actions that motivate them to reduce the risk of the disease. Three health psychologists are the founders of the HBM used to study the tuberculosis health-screening programme among a selected population (Rosen Stock, Stretcher& Becker, 1994). Since the 1950s, the HBM has been used to find a variety of health-related human sexual behaviours related to human sexual needs and risks. The effectiveness of the (HBM) model relies on six main concepts or variables and these are: perceived susceptibility, severity, benefits, barriers and events, as well as self-efficacy. An individual or young adult who had unprotected sex was more concerned about contracting HIV or STI due to the perceived exposure to these. Due to the severity of contracting HIV, STI, or unwanted pregnancies without protection, the young adults try to avoid the practices even though they have limited knowledge on HIV or STI. At the same time, an individual assesses the benefits derived from knowing an individual HIV or STI status so that they can get early treatment or prevent themselves from infecting others.

The concept of perceived barriers contributes to the HBM when an individual identifies the need to be tested or to be at the health centre or even using condoms but is afraid or embarrassed to use them. The use of brainstorming on communication about the use of condoms helps to reduce the fear and embarrassment. The concept of signal action proved to be helpful especially when individuals receive signals for action in the form of messages, which remind them of the importance of practising safe sex. Message recaps promote individual confidence and the youth are prepared to receive training on the use of a condom to emphasize safe sex practices. In turn, it increases the self-efficacy in the prevention of HIV. The Health Belief Model is psychologically based and as a result it does not incorporate the influence of social norms and peer influence on an individual's decisions pertaining to their health (Rosen Stock, Stretcher& Becker, 1994). The model opens the gaps of understanding individual choices pertaining to the prevention of HIV infection as well as the elements that fuel fear about HIV and AIDS.

The above model derived from the theory of planned behaviour variables contributes to the implementation of effective HIV and AIDS prevention interventions in the higher tertiary institutions' population.

3.4 The AIDS Risk Reduction Model (ARRM)

The ARRM is a unique model based on individual change as a process in life relating to HIV/AIDS risk. The risk of contracting HIV/AIDS, with no cure, is the stage in an individual's process that affects their health status. The model also highlights that the more an intervention helps an individual to improve on the stage continuum the higher the probability that they show the change (Rosen Stock, Stretcher& Becker, 1994). ARRM contains basic principles of other theories and models like the HBM and self-efficacy theory that apply to sexually active individuals. Henceforth the unique model on change of an individual has to be considered in the study along with the AIDS Risk Reduction, which is specifically for HIV perceptions. Individuals pass through three stages for ARRM that apply in the preventative intervention programmes.

The main stages that applied to the AIDS Risk Reduction Model were that one must label their actions as risky for contracting HIV and view this as a problematic area in their lives. This occurred if the individual had the following elements or information in their decision-making knowledge about how HIV is transmitted and prevented: perceiving him/herself as susceptible to HIV and considering that HIV was undesirable and incurable. An individual empowered with the above elements was able to make a commitment in his/ her decision making to deal with the problem. A commitment at the decision-making stage could result in one of several outcomes, which are a firm commitment to deal with the problem, remaining undecided and waiting for the problem to resolve itself or resigning from the problem (Rosen Stock, Stretcher& Becker, 1994). The major factors that influence the commitment to decision-making were hypothesised influences. These influences of cost and benefits, enjoyment and self-efficacy are peoples' beliefs about their capabilities to produce designated levels of performance which affect their lives (Bandura, 1994). The other factors were perceived enjoyment, relevant information, social norms, knowledge of health utility; these social factors do influence an individual's cost-benefit and self-efficacy beliefs.

The third stage enactment involved taking action such as information seeking, tending towards abstinence and enacting solutions. An individual is unique; the phases may occur concurrently or some of the phases skipped. The variables mentioned previously influence the decision-making on preferred HIV/AIDS intervention by an individual.

Some of the theorised or hypothesised influences or factors associated with the third stage, which is described as taking action in social networks and problem-solving choices, included self-help of both informal and formal natures. Taking action includes previous experiences pertaining to poor experience with the problems, solutions, level of self –esteem and resource requirements of acquiring help (Cormack& Lewis-Moss, 2009). The decision making ability of an individual to move from one stage to the other stage, was facilitated or hindered by adverse emotional states e.g. high levels of distress over HIV/AIDS or dampened emotional states. Thus moving from one stage decision making is related to perception and attitude. Attitude and perception are variables found in the ARRM and they support this study with similar characteristics in nature. Other external factors such as public education campaigns, such as an image of a person dying from AIDS or informal support groups might cause people to examine and potentially change their sexual activities (Cormack& Lewis-Moss, 2009).

ARRM has some shortfalls and these focus on the individual not a group and rely on the level of knowledge and location of an individual which caused general limitations in its operations. ARRM lacks the inclusion of other issues that affect socio-cultural issues or norms that influence and limit an individual's behaviour choice and ability to take action (Cormack, & Lewis-Moss, 2009). Empirical evidence on the ARRM study of women in Uganda showed that the women felt at risk of HIV infection, not due to their behaviour but their sexual partner's behaviour (McGrath et al, 1993). Certain factors affect the individual in the environment where they are living. Some of the factors such as individual perceptions, peer group and partners, family settings, institutions and community have an effect on the decision-making and the choices taken.

The variables from theory-based interventions help to establish the various interrelationships that indicate the most preferred HIV/AIDS interventions and the justification for the incurred costs for these interventions. The costs incurred must be correlated to the activities undertaken to establish the sustainability of the programmes with the limited available scarce resources.

However, the cost of HIV and AIDS interventions is of paramount importance to establish the effectiveness of the programmes.

3.5 Justification of the theories to the study

HIV prevention programmes draw from many different social and behavioural theories. As a result, the choice of an intervention is based on more than one theory or model. Selecting an intervention based on multiple theories or models might be the key to determining the population at risk of acquiring or transmitting HIV needing interventions. The theories mostly emphasize HIV/AIDS knowledge of transmission risks, self-protection motivation and behaviour change as well as skills for the development of protective behaviours and support for protective actions (WHO Report 2006).

The theories and the model that contribute to behavioural change are Social Cognitive Theory, the theories of Reasoned Action, Planned Behaviour, Protection Motivation Theory and the Health Belief Model. These theories and model share the same assumption that attitudes, beliefs, outcomes and future expectations are the main determinants of behaviour, which facilitate individuals to take action that leads to favourable outcomes (Fisher and Andrew, 2002). Michaelson, Chersich Dooms and Van Rossen (2012) in the mixed methods study of the database set on content analysis of young people in sub-Saharan Africa on HIV prevention interventions**,** it noted the most applicable three theories to the study. The prominent Social Cognitive theory, followed with the Health Belief model and Planned Behaviour theory are concerned with health related issues of an individual. These theories coexist and help to understand health-related behaviour.

A description of the main activities in HIV/AIDS programmes indicates the use of one or more combination of participatory learning techniques like drama plays, poetry, song, club formation peer education and discussions as the gateway to knowledge, that are aligned to behaviour theories and models (NAC Report, 2012). Knowledge cascades down to the attitude, perception and behaviour of an individual. These activities influence behaviour change at each stage of entry, which accumulates to knowledge acquired. These theories provide a solid basis for the framework and conduct of the present study. For an intervention to be of value it is necessary for the implementing planner to select singular or multiple theories as the foundation of the intervention The following: Health Belief Model, the AIDS Risk Reduction Model, Stages of

Change Model, the TPB and Bandura's Social Learning Theory are associated with the effectiveness of HIV/AIDS programmes.

The preceding models, based on these theories facilitate the establishment of the relationships between variable human behaviour and effects on HIV and AIDS prevention intervention activities. The theories may not individually contribute to the elements of behaviour change. However, they do provide how the behaviour change process is influenced and its impact on HIV and AIDS prevention interventions. The population under study was found to be in a similar environment and setup of factors that affected the individuals, in a group or individually, at family and peer levels in the decision-making process concerning HIV and AIDS choices. Most of the HIV and AIDS prevention interventions are based on both intrapersonal and interpersonal factors, which are related to social and psychological theories. The theory of planned behaviour elements: social norms, attitudes and intention all influence individual behaviour**,** a variable that contributes to decision making on the desired HIV/AIDS interventions. The theory of planned behaviour also has a bearing on sexual behaviour, attitude and perception of condom use. Sexual behaviour, attitude and perception are the key variables for the effective implementation of desired HIV/AIDS interventions in this current study. The Health Belief Model and AIDS Risk Reduction Model constitute the Theory of Planned Behaviour and contribute to attitude, the individual perception area in the theory**,** making them relevant to study the variables of sexual behaviour, attitude and perception on condom use.

3.6 Effectiveness of HIV Prevention Interventions

The effective implementation of HIV/AIDS prevention interventions for young adults in universities is crucial in reducing HIV/AIDS incidence in that population. The effectiveness of a program entails establishing the costs incurred to implement the activities in relation to desired results and to set targets. In HIV/AIDS prevention programmes effectiveness relates to the costs incurred to implement the programme and the expected positive health-related outcomes. Key health benefits are measured with Disability Adjusted Life Years (DALY), which reflect the quality of life and economic productivity of an individual. The Effectiveness ratio (ER) is calculated from programme costs to health-related outcomes such as lives saved. The HIV/AIDS interventions costs are based on (ERs) (Marseille *et al.*, 2010). The effectiveness of interventions facilitates choice of the desired HIV/AIDS interventions for the population. There is evidence that HIV prevention strategies reduce the incidence of new

infections and are effective at the low HIV infection rate stage when targeted for a specific risk group (Kahn and Marseille 2001). The HIV/AIDS intervention costs incurred are related to the desired interventions (Sarkar *et al.*, 2018).

The effective implementation of interventions depends on cost per HIV infection averted (HIA), the cost per disability-adjusted life year (DALY) averted, the cost per quality-adjusted life-year (QALY) gained. The cost per life-year gained (LYG) reflects the interventions expenses. The study's effectiveness results covered the period from 2009 to 2018 and were converted in US$ using the Consumer Price Index (CPI) Inflation Calculator (https://www.bls.gov/cpi).A comparison of these costs done with the estimates of gross domestic product (GDP) per capita was derived from International Monetary Fund (2018) estimates. Duffy *et al.*, (2011), in a cross-sectional descriptive cost analysis study of voluntary medical male circumcision (VMMC), which concluded that VMMC is a cost-effective HIV intervention.

Smith *et al.*, (2015) in an individual-based simulation modelling the study among the population age group of 18 years and found out that home HIV counselling and testing was effective and reduced costs thereby being cost-effective in the end.

A cross-section study in South African on sexually high-risk groups combining prevention strategies such as VMMC, early ART, and pre-exposure prophylaxis (PEP) by Granich *et al.*, 2012, is relevant. The findings from this study indicate VMMC, early ART and PEP were both effective and cost saving by reducing the number of people being infected with HIV among the high-risk sexual group. Kuzunik *et al.*, (2012), in another related cross-section mixed methodology study of pregnant women in South Africa, noted that the combination of ART was cost-effective and reduced HIV prevalence among the population.

The effectiveness of interventions study in the 15 to 49 years old female population in South Africa, using the intervention of microbicides with condoms showed a reduction in HIV infection (Verguet *et al.*, 2010). Awad *et al.*, (2015) in a study on VMMC in Zimbabwe reported the effectiveness among the population with costs ranging from US$861 to $5,861 per HIV infection was averted. Sarkar *et al.*, (2019) reviewed over 60 studies, which met the criteria of effectiveness and used median (CER), DALY and HIA to assign the costs for the

respective HIV/AIDS interventions. The prevention of mother to child transmission interventions (PMCT) showed the lowest median CERs ($1,144 per HIV infection averted and $191 per DALY averted).

Pre-exposure prophylaxis interventions, which are a combination of medical and non-medical interventions, recorded the highest HIA and DALY as follow $13,267/HIA and $799/DALY averted respectively (Marseille *et al.,* 2010). The structural interventions support the preventative interventions, and they used the same formula for CERs. Some of the interventions such as partner notification, cash transfer programmes, had identical ERs of $13 267/HIA, and $799/DALY averted, as well as male circumcision $2965/HIA, which were more favourable (Marseille *et al.,* 2010). Treatment as a preventative intervention had ERs of $7903/HIA and $890/DALY averted. The success of the HIV/AIDS interventions depends on the mechanisms referred to as intervening variables that facilitate the implementation (Marseille *et al.*, 2010). These variables in the preceding theories facilitated the construction of a conceptual framework for effective implementation of HIV/AIDS interventions.

3.7 Conceptual Framework

The population in higher and tertiary institutions are young adults affected by similar factors regardless of the environment they are operating in. The most common factors affecting students at the individual level found in various studies are the challenges they face as they move from a familiar home environment to the unknown college environment, where daily personal decision-making is critical. Certain factors affect the young adults' decision-making in relation to reproductive health issues of fertility, induced abortion, ill health (morbidity) especially on HIV /STI infections. These factors originate from various sources such as the family and household background and norms, partners and peers who interact with the individual daily as well as institutional culture and the communities where the institution is located.

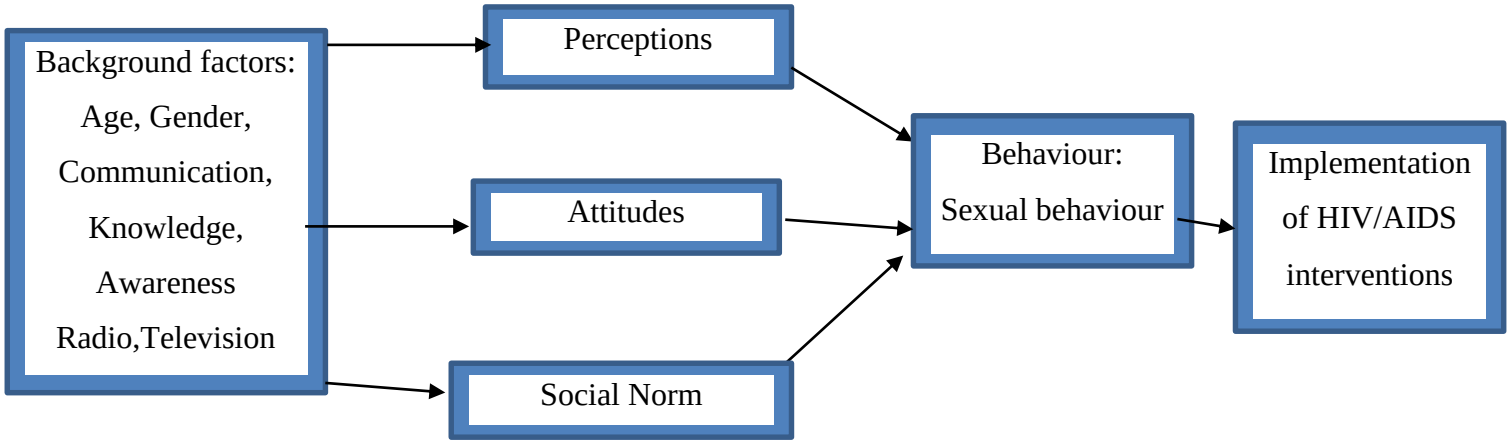
A conceptual framework was designed based on the key elements of the Theory of Planned Behaviour (TPB), which relates to the individual choices in line with developing HIV and AIDS prevention interventions. The elements found in the concepts relate to the basis of theories conventionally used to assess an individual's behaviour and risk perception. Certain environmental factors influence an individual's decision making and these were grouped under

individuals, family, peers, community, institutions, partners and household (CDC, 2012). All these factors had a bearing on the personal level decision making process regarding the most preferred HIV and AIDS prevention intervention.

The theory of planned behaviour consolidates the elements found in the Health Belief Model and AIDS Risk Reduction Model, which contribute to the variables: sexual behaviour, attitude, and perception, considered in the conceptual framework (Figure 3.3).

Figure 3.3 depicts model 3 on the applicability of the Theory of Planned Behaviour on sexual behaviour in the study. In the background are the following factors of: age, gender, communication, knowledge, awareness through radio and television also facilitates the variables of perceptions, attitudes and social norms. In turn, attitudes, perceptions and social norm combine to influence the behaviour in the case of individual sexual behaviour, which creates the intention of implementation of effective desired HIV/AIDS intervention.

Figure 3.3: Model on Applicability of Theory of Planned Behaviour

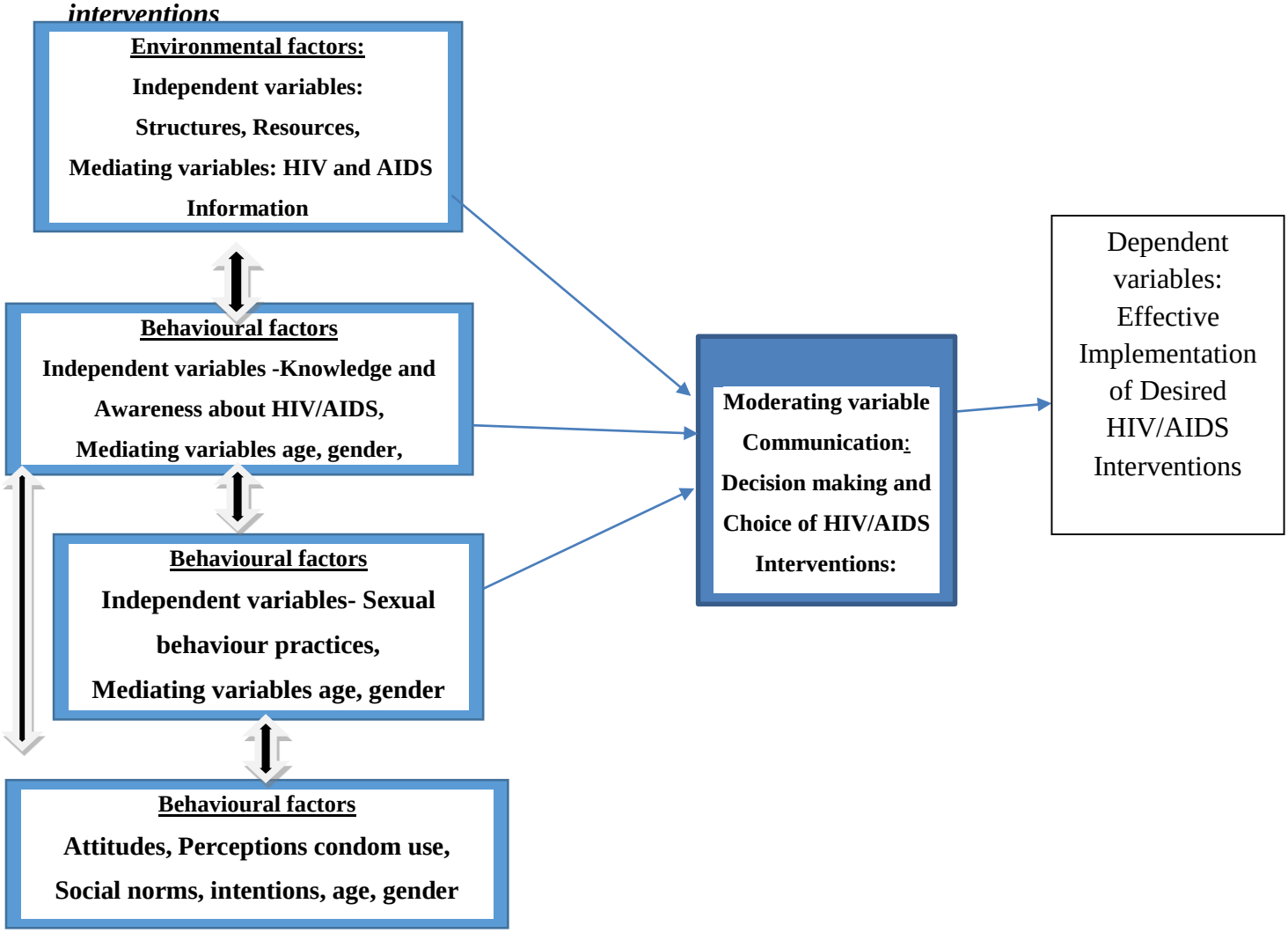


Source: Researcher (2020)

In addition, other mechanisms also facilitate the choice of the desired intervention due to comparable knowledge, attitude, perception, sexual practices and condom usage. Environmental factors including communities, partners, families, institutions, peers and households, influence the mechanisms for decision making on the desired HIV and AIDS prevention interventions. This is summarised in the schematic conceptual framework in (Figure 3.4) on which the present study is premised. Behavioural factors influence selection of the desired HIV/AIDS prevention interventions. These are: HIV/AIDS knowledge and awareness

level, sexual practices/behaviour, attitudes, perception of condom use, all drawing from the structures supporting HIV/AIDS prevention interventions that are in place in the environment through various communication modes. These factors are variables that influence the choices of desired and effective HIV/AIDS interventions.

Figure 3.4 Conceptual framework for the implementation of effective HIV/AIDS interventions: Factors that influence effective implementation of HIV/AIDS prevention interventions



Source: Researcher (2020)

The Interactive Model (Fig.3.4) illustrates that environmental and behavioural factors through communication facilitate the uptake of the interventions. These factors are referred to as variables that influence the effective implementation of HIV/AIDS interventions based on the theory of planned behaviour. The environmental factors are comprised of structures and resources/inputs. These are followed by behavioural factors such as knowledge and awareness, sexual behaviour practice and lastly attitudes, perceptions, intention, condom use, age and gender.

The conceptual framework reflects the variables of structures and resources, knowledge and awareness of HIV/AIDS, sexual behaviour and practices, attitudes and perception of condom use and the effective implementation of intervention programmes. The mediating variables influence these factors of independent variables structures, resources/inputs, knowledge, awareness, sexual behaviour, attitudes, perceptions and condom use to contribute in implementing the HIV/AIDS intervention programmes. These mediating variables of the factors enable the moderating variable (communication) to facilitate structures and resources, knowledge and awareness of HIV/AIDS, sexual behaviour and practices, attitudes, perception to condom use in decision making for effective HIV/AIDS interventions in the population. In addition, factors such as age, gender, information, social norms, and intentions relate more to knowledge and awareness of HIV/AIDS, sexual behaviour and practices, attitudes, perception on condom use which enhance the understanding of the trend relationships of the independent variables.

The structures need support from resources to succeed in their operational activities. The government, stakeholders, development partners and institutions as mediating variables facilitate structures in implementing the effective desired HIV/AIDS prevention interventions. These mediating variables of information, education, communication, HIV/AIDS activities, HIV/AIDS policies help to facilitate resources/inputs in the effective implementation of the desired HIV/AIDS interventions. The resources/inputs support the structures in the effective implementation of HIV/AIDS prevention interventions. The structures and resources in place facilitate the knowledge and awareness shown by an arrow from structures and resources to knowledge and awareness. The variable communication moderates the structures and resources to facilitate decision making of effective HIV/AIDS interventions and implementation. This is depicted by arrows from structure and resources to communication and effective implementation of HIV/AIDS prevention interventions. Structures and resources are identified and supported with the following elements: stakeholders, institutions, donor communities, the government while resources are supported by HIV/AIDS policies, mode of communication channels and educational activities undertaken. The of HIV/AIDS prevention interventions costs are resources supported by mechanisms with cost inputs. These mechanisms are mass media campaigns, condom distribution, voluntary counselling and testing, institute-based interventions, HIV/AIDS educational approaches, communication channels.

The preceding elements in support of structure and resources affect the level of knowledge and awareness of HIV/AIDS interventions in the population.

The variables of knowledge and awareness interact to produce updated information used in communication for the decision-making process. Knowledge and awareness produce new information on structures and resources and thus update them. This is depicted with an arrow from knowledge and awareness to the structures and resources box.

Knowledge needs to be disseminated to people who value it and this is facilitated with awareness of the information. Meaning without awareness of the information, knowledge has no value to the recipients. Knowledge and awareness depend on each other and have a special relationship influencing the existence and contribution to the decision making of effective HIV/AIDS interventions. The knowledge and awareness of HIV/AIDS are updated with information from changes in sexual behaviour practices. Any change in the knowledge and awareness directly affects the attitudes, perceptions and condom use which in turn, have an influence on sexual behaviour practices. This is depicted by an arrow from knowledge and awareness facing down to attitudes and perceptions on condom use. This is followed by an arrow from attitudes and perceptions on condom use facing upwards to facilitate sexual behaviour practices. Eventually the upward arrow from sexual behaviour practices to knowledge and awareness shows the upgrade of information on sexual behaviour. In some instances, knowledge and awareness directly influence sexual behaviour practices, this is depicted by a downwards arrow from knowledge and awareness directly to sexual behaviour practices. Knowledge and awareness is moderated by communication in decision making on effective desired HIV/AIDS interventions for implementation. This is depicted by an arrow coming from knowledge to communication and another arrow from communication to effective implementation of HIV/AIDS interventions. This shows that communication is a moderating variable which facilitates decision making on effective implementation of HIV/AIDS interventions for students and employees in higher tertiary institutions.

Knowledge and awareness is associated with the following elements: age, gender, marital status, the characteristics of HIV and AIDS, the life cycle of HIV along with HIV existence, its transmission, symptoms, and the effects on the immune system.

Further, the appearance of an individual who is sharing, working and socialisation with an HIV/AIDS positive person. The understanding of the preceding elements influences the attitudes as well as the perception on HIV of individuals facilitating an intention to behave in a particular manner. The process is portrayed by a downward arrow from knowledge and awareness to attitudes, perception and condom use. The attitude and perception facilitate the intention to act or change the behaviour of an individual. This is shown by an upward arrow from attitude, perception and intention facilitating sexual behaviour. The change in sexual behaviour affects knowledge and awareness shown by the upward arrow from sexual behaviour to knowledge and awareness. This new information updates the knowledge and awareness influence on communicating the decision making of implementing effective HIV/AIDS interventions for the population.

Sexual behaviour practices can be influenced by information from knowledge, awareness and directly communicated in the decision making of choosing effective desired interventions for implementation. This is depicted by the direct arrow from the sexual behaviour box to the communication box. The variables of attitude and perception are directly influenced by change in knowledge. Attitude and perception in turn directly influence individual sexual behaviour practices. Further sexual behaviour facilitates knowledge and awareness. Knowledge and awareness consolidate structures, resources/inputs sexual behaviour practices, attitudes and perceptions to communicate information influencing the making of decisions of preferred effective interventions for the population. In the preceding process, communication is a moderating variable enabling decision making of the effective implementation of HIV/AIDS interventions. The arrows coming directly from variables structure of resources, sexual behaviour, condom use, attitude, and perception to communication show a direct link with implementing effective interventions.

The sexual behaviour practices, attitude, perception of condom and social norm, intention is characterised with the following elements: age, gender, marital status, insistence on condom use, communication, embarrassment, the decision on sexual activities, trust, care, faithfulness, relationships, relevance of HIV/AIDS messages, counselling, status disclosure and self-esteem.

These elements for the preceding variables facilitate in establishing the contributions of the respective interventions towards the effective implementation of the desired HIV and AIDS intervention among the students and employees in higher tertiary institutions.

The structures and resources elements interact with each other in order to support the knowledge and awareness of HIV/AIDS, which aid in identifying the desired effective HIV/AIDS interventions from the available HIV/AIDS interventions in the environment.

The prevailing HIV/AIDS intervention programmes availed to the universities are based on general assumptions not assessed for suitability to students and employees. The implementation of HIV and AIDS programmes IEC, VCT services, STI prevention, condom promotion programme and ART in the general population are assumed to be effective (NAC Report, 2016). The HIV/AIDS interventions (as independent variables) acting through the structure and resources of the intervening variable of knowledge and awareness, as well as sexual behaviour practices, attitudes and perceptions on condom use (dependent variables), facilitate to identify the effective desired HIV/AIDS interventions for the students and employees in higher tertiary institutions that have an impact on reducing HIV/AIDS incidences. The preceding elements of the variables have facilitated in formulating the proceeding hypotheses for testing in this study.

3.7.1 Research Hypotheses

From the conceptual map Figure 3.3, the study tested the following hypotheses:

Hypothesis 1

Ho: Structures and resources do not contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary institutions

H_A: Structures and resources contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary institutions

Hypothesis 2

Ho: Knowledge and Awareness of HIV/AIDS do not contribution to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary institutions among students and employees

H_A: Knowledge and Awareness contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary institutions among students and employees

Hypothesis 3

Ho: Sexual behaviour practices do not contribute to the effective implementation of HIV/AIDS interventions in higher and tertiary institutions among students and employees.

H_A: Sexual behaviour practices contribute to the effective implementation of HIV/AIDS interventions in higher and tertiary institutions among students and employees.

Hypothesis 4

Ho: The attitude to and perception of condom use have no contribution to the effective implementation of HIV/AIDS interventions in higher and tertiary institutions among students and employees.

H_A: The attitude and perception of condom use contributes to the effective implementation of HIV/AIDS interventions in higher and tertiary institutions among students and employees.

The population in the higher tertiary institutions are consumers of the HIV and AIDS services and need to make wise choices on the interventions availed to them. The decision-making on the desired HIV and AIDS prevention interventions choices for the higher and tertiary institutions population remains a challenge. Some of the key models that represent a broader perspective of consumer decision-making including the economic model, cognitive model and emotional model apply to theories applied in decision making of preferred HIV and AIDS prevention interventions in this study (Schiffman et al, 2001). The theories of HBM and TPB support the individual's perceptions in the decision making of the desired interventions. The economic theory of consumer decision-making behaviour based on the basic assumption of

maximising the satisfaction of wants and needs with the available scarce resources is applied in choosing HIV/AIDS interventions (Schiffman *et al*, 2001; Lawson et al, 1996).

The cognitive model focuses on the process by which consumers seek and evaluate information about the selected products and services, accepting that the consumer does not make economically rational decisions (Schiffman *et al*., 2001).

The emotional model is based on feelings and emotions or impulses from the concept of consumer decision-making (Schiffman et al, 2001). Howard and Sheth (2013) identified problem-solving models of decision making at three levels, extensive problem solving, limited problem solving and routine response behaviour that applies to the current study. The above three levels apply to the population in the higher tertiary institutions especially in choosing the preferred HIV and AIDS interventions leading to a funnel process structure.

The process starts with a high-level extensive internal and external search for knowledge and awareness of HIV and AIDS information followed by evaluation of alternatives. The choices of interventions were gradually made and evaluated for applicability before acceptance by the group thereby eliminating undesired HIV/AIDS interventions. This process eventually empowers individuals through information dissemination of available HIV/AIDS interventions and finally helps making choices of the desired HIV/AIDS interventions for the population. This indicates the desired HIV/AIDS interventions beneficial to the students and employees in higher tertiary institutions. The conceptual framework discussed above did not address all the elements that contribute towards choosing the desired HIV and AIDS interventions, these are addressed in TPB which is summarised in the previous paragraph. The following paragraph covers the relevance of the theory of planned behaviour to the study.

The theory of planned behaviour suggests that behaviour is dependent on the individual's intention to perform or act out the behaviour. The intention is determined by an individual's attitude (beliefs and values about an outcome of behaviour). Subjective norms (beliefs about what other people think the person should do) interact with attitude towards the behaviour and perceived behavioural control. Behaviour is also affected by an individual's perceived behaviour control, defined as an individual's perceptions of their ability to act or perform the behaviour (Grizzell, 2007). The relationship described in the preceding sentences applies to the variable sexual behaviour practices in this study, thereby justifying the inclusion of the theory of planned behaviour.

3.8 Chapter summary

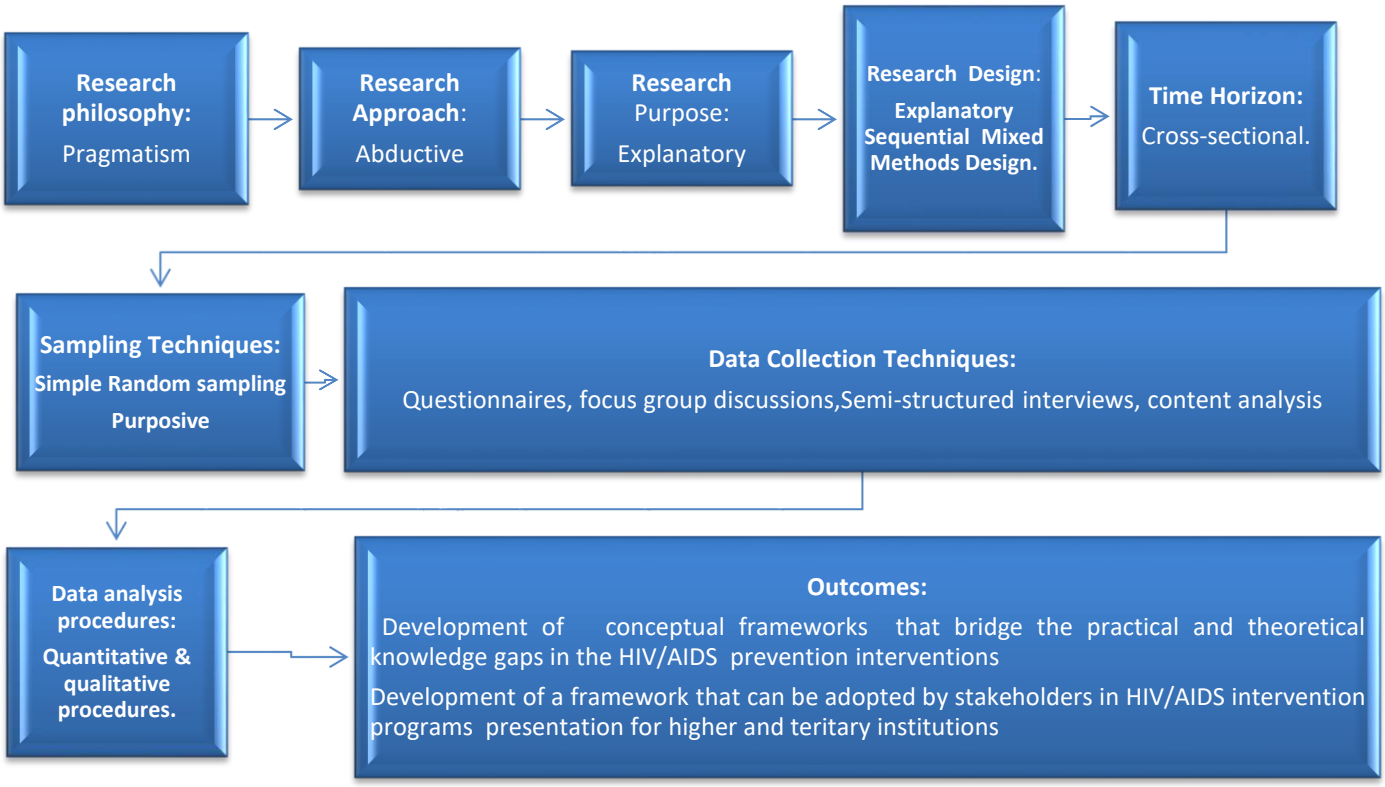
Theories relating to behaviour, attitudes, and perceptions of individuals facilitated in the formulation of the hypothesis testing and contributed to the designing of theoretically based models on the interactions of variables. The models proved to be useful in explaining and predicting changes in HIV/AIDS interventions in relation to knowledge, sexual behaviour practices, attitudes and perception. A model on the interaction of the variables of the Theory of Planned Behaviour was framed to assist in identifying elements that contribute towards effective HIV/AIDS interventions. In addition, hypotheses to support effective implementing of the interventions were formulated. The conceptual framework facilitated deriving the assumptions for the study, which helped to establish relationships among variables which impact on both the effectiveness and preference of the respective HIV and AIDS prevention interventions availed to higher tertiary institutions population. Chapter 4 delves deeper into the study by exploring the methodology to facilitate finding solutions to this study problem.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.0 Introduction

This chapter provides an insight into the research methodology applied in this study guided by the research process. The research process used seven sections, which are research purpose, research paradigm, research approach, research design, sampling procedures, time horizon and data collection. In this study, the research process models by Saunders, Lewis and Thornhill (2015) were used as building blocks to construct a nine-stage research process model as summarized in Figure 4.1.

Figure 4.1 Research Process Model Adapted for the Study:



Adapted by Researcher (2018)

The nine stages for the research process depicted in figure 4.2 are research philosophy, approach, purpose, design, time horizon, sampling, data techniques, data analysis and outcomes respectively. This chapter concludes with an exploration of the ethical consideration that this research and its associated methodology considered and adhered to.

4.1 Research philosophy

According to Babbie (2004), the research philosophy outlines how the researcher views the world. Research philosophy falls into five main categories, namely: positivism, interpretivism, critical realism, post-modernism and pragmatism (Saunders, Lewis and Thornhill 2015, p143). This study adopted the pragmatism research philosophy. The triangulation of positivism, phenomenological philosophies, and research methods of quantitative, qualitative and document analysis facilitated the establishment of effective HIV/AIDS interventions. Saunders *et al.* (2015) also noted that in pragmatism philosophy knowledge arises from actions, situations and consequences rather than antecedent conditions. Pragmatism accepts that there are singular and multiple realities that are open to empirical inquiry and orients it towards solving practical problems in the real world (Creswell and Plano Clark, 2011).

Creswell (2003) also adds that the positivism philosophy is of the view that research progresses through hypotheses derived from the existing theory that will be tested and contribution to further development of the theory requires a large number of the sample to be selected randomly. On the other hand, Easterly-Smith *et al.* (2012) hold that interpretive views the observer, as a part of the observation and those human interests are the main drivers of science. The realism tradition presumes a scientific approach regarding knowledge development, which is similar to the positivism tradition (Halinen and Tornroos, 2005).
Postmodernism philosophy is of the view that the correct description of reality is impossible, hence all truth is limited, approximate and is continuously evolving, and no theory can ever explain all things consistently.

The adoption of pragmatism philosophy in this study was influenced by the research methods associated with quantitative and qualitative research, consolidating their strengths and weaknesses. Combining them allowed the researcher to offset their weaknesses and draw on the strength of both methods (Bryman, 2006). However, this study mixes philosophies in line with pragmatism to address the research problem. The justification for pragmatism is the ability to address cause-effect research questions, contrasting with phenomenological studies, which are not effective at addressing cause-effect research questions. This study involves subjective elements such as attitude, perception and behaviour by applying various philosophies. The pragmatism research philosophy accommodates subjectivity and diverging views used for this study to accommodate the various philosophies.

The pragmatism research philosophy advocates that research starts with a problem and aims to contribute a practical solution (Saunders *et al.*, 2015). The pragmatism research philosophy is ideal for providing superiority in the area of providing answers and solutions to research questions where other philosophies fail. This research is multi-purpose allowing a mixture of different philosophical viewpoints within one study and ultimately applying a mixed research approach and mixed methods (Armitage, 2007). Pragmatism is relevant to the current study since the researcher uses various preceding approaches the epistemology paradigm to cater for different types of knowledge and the positivist approach catering for survey data collection, its analysis and the vast literature on HIV/AIDS prevention interventions. The epistemology paradigm is appropriate to the study due to the different types of knowledge ranging from numerical data and textual data facts to interpretations, which were legitimate with social reality (Saunders, 2012). The epistemology study allowed the use of measurable facts, causal explanations of the problems and prediction of future practice as a contribution to the main objective of the study. The positivist approach applied in the first phase of the study supported the structured questionnaire used to collect data and its analysis. The pragmatism philosophy facilitated exploration of the relationships of the variables: knowledge, awareness, sexual behaviour, attitudes, and perceptions with HIV/AIDS interventions in the study. These preceding approaches provided the opportunity for furnishing a wider diversity of different views on the effective implementation of the desired HIV/AIDS interventions, which assisted in facilitating the research approach for the study.

4.2 Research approach

The study adopted the modifying approach since the study used a mixed-methods research approach. Bryman and Bell (2007) posit three general research approaches and these are deductive, inductive and abductive. The deductive research approach follows the logical process of deriving a reasoned conclusion from a generalised known fact (Creswell, 2003). The inductive research approach concerns specific observations or data findings, which refer to theory building (Halinen and Tornroos, 2005). The study used both the deductive and inductive approaches but with more emphasis on the deduction since it was concerned with deriving a reasoned conclusion from the generalised known fact on HIV/AIDS interventions. There is a substantial body of knowledge in the area of HIV and AIDS prevention interventions, but not within the context of effective implementation of targeted HIV/AIDS interventions for higher and tertiary institutions. The inductive approach complements the modifying approach in facilitating theory application.

This justifies the contribution to the literature for the incorporation of effective HIV/AIDS interventions in higher and tertiary institutions in Zimbabwe. The modifying research approach was suitable since there is limited literature on HIV and AIDS interventions in higher and tertiary institutions in Zimbabwe. This was relevant since the researcher used existing literature to identify relevant theories, ideas that the researcher tested using data collected.

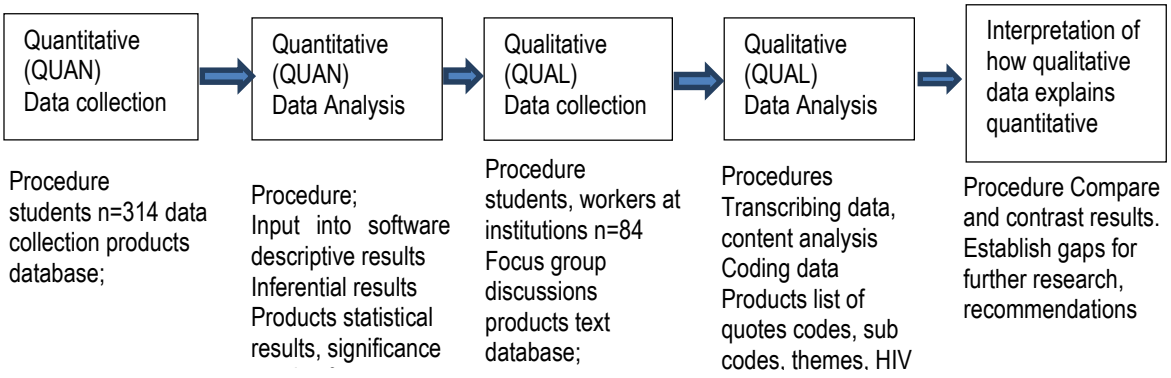
4.3 Research strategy

The researcher used a survey strategy, which is associated with deductive and inductive approaches as stated in the preceding paragraph. The survey strategy facilitates answers to questions that are characterised by who, what, and how. Consequently, a cross-sectional descriptive survey is the most appropriate option for this current study since it is conducted at a particular time.

4.4 Research design

The researcher used a typology of mixed research designs to ensure that the area rich in literature with a large study population under investigation was extensively covered (Leech and Onwuegbuzie 2009). The HIV and AIDS sector is rich in literature and necessitated the use of an explanatory sequential mixed-method design with more emphasis on the quantitative strand for the study. The goal of mixed methods is to draw from the strengths, as well as minimise the weaknesses of both designs in single research studies and across studies to benefit from triangulation. Neither quantitative nor qualitative methods are sufficient in themselves to capture the trends and details of the situation with the variables under consideration. This choice is motivated by the fact that the mixed-method design provides a better understanding of the research questions under study and provides a relatively more complete understanding than the use of a single method of inquiry. The research design study is depicted in *Figure 4.2* followed by an explanation for the design.

Figure 4.2: Explanatory sequential mixed method research design:



Source: Adapted from Creswell and Plano Clark (2013)

The study used two phases to collect data: Phase 1 quantitative data and Phase 11 qualitative data. The quantitative strand survey used structured questionnaires to capture data on demographic characteristics of the study participants, their HIV/AIDS knowledge and awareness, social and behavioural variables plus sensitive, confidential information, which must be protected from public access. The survey questionnaire was a source for the quantitative data used in the data analysis. In this concurrent explanatory mixed methods research design, quantitative data is collected, analysed and the results created the need to collect additional in-depth qualitative information on the study population. The qualitative data collection used focus group discussions and structured interviews to collect data.

The final stage was the interpretation of quantitative and qualitative results involving comparison and contrast of the results to elaborate the final findings. Bryan (2009) also notes that combining different methodologies in a single study enhances the researcher's claim for the validity of his or her conclusions if they can provide complementary results. Written narratives were obtained from HIV and AIDS focus groups, which consisted of both students and staff from the various institutions of higher learning. Open-ended questionnaires were discussed at length and the notes taken guided the focus groups.

Qualitative research focuses on meaning, experience and understanding, which allowed the researcher to interact with the individuals and groups from which the researcher needed deeper understanding. Content analysis facilitates in identifying the costs for the desired HIV/AIDS prevention interventions in the institutions. The researcher reviewed the HIV/AIDS interventions costs from the institution since it was her workplace and compared them with the HIV/AIDS intervention standard costs approved by the WHO.

The cross-sectional method is less expensive because subjects do not have to be tracked over time, and the analysis does not suffer from participant attrition as it is with the longitudinal path analysis. Analysis commenced immediately after the data collection was concluded, thus saving time. To verify, support and complement the findings from questionnaires, the researcher used information collected from focus group discussions.

4.5 Research Population

De Voss *et al.* (2012) refer to a study population as a set consisting of individuals in the universe that possess specific characteristics and the individual units of analysis classified. The target population for the study comprised students and workers from five universities who consented and granted permission for the study to be undertaken. It is from these five universities that a convenience sample was drawn based on demographic characteristics. The targeted study population size was 5 000 consisting of only registered students and workers employed in the institutions from the 2015 to 2016 academic year whom the researcher could easily access and also whose names and email addresses were available or had provided other means of contact to the researcher.

4.6. Sampling Procedures

The sampling methods are divided into two categories: non-probability and probability sampling. Purposive sampling is a non probability sampling method where elements selected for the sample are chosen by the judgement of the researcher. Purposive sampling is a technique of retrieving informant data source with certain considerations. These considerations are the respondents who are considered the most knowledgeable and have the required information in the research area of HIV/AIDS (Campbell, 2018). Furthermore, purposive sampling is characterised with the personal judgement needs used to choose cases or respondents that help answer research questions or achieve the research objectives. The justification for the use of

purposive sampling was the limited number of people that served as primary data sources in line with the research design and objectives. The study population of students and employees in higher and tertiary education institutions are a homogenous subgroup with a shared set of characteristics. This enabled the use of purposive sampling to describe the major impact the findings have on the population. In addition, purposive sampling enabled the researcher to extract a lot of information out of the data collected. Purposive sampling was one of the most cost and time effective methods for the researcher. Purposive sampling as a non probability sampling method was the most appropriate for this particular study survey with focus group discussions and interviews. The researcher had prior experience in the HIV/AIDS sector and used her own judgement and criteria for sampling the study participants. Purposive sampling was also the most cost-effective and time-effective method for the researcher. It was also the most appropriate for ensuring the presence of maximum variability within the primary data. This ensured that only participants with relevant criteria were involved in the study. The criteria were that participants were expected to be two years or more studying or working at the institutions. The above fact ensured that the researcher elicited opinions from participants with knowledge of the institutions operations. Purposive sampling was used for focus group discussion for the participants who were not involved in the survey. The use of purposive sampling ensured that the respondents with HIV/AIDS experience were involved and facilitated investigating solutions to research questions for this study. The current study used the non probability-sampling method for the quantitative aspects of the study. Purposive sampling was applied in this study to select elements representing the population for the survey data. The researcher collected a list of registered students in the year 2015-2016 from each university with complete details from the universities' databases. Using the set criteria, the researcher selected respondents from the list for the sample.

4.6.2 Determination of Sample size

The sample for the study is derived from the five universities that agreed to be involved in the study. These universities are spread all over the five provinces in the country and consisted of both private and public institutions. Sample size determination is one of the most complex but important stages in research. Sample size determination is important because it saves time, is less costly and it facilitates making inferences about the population. The sample size replicates the target population, provides quality information and adds to the designing of questionnaires (Saunders, 2009). Scholars have come up with different methods of calculating acceptable

sample sizes. Hogg and Tanis (2005) argue that a sample size of items more than 25 can be usable and give fair results to make statistical inferences. Cook (2018) highlighted the effect of the sample size of thirty or more to produce a quite normal t-distribution with the maximum error sliding up to 1.85 and 1.56 when n=30.

Hickey, Grant, Dunning and Siege (2018) explained how researchers could use the G*Power software in sample size determination. Hickey *et. al (2018)* pointed out that the software requires the use of the prior power analysis for the study. The researcher used the G-Power version 3.1.9.2 to calculate the sample size and a two-tailed test determined a sample size of 314. The sample size is above 30 recommended by Hogg and Tanis (2005) suggesting that the sample number of 314 adequately represents the population in the study. The researcher distributed 314 questionnaires based on the assumptions of G-Power calculations as follows:

Two-tailed –t-Test

Effect size = 0.2

Error term = 0.05

Power (confidence level) =0.95

The results were

Non-controlling parameter =3.617

Critical t-value =1.967

Difference =312

Total sample size =314

From the calculations, the sample size for this study is 314. The G*Power software shows only inputs needed for calculation. The G*Power formula for sample size calculations takes into consideration the variable relationships such as correlation and regression with the validity and reliability of the data in arriving at the sample size figure for the study. Furthermore, the sample size calculation was supported by the calculations below using the Yanke (1967) formula.

The sample size is computed using Yamane (1967) formula as well as Saunders et al (2009: 221) for clustering effect (Design effect) as follows.

FORMULA:

$$n = \frac{N}{1 + Ne^2} X\ DE$$

Where:

n= the sample size

N=the population of the study

e= the level of significance at 0.05 for this study

DE=Design effect (assumed to be 0.785 for this study)

$$n = \frac{5000}{1+5000*0.05^2} X\ 0.785 = 314$$

The minimum required sample for this study is 314 (adjusted for clustering effect).

The study used purposive sampling for interviews and focus groups contributing to primary data samples. The researcher used purposive sampling to identify the coordinators and HIV/AIDS club leaders with knowledge and experience in HIV/AIDS issues. Henning (2004:71) argues that purposive sampling uses the denominator "people most suitable to wander with on the research journey selected at the time they are needed". The study used purposive sampling for the focus groups' discussion participants based on the above-stated criteria.

Purposive sampling was used to ensure the sample is most appropriate and has the critical variables representing the target population to address the study objective. The population consisted of students and employees from higher tertiary institutions. After receiving permission to carry out the survey, the researcher visited the respective institutions, introduced herself and was allowed to conduct the survey. The researcher asked for permission to access lists of students on the universities database and this was granted. Then the researcher used lists of students from these universities' databases and selected 314 respondents for the study. The sample was distributed among the five universities as follow: National University of Science and Technology had 66 since it is the station of the researcher, the other four universities had 62 each giving a total of 314 the sample size. Firstly, the survey objectives and consent to participate was explained to the participants. The criteria to participate were

explained to ensure only those participants that qualified were involved in the survey. The above action enhanced the reliability and validity of the data collected. After clearing any queries on the survey requirements, questionnaires were distributed to the participants with the help of two trained research assistants. The questionnaires were distributed to students in the classroom and at the sports ground who were willing to participate in the survey.

Focus groups consisted of purposefully selected members who fulfilled the criteria of participants. Focus group members were mostly employees, those who did not participate in the survey.

4.7 Inclusion Criteria and Exclusion Criteria

The following **inclusion criteria** were used for the sample:

(i) The respondent had to be a registered student with the university or with a higher and tertiary institution with a minimum of one year of study in the institution. This is to ensure that only respondents who have knowledge and experience of the institution participate and give reliable answers in the questionnaires.

(ii) The student had to be in the second year of study or above in the academic year 2015/16. After setting the minimum criteria, the researcher identified the participants for the survey in classrooms and at sports grounds.

(iii) Employees had to have two years or more working experience in the area of HIV/AIDS

Exclusion criteria was defined by the following characteristics

(i) Students in their first year in 2015/16.

(ii) Students and employees not currently at the institution

The researcher used purposive sampling for both quantitative and qualitative data collections. However, as part of primary data collection procedures, the researcher interviewed HIV/AIDS coordinators and held focus groups with the assistance of the respective HIV/AIDS personnel from the institutions. The researcher used inclusive criteria for the focus groups discussion participants with six years working experience in the HIV/AIDS field at the universities. This ensured validity and reliability of the information collected from experienced participants.

4.8 Data Collection Method

The data collection used survey method and focus group discussions, interviews for qualitative method. Data was collected through a questionnaire, a sample of which is appended in Appendix 2 for quantitative data. Focus group discussions, interviews collected qualitative data and a sample size of eight focus group discussions using a guide in appendix 2. The focus group discussion guide was also used for the interviews.

Procedure for data collection

The researcher sent letters and held preliminary interviews with institutional authorities seeking permission to undertake the study in their institutions. Firstly, a pre-test survey was conducted to facilitate refinement of the questionnaire and this was followed by setting the minimum criteria for participants.

After obtaining permission from five institutions both private and public in Zimbabwe, the researcher proceeded to self-administer questionnaires to the selected participants. The researcher identified the participants for the survey in the classrooms and during sports activities at the sports grounds. The researcher introduced herself to the participants and explained the main purpose of the research, the structure of the questionnaire and the time allowed for completing the questionnaire. The questionnaires were distributed and completed within forty-five minutes during the students' sports festivals and lecture break times and collected the same day. It was easy to administer the questionnaires to the students while in one place. Secondly, focus group discussions (FGDs) were conducted to complement data collected from the quantitative survey instruments, with qualitative data. The researcher documented and used content analysis to expand the mixed methods approach and enrich the study findings. The researcher conducted the study in two phases from February 2016 to September 2016. Phase 1 involved the collection of quantitative data through structured questionnaires administered to students in higher and tertiary institutions. In Phase 1 a sample size of 314 was used for the survey. G-Power software facilitated the sample calculations and a sample size of 314 was established which was good enough for the study. This sample enabled the display of statistical relationships among the data. Initially, the distribution of 314 questionnaires among the students occurred, 304 questionnaires were returned from the universities.

Phase 11 qualitative data was collected through focus group discussions and interviews. However, as part of primary data collection procedures, the researcher interviewed HIV/AIDS coordinators and held focus groups with the assistance of the HIV/AIDS personnel from the institutions.

The researcher maintained strict scrutiny to identify fully answered questionnaires and finally selected 296 out of 314 fully completed questionnaires, which is significant. The difference between selected and sample figures was due to incomplete questionnaires which were not considered for the survey.

A pre-coded list for the questionnaire facilitated coding and inputting data. After receiving the survey questionnaires coding of variables started and questionnaires were separated into fully completed and incomplete. The researcher recognised and considered that meanings are socially constructed, modified and interpreted according to one's understanding and needs (Cohen *et al.*, 2000). The participants were requested to complete informed consent forms before participating in focus group discussions, interviews and completing questionnaires distributed by the researcher and research assistants. The preceding action was a reminder that focus groups discussion, interviews and the completion of the form was for the purpose of research; it was voluntary and participants had the right to withdraw at any time.

4.8.1 Quantitative data collection Phase 1

After the pilot study, the questionnaire was refined and distributed to the participants by the researcher with the assistance of the two trained research assistants. Phase I involved a survey, collecting data through the structured questionnaires from March 2016 to June 2016. Surveys of students happened after permission from the lecturers in charge during classes and sports tournaments. The researcher explained the main objective of the study, the structure of the questionnaires and steps involved in completing the questionnaire. The participants had time to complete the forms, which were then collected within two days. The researcher also used secondary data from published information on HIV and AIDS prevention interventions from Zimbabwe's NAC reports and Google scholar search to gather information on the cost of HIV and AIDS interventions. Qualitative data was converted into quantitative using computer software to enhance the study findings. Quantitative data on the costs of HIV and AIDS interventions was not readily available meaning that the study relied on secondary published data. The researcher reviewed published literature, books, journals, newspapers, published

electronic sources that provided secondary data for more insight on HIV and AIDS interventions costs and the challenges involved in HIV/AIDS programmes. The advantage of secondary data for this research was that it was reliable as well as efficient, cheaply accessible and provided the necessary background on the topic. The researcher used the WHO reports on the costs of individual HIV/AIDS interventions, which are the standard accepted costs and figures applied in costing HIV/AIDS programmes. The WHO standard questionnaire on HIV/AIDS facilitated in formulating the study questionnaire because this enhanced the reliability and validity of the data collected for the study.

4.8.2 Research instruments for the study

A pre-test of the measurement tools was conducted at the National University of Science and Technology in December 2015. The researcher tested the measurement tools for comprehension to assess the meanings that participants attached to the questions. The pre-test results facilitated the refining of the data collection tools. The structured questionnaires, semi-structured interviews and focus group discussions (FDGs) were used in collecting data. The study was mixed-method research entailing the use of varied data collection instruments to enhance the validity and reliability of the study results (Webb *et al, 2015).*

Survey Questionnaire

The study used questionnaires involving site visits to distribute the structured questionnaires. The questionnaire is one of the most widely used instruments for collecting data in survey research and must be clearly understood by the respondents to facilitate accurate responses (Bryman, 2004). The questionnaires are best suited for collecting data on facts, opinions and thus they enable researchers to collect standardised information in respect of the same variables for everyone in the selected sample (Denscombe, 2010).

Questionnaire Structure

An instrument used to measure variables in the study and serves as a useful tool for data collection. A properly well designed questionnaire affects the results of the survey response rate, its reliability and the validity of data. Short simple language that could be easily understandable by all respondents was used to encourage the respondents' cooperation and involvement throughout the questionnaire. The questionnaire was split into four sections with the first section, Section A, covering an introduction and the steps taken to guarantee confidentiality and anonymity of the respondents to provide details about their socio-demographic information. Section B addressed their knowledge and awareness of HIV/AIDS;

Section C covered behaviour and attitudes about HIV/AIDS interventions, and Section D covered HIV/AIDS communication methods and HIV/AIDS policies. These were presented as follows: knowledge and awareness of HIV and AIDS, sexual behaviour perception, attitudes on condom use, current HIV/AIDS prevention interventions and communication modes. The fourth section covered the application of the Theory of Planned Behaviour to the study and HIV/AIDS modes of communications available for the students. All items in the sections were measured on a 7-point Likert-type scale ranging from Strongly Disagree to Agree Strongly. Likert scales are typically used in survey research to provide an ordinal-level measure of a respondent's attitude (Neuman, 2003). Likert scales allow the rating of a single attribute along a continuum of perceived equidistant intervals (Zikmund, 2003). The study questionnaire used an odd-numbered scale to measure the respondents' views for this study to reduce respondent's bias due to the use of an even-numbered scale in the Likert scale (Gwinner, 2006). Multiple-choice questions were used, and each statement was assigned a separate variable in the analysis. Multiple-choice questions required the respondents to choose just one response from the list of alternatives used for data analysis.

The researcher also used the checklist to facilitate the investigation. It involved a list of set items, which respondents select, and each statement was assigned a separate variable. Structured questions were in the form of the Likert scale type of questions while unstructured questions were used to capture attitudes and perceptions of respondents.

The use of self-completed questionnaires has some limitations that should be acknowledged in this methodology. The survey covered the five universities, and this made it impossible for the researcher to be present as respondents completed the questionnaires. The use of the Likert-type scale instruments is meant to minimise the problems associated with meanings. In this study, the WHO- HIV/AIDS questionnaire standard format facilitated the format of the questionnaire for the study survey. The questionnaires were scrutinised for completeness. The researcher consolidated data derived from both quantitative and qualitative methods to strengthen the findings of the study. Triangulation of quantitative and qualitative methods ensured the validity, reliability and a higher degree of confidence in the results was achieved.

4.8.3 Administering the questionnaire

The questionnaires were used to gather quantitative data and distributed during sports activities and lectures to a sample of 314 university students drawn from five universities. The survey was conducted with the help of one field assistant at each institution.

Cook (2018) highlighted the effect of the sample population of thirty or more to produce a quite normal t-distribution with the maximum error sliding up to 1.85 and 1.56 when n=30.The sample size for the study was 314 which is far above the recommended sample size of 30. Clearly showing that the sample size used and the findings are valid and reliable.

4.8.4 Qualitative data collection Phase 11

Phase 11 involved focus groups and collecting qualitative data derived from focus group discussions guided by the research objectives so that the discussions centred on the areas relevant to the study. Focus groups were helped in the collection of qualitative data. A pilot study occurred with workers at the National University of Science and Technology as the focus group to ensure the discussion guidelines were clear of any ambiguities before the study was undertaken. The researcher was assisted by two research assistants to collect data since they could easily interact with their peers. Focus group discussions supported with in-depth information aided the quantitative explanatory and descriptive results in the study.

The collection of data from focus groups was executed at source by taking notes during the debates guided by the questionnaires. In some cases, the researcher was assisted by experienced HIV and AIDS Coordinators in the institutions to facilitate the discussions conducted with the focus groups. These focus groups help to inspire participants to contribute in the group discussions. The focus group discussions were held on the same day after administering the unstructured questionnaires for an hour. The use of open-ended questions helped the respondents to formulate their statements and led to unexpected responses. Eight focus group discussions comprising of fifteen participants in a group were carried out and proved to be manageable in line with Malhotra (2010)'s recommendation. The groups were homogenous since the participants were taken from the National University of Science and Technology and easily accessible. National University of Science and Technology students and workers who did not participate in the survey were the subjects for focus groups, based on their homogeneity as a group and easy accessibility to the researcher. Focus groups discussions capture different

explanations and interpretations, which structured questionnaires are unable to bring up in their answers, hence, the researcher used focus groups within the target population guided by unstructured questions. The focus groups discussions undertaken from August 2016 to September 2016 used focus group discussions and interview guides for the deliberations.

4.8.5 Focus group discussions administration

The universities' HIV and AIDS focal personnel assisted the researcher by noting down the relevant notes for each area discussed during the focus group discussions. The participants interacted with each other, and a lot of brainstorming took place, which yielded insights that were not available in a straightforward interview setup or structured questionnaires. The questionnaires facilitated the group discussions in addressing structures and resources, knowledge, awareness, sexual behaviour practices, attitudes, perception and condom use issues relevant to HIV/AIDS interventions in the study. The discussions were completed within the stipulated time of one hour. The researcher and two assistant researchers took notes of the conversations compared them, and analysed the keywords or most frequently used words that the respondents were emphasizing. The construction of meaningful conclusions to the discussions was facilitated by the analysis.

The noted discussions were analysed based on the following guiding phrases:

- Knowledge and awareness of HIV and AIDS, sex and relationships: protection and precautions used by sexually active teens, condom negotiation skills, embarrassment or fear surrounding the purchase of condoms, availability of condoms to youth, getting tested, when is it safe to stop using condoms.
- Abstinence: Why abstain, what the campaigns say about abstinence. Phrases like support abstinence to protect oneself from HIV or abstinence-based on religion until marriage stage are some of the common phrases noted.
- Institutional support of HIV and AIDS interventions phrases indicated the HIV/AIDS workshops at institutions, availability of condoms, HIV/AIDS counselling and testing was accessible all the time and that there were seminars on health issues besides HIV/AIDS.

The focus groups helped to gather relevant descriptive data on HIV and AIDS structures, resources, knowledge, attitudes, behaviours, values and opinions that were relevant to the study.

The researcher, guided by the questions used in the focus group discussions, formulated an interview guide. The interviews were informal for the respective HIV/AIDS coordinators from the institutions involved in the study and to verify and validate the data obtained from the respective focus group discussions.

4.8.3 Focus group discussions interview guide

Firstly, permission was granted for the interview following the predetermined guide of the research questions, which guided the discussions (Malhotra, 2010). The discussions started with open-ended questions to avoid undue influence among the participants (Easter-Smith, 2015). The participants were purposely selected and only those with HIV/AIDS knowledge and interest were included. The members of each group provided questions included in the guide. Some of the questions centred on the group interactions and discussions on topics about HIV and AIDS preventions provided by the researcher, thereby yielding a collective view. Some of the guiding questions centred on the following issues:

- Discussion on participants' knowledge of HIV and AIDS transmission
- Sex and relationships, communication on the use of protection, getting tested for HIV, abstinence, having multiple sexual partners, sex with older partners, talking to peers and parents about HIV/AIDS and sex
- The other areas covered were HIV and AIDS awareness, the campaigns context, sexual behaviour in general and self-esteem.

4.9 Method of Data Analysis

Data analysis is the process of making sense of the collected data for the study. Merriam (2009) posit data analysis is conducted to answer the research questions in a study. The analytic scheme was a sequential mixed analysis (SMA) involving the use of both qualitative and quantitative data analysis procedures. Correlation and regression analyses were used for the study to determine the extent to which the independent variables were associated with the dependent variables. The study variables structures, resources, knowledge, awareness, sexual behaviour practices, attitudes, perceptions and condom use test score data and survey responses facilitated the study findings. The strategies for analysis that are presented by this research are inductive and deductive studies. The researcher conducted a sequential mixed methods analysis to analyse survey responses. This involved the use of both quantitative and qualitative data

analyses. Subsequently, the research was characterised by a diminished structure more aligned to quantitative analysis. Inductive strategy was applied for the quantitative analysis. Quantitative data analysis was undertaken first followed by qualitative analysis. In the quantitative analysis, the researcher attempted to establish or identify relationships or patterns and trends through a scrutiny of the data by applying mean variance, standard deviation, correlation, regression, factor analysis and principal component analysis.
In summary, induction, abstraction and generalisation are the base or root of analysis and interpretation of the study.

The inductive strategy allowed the generation of hypotheses in the reviews that are mainly explanatory or descriptive and fits well into the methodology of quantitative research nature. The study was both explanatory and descriptive, so the inductive strategy fitted well to give a clear patterned picture of the variables. In this mixed-methods study, a rigid conceptualisation and data collection ultimately constituted the frame of reference for analysis and interpretation, mostly applicable to studies of a quantitative nature. Qualitative data analysis was facilitated by the results from the quantitative analysis. The deductive strategy focus was employed in the qualitative analysis process of the study. The researcher chose a sample or subgroup of people from the target population who did not participate in the survey data collection for focus groups participants. Focus group discussions were guided by the questions aligned to the study research objectives on issues related to the overall research. The answers to these questions were descriptive, enabling the identification of opinions and attitudes of the whole population from which the sample was drawn. The findings from the focus group discussions helped to verify the findings from the quantitative analysis of the study without a particular conceptual framework. The researcher relied on the use of generalisation to guide the research study.

The study adopted both quantitative and qualitative designs though the strategy of data analysis remained inductive. Deductive analysis applied on focus group data and content analysis data produced results that supported the results of the inductive analysis. The preceding results showed the reliability and validity of the study findings. In addition, movement towards the generation of hypotheses guided and directed this study in qualitative data analysis, which was supported by Oliphant (2014). The Oliphant (2014), discourse analysis was concerned with discourses that were integral to a culture or society and could be a study of social interaction in social relations. An analysis process as reported by Oliphant (2014) guided the qualitative

and quantitative data analysis in this study. The researcher applied some aspects to the data analysis process. Firstly, the researcher reviewed the data collected through structured and unstructured questionnaires for validation and classification into the quantitative group and qualitative group.

After studying data specification which was divided into quantitative and qualitative categories, a list of codes for coding data into the themes was subsequently followed by developing, coding and capturing the data into the computer.

4.9.1 Quantitative data analysis

Checking and validation of questionnaires received from the field happened immediately after receiving them. The questionnaires were checked for completeness and separated from incomplete forms. Excel was used to capture data into the computer creating a database which was exported to SPSS 21 for the purpose of quantitative analysis. The data was analysed in cross-tabulations with central concern to imputing causation and reporting *p*-values or correlations with the explicit or implicit suggestion that they represent meaningful relationships or influences. The results from the related data were analysed using descriptive, differential and multivariate, linear regression techniques. SPSS version 21facilitated in producing descriptive statistics in the form of mean and standard deviation, the variances, percentiles and significance of the t-test for the study. This was followed by the identification of links in different data contexts and patterns using the SPSS version21, which facilitated the correlation, factor analysis, principal factor analysis and regression analysis results for the study. Correlation analysis of the data was facilitated by using a seven-point Likert scale indicating agreement/disagreement with statements to indicate contribution in respect to each of the variables in the study. The seven-point Likert scale weighting was as follows: mean scores four to seven represented agreements and below four indicated disagreements with statements in the questionnaire.

The Statistical Package for the Social Science (SPSS) version 21 facilitated analysing quantitative data from the structured questionnaire. Analysis was applied on the data to identify relationships and trends through scrutiny of correlation matrices, regression and exploratory factor component analysis. Exploratory Factor Analysis (EFA) and Cronbach's Alpha examined data for accuracy, normality, skewness and kurtosis coefficients, factorability of the

correlation matrix and measure of sampling adequacy and appropriateness. The study used a measure of sampling adequacy score limit by Kaiser-Meyer Olikin (KMO) of higher than 0.60 and Barlett's Test of sphericity significant at less than 0.05 meaning that it was suitable for factor analysis (Hair *et al.* 2010).

Factor analysis captured the variance variables in a small set for each question analysed to establish the most contributing factor among the latent variables. The preceding resulted in items producing the correlation matrices, which facilitated the principal component analysis. A principal component analysis is a linear combination of variables that uses optimal weights and emphasises some variables contribution more than the others emphasise.

In addition, it summarises the common variation in many variables into a few, it also establishes the causal relationships of the variables and identifies the critical elements that contribute most to the intervening variables in the study. Descriptive statistics depicted characteristics of the variables using means, standard deviations and inferential statistics and the *p*-values extracted from the data. Standard deviation and variance showed the mathematical dispersion of the data set relative to the mean and variance of the respondent's opinions. In addition, a two-sample *t*-test facilitated the correlation matrices, regression analysis and the exploratory factor component analysis on the data to establish relationships and trends of the variables.

Analysis applied to the data identified relationships and trends through scrutiny of correlation matrices as well as regression and exploratory factor component analysis. Exploratory Factor Analysis (EFA) and Cronbach's Alpha at 0.70 were used to examine the data for validity and reliability in this study. The study used a p-value of 0.05 as the threshold for making inferences and conclusions. Easterby-Simith et al, (2015) posit that a p-value of 0.05 indicates that there exists a 5% chance of drawing the sample tested if the null hypothesis was true. SPSS version 21software facilitated the production and display of the validity and reliability of the instruments for this study. The results were displayed in the form of tables for easy interpretation. The researcher undertook to identify and set aside any preconceived beliefs, opinions on the phenomenon of the effectiveness (E) of HIV and AIDS programmes and tertiary institutions. The following section articulates the several necessary steps taken by the researcher in the process of data analysis in qualitative and quantitative research.

4.9.2 Qualitative data analysis

The researcher chose a sample or subgroup of people from the target population who did not participate in the survey data collection for focus groups and asked them questions aligned to the study research objectives about issues related to the overall research. The answers to these questions were descriptive, enabling identification of the opinions and attitudes of the whole population from which the sample was drawn. The findings from the focus group discussions helped to verify the findings from the quantitative analysis of the study.

The researcher used a narrative technique for data analysis to accommodate both the qualitative and quantitative trends involved in the study. Phenomenological analysis facilitated the identification of themes in the study data. A thematic framework was developed to cover initial issues from literature reviews and current emerging issues. Codes were assigned to the themes in the framework reflecting the study objectives. The thematic framework was applied to the data using textual codes to identify specific elements of data relevant to different themes.
The Excel spreadsheet was used to capture themes for analysis. The analysis was manually done to accommodate other issues missed during the transcription of data and compared with results from quantitative analysis. In the case of focus group discussions, the researcher listened, transcribed notes with the help of research assistants, compared and contrasted descriptions of HIV and AIDS prevention interventions data and identified the common themes that emerged from the discussions. The themes were arranged according to the study objectives and assigned codes, with numerical weight 1 for each relevant point, the codes for each theme were summed up, and the facts of each objective consolidated, the percentage of each theme to overall total scores to establish the meanings was calculated. The following is the table 4.1 is the thematic framework form used for the qualitative analysis:

Table 4.1: Thematic Framework for Qualitative analysis

Questions	Discussion notes	Theme 1: HIV and AIDS structures, resources, interventions: Code 01 Scores	Theme 2: HIV/AIDS knowledge, awareness: Code 02 Scores	Theme 3: Sexual behaviour practices: Code 03 Scores	Theme 4 HIV&AIDS interventions: Code 04
Do structures, resources assist in implementing HIV/AIDS programs					
Does knowledge, awareness of HIV/AIDS facilitate to choosing effective HIV/AIDS interventions					
Do sexual behaviour practices, condom use contribute to choices of HIV/AIDS interventions					
Which are the preferred HIV/AIDS interventions among young adults in general					
Total scores					
Total scores in %	100	%	%	%	%

The scores for each theme were summed up to give a total score under each column. Then the total scores for all the four themes were added together to get the overall total score which facilitated the calculation of the percent of each theme in relation to the overall total score for easy interpretation of the results.

Content analysis

Secondary data on HIV/AIDS interventions from published sources such as the Zimbabwe National Aids Council, the World Health Organisation, UNAIDS through the Google scholar engine search was analysed using the above thematic framework design. Qualitative data was converted into quantitative form and consolidated into quantitative analysis. This was achieved by designing research instruments aimed at converting qualitative data into quantitative data

by assigning weights to allow statistical analysis to take place. Qualitative data that could not be converted were manually analysed using themes. The contents were arranged into themes according to the study objectives which consolidated the facts of each objective to establish the meanings. Triangulation of quantitative and qualitative results highlighted common areas along with new different areas to enrich the findings of the study. Quantitative methods indicated the significance of variables supported with p-values, which qualitative results could not show. Triangulation of quantitative and qualitative methods enhanced the validity and reliability of the study. Thus enabling the methods used in the study to be replicated in other studies.

4.10 Validity

Validity refers to the degree of credibility, effectiveness and appropriateness exhibited by the research findings in portraying the true picture of the situation on the ground (Easter-Smith et al, 2015). In the current study the mixed research approach, mixed research methods measured what they meant to measure. The research approach explored through a literature review of the phenomenon of the study, facilitated in the designing of research instrument questionnaires for the quantitative study and the interview guide plus focus group discussions guide for qualitative study. This enhanced the validity and reliability of the collected data. The preceding instruments fitted the study contributing to the validity of the study. Sequential mixed methods conducted in the research ensured systematic order enabling replication for other researches. The use of mixed methods enhanced the validity of the study by producing results that could be replicated.

Easter-Smith et al, (2015) posited face and content validity, concurrent validity and construct validity as types that enhance validity aspects of a study. The study considered construct validity, concurrent validity to assure the integrity of the conclusions derived from the research. Saunders (2003) posits that validity in a study depends on the accuracy given to a variable or construct in the data set. The study objectives were linked to questions to assure face validity. Experts in the field of HIV/AIDS interventions consisting of academic supervisors, lecturers, National HIV/AIDS coordinators reviewed the items on the questionnaire for the study to ensure the questions were clear and not vague. The inputs on the questions from the experts in the HIV/AIDS area were incorporated and a satisfactory questionnaire instrument was produced. A pre-test exercise of the questionnaire was done with forty (non-sample) students

at the National University of Science and Technology on attachment in the industry to test that the instrument satisfied content validity (Babbie and Mouton, 2009). The specific purpose of the pre-test was to test for content validity, sequencing of the items and the questions in the questionnaire in addressing the research questions, and to review/adjust the final questionnaires as appropriate. The questions assessed what they were intended to measure, ensuring the content validity of the study. Given that the biggest strata in the sample were for students, the data collected from the sample was very reliable. The application of mixed research methods in data collection and analysis ensured content validity and reliability of the study. The reassessment of the literature revealed insights on the key variables of the study were finally represented on the conceptual framework linking the relationships of the variables. The researcher applied triangulation involved clarifying researcher bias from the start of the study and soliciting participants' views of credibility of the findings at the interpretation stage for validity. The research was both quantitative and qualitative, so the researcher used triangulation, refined hypotheses and clarified the study bias from the start and applied the G-Power Software formula for the quantitative part to validate the sample size of the study. From the G-Power calculations the total sample size was 314 at the actual power (1-β err prob) of 0.95 and α error probability of 0.05. All this information gave the researcher the critical t-distribution value of 1.967 which was way above the recommended value of 1.56 when n=30 and above the maximum recommended of 1.85, which is acceptable at a significance level of 0.05. Clearly showing that the sample size 314 is significant and clearly indicating the validity of the study.

The questionnaires were developed in a manner that represents the reality of what was being measured. The content validity of instruments was enhanced by ensuring that question items correspond to objectives and research questions. In addition, all research questions addressed each variable comprehensively. Content validity was substantiated through a pilot study. The input from mentor and supervisor sought to judge and evaluate relevance, wording and clarity of the questions in the research instruments. The questions were constructed to measure the intensity of the relationship between variables and the test produced correlation coefficient (Easterby-Smith, 2015). The questions on the instrument measured the presence of constructs intended to be measured in the study, ensuring construct validity. Ghazalia and Sufen (2016) referred to validity as appropriateness, fruitfulness, meaningfulness and usefulness of

instruments that allows data to be inferred. This study used factor analysis to enhance the validity of data and instruments. Exploratory factor analysis (EFA) using SPSS software on items in the instruments facilitated the identification and organised a large number of items of the questionnaire into constructs under specific variables (Chua, 2014). Validity supported by exploratory factor analysis helped to determine a structure of latent dimensions among the observed variables reflected in the items of the instrument used. Data was valid scoring validity and reliability of (KMO) above 70% on average. The quantitative method used questionnaires for the study with ensured content plus construct validity had been established, indicating that the quantitative research method was appropriate to produce valid results for the current study.

4.10.1 Reliability

Reliability is a test used under stable conditions producing consistent results and the results not varying by several different researchers (Fraenkel and Wallen, 2003; Mcmillan and Schumacher, 2006). The execution of the test survey questionnaire enhanced the reliability of this study. The researcher undertook a pilot test to ensure that the study constructs have consistency statistically measuring the Cronbach's alpha above 0.70. Saleh (2012) alluded that the measurement of the dependent and independent variables when applied provided a better causal interpretation. This study used both dependent and independent variables measured at the same time and applied factory analysis to establish constant relations among variables. The study measured the causality of the variables, using the seven-point Likert scale ranging from one representing disagree strongly to seven representing agree strongly for the construct measures. The study reliability test used Cronbach's Alpha to measure consistency and establish how reliable the questionnaires were since they were multiple Likert scale types. Likert scale was the best format for the questionnaires since the study dealt with human behaviour, attitudes and perception elements, which are latent variables addressed well when using a Likert scale. Cronbach's alpha tested the accuracy and consistency of the item's variables. Reliability was calculated using the Cronbach Alpha test and the overall score was 0.77 indicating high reliability of the items used in the study instruments which is above the acceptable Cronbach Alpha test coefficient of t=0.60(Easter-Smith, 2015). This implies that the study instrument measured construct similarly consistently and is reliable, therefore confirming that the study instrument used is reliable and the study is also reliable scoring a correlation above 0.70 which is deemed reliable (Easter-Smith, 2015).

Marczyk *et al* (2005) posit that Cronbach Alpha value of 0.70 is the minimum acceptable in terms of reliability. The calculated Cronbach's alpha score was above the recommended 0.70 indicating reliability assurance for the current study. The revision of the questionnaire after receiving comments from the pilot study facilitated the production of a reliable questionnaire that contributed to the reliability of the study.

In the qualitative phase of the study, the validity approaches applied were triangulation, peer briefing and disconfirming evidence. The researcher conducted informal interviews with HIV/AIDS focal points separately from the focus groups discussions to verify the facts collected from focus groups discussions. Disconfirming evidence was also applied as a measure for the credibility of the qualitative phase. This involved comparing the literature review with what was collected. Peer debriefing after each session of a focus group discussion facilitated contributing to the credibility of the study. The researcher with two research assistants compiled notes and compared them after each session. In this study, reliability was assured through correlating data with those from the same questionnaire. The validity and reliability of the study ensured that the study replicated and produced similar results somewhere else.

4.11 Ethical Issues

The researcher reviewed the three underlying principles of research ethics, which are respect for human beings, beneficence and justice to the participant. Respect for human beings ensures that the research does not infringe the rights of the participants and cause any harm to them both physically and emotionally. Beneficence refers to the need to consider the privacy of participants and confidentiality of information as well as safety, security and risks involved in the research. Justice to participants consists of sharing the results on concluding the study with the stakeholders involved in the survey. This research was done through questionnaires, which had a consent form including a confidentiality clause. The consent form was designed based on the format for the World Health Organization (WHO). The questionnaire did not request the identity of the respondents and the results of the analysis were presented in aggregate form. Utmost confidentiality was applied to all primary and secondary data that was obtained in this study. This study was authorised by the University of Lusaka in fulfilment of the requirements of the doctoral programme.

Respect for human beings was considered in this study and supported with clearance from the Medical Research Council of Zimbabwe. The research proposal was submitted to the Medical Research Council of Zimbabwe for assessment to collect data together with letters from institutions that agreed to participate in the study. The assessed questionnaires were distributed to participants who volunteered to take part in the research and assistance in the form of counselling services were provided to those who needed it in privacy.

The beneficence of participants was taken into consideration. The issue of confidentiality for self-administered questionnaires was considered. All participants in the study were guaranteed full participant confidentiality by ensuring complete anonymity. Participants were asked not to put their names on the self-administered questionnaires, and a statement of privacy was written on these questionnaires and read out to the participants. For focus groups, the participants were asked not to identify themselves by name to the facilitators of the focus groups. Any reference to names was ignored in the written transcription of the focus group discussions. A statement of confidentiality was given out to participants before they participated in the group discussion. Data were analysed in a manner that made it challenging to identify individual responses. The completed questionnaires were locked up in a safe and secure place to safeguard the respondent's privacy. In accordance with justice, the respondents' privacy and right to anonymity and confidentiality were observed throughout the research (Polit & Beck 2004: 147). There were no names or identifying details provided on the questionnaires so that information could be allied to any respondent. Only the researcher and the statistician had access to the data.

4.12 Chapter Summary

This chapter looked at the research methodology, it suggested the research philosophy and the research design of the study. The research instruments consisted of questionnaires, interviews, focus groups and content analysis was used in the study. These instruments were analysed, as well as tested for validity and reliability. The target population, sampling procedures, data collection procedures and the methods of data collection were indicated. The research adopted a modifying approach, which is a combination of inductive and deductive approaches. The deductive approach focused on testing the four research hypotheses stated in chapter 3 and whether or not they contribute to the effective implementation of HIV/AIDS interventions. Justifications on why the researcher chose to use the methods were provided, along with

literature from research texts to substantiate the rationale. The nature of the topic under study required the researcher to make use of both open and closed-ended questionnaires, from which both qualitative and quantitative data were obtained. Additionally, there was a need to conduct focus group interviews where the researcher collected the data necessary to support data from questionnaires with set research objectives. In the data presentation, both qualitative and quantitative methods were discussed. Data were analysed with the aid of statistical software SPSS version 21 and Microsoft Excel using factor analysis techniques to produce the correlation analysis, regression analysis and principal component analysis. The preceding discussion on research methodology served as the framework for gathering, processing and analysing the data. The next Chapter 5 outlines the data presentation, analysis and discussions of the findings.

CHAPTER FIVE: DATA PRESENTATION, ANALYSIS AND DISCUSSION

5.0 Introduction

This chapter presents the results from the questionnaire, testing of research hypotheses and focus group discussions. The researcher used for data presentation and analysis the deductive approach. The HIV/AIDS intervening variables were considered first working towards establishing the effective implementation of the desired HIV/AIDS prevention interventions. This gradually generated the building of hypotheses and confirmation of the results. The presentation, analysis and discussion of the findings were structured, taking into consideration the design of the research instruments. As a result, the data presentation and analysis are divided into five sections aligned to the particular research questions and the five objectives of the study. The following section addresses specific research objectives that enabled the presentation and analysis of data for the main research question below.

5.1 Research objectives:

- The main research objective was to determine the effectiveness of implementing human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) interventions in higher tertiary institutions in Zimbabwe.

The main objective was broken into specific goals as follows:

- To explore whether structures and resources contribute to the effective implementation of the desired HIV and AIDS programmes in universities.
- To assess the contribution of the level of knowledge and awareness of HIV and AIDS towards the effectiveness of implementing desired HIV/AIDS prevention intervention programmes.
- To analyse the contribution of sexual behaviour/practices towards the effectiveness of implementing desired HIV/AIDS prevention interventions.
- To determine the contribution of attitudes and perceptions on condom use towards effectiveness of implementing the desired HIV/AIDS interventions.
- To identify HIV and AIDS prevention interventions that are desirable to the target population in the universities and are effective.

The next section presents the response rate of the participants in table 5.1 and is followed with data presentation and analysis.

5.2 Response rate

The table 5.1 below shows the response rate of the respondents from students in higher tertiary institutions of the institutions that agreed to participate in this study.

Table 5.1 Response rate

Category	Total Sample	Response rate (%)
Distributed questionnaires	314	
Returned questionnaires	296	94

The researcher distributed 314 questionnaires to the participants and 296 were completed and returned. The response rate is 296/314=0.94 or 94%. This is in line with Saunders et al (2019), who note that a good response rate should be 80%and above of the targeted population. Therefore, the obtained response rate of 94% is favourable and is expected to produce credible results.

5.3 Data presentation and analysis:

Data was collected from both public and private institutions. Data presentation and analysis was done using tables and Pearson correlation to describe relationships among variables. On the causal analysis, bivariate analysis was used where simple correlation analysis was adopted for the relationships between two variables. Factor analysis helped to establish the attributes association among the study variables, which facilitated in identifying the results for the study. Inferential statistics were used to test the hypothesis. The researcher used various tables in the form of descriptive and inferential analytical skills to endow sound decisions.

Section A covers empirical data about the knowledge and awareness of HIV and AIDS (Appendix B). Section B addresses sexual behaviour practices. Section C addresses attitudes, perception, condom use, further HIV and AIDS prevention interventions. Section D addresses structures and resources/inputs that meet the needs of the population in the higher and tertiary institutions and support the effective implementation of HIV and AIDS programmes (Appendix C). The data is analysed on an average and mean score to establish the central

tendency of the responses of the participants as well as p-value to establish the relevance of the respective variables included in the study.

The research questions facilitate in establishing variables that contribute to the effective implementation of the desired HIV/AIDS interventions among students and employees in the higher and tertiary institutions in Zimbabwe. Guided by the research questions findings are presented, analysed and discussed using descriptive statistics and correlations, multivariate analysis, percentiles and factor analysis.

5.4 Findings: Structure and Resources

The study sought to evaluate the effective implementation of targeted HIV/AIDS interventions in the universities by exploring the contribution of structures and inputs, knowledge and awareness of HIV/AIDS, sexual behaviour practices, attitudes, perception on condom use to the effective implementation of HIV/AIDS interventions. A seven-point Likert scale was used to indicate the level of agreement/disagreement with statements with respect to each of these variables to indicate contribution. The seven-point Likert scale weighting are as follows:

- Mean scores of between six and seven indicated that the survey participants strongly agreed with the statement under consideration.
- Mean scores of between five and six indicated that the survey participants agreed with the statement.
- Mean scores of between four and five indicated that the survey participants somewhat agreed with the statement under consideration.
- Mean scores of between three and four indicated that the survey participants were neutral or not sure about the statement being posed.
- Mean scores of between two and three indicated that the survey participants somewhat disagreed with the statement.
- Mean scores of between one and two indicated that the survey participants disagreed with the statement.
- Mean scores of between 0 and 1 indicated that the survey participants strongly disagreed with the statement under consideration.

- Standard deviation and variance show the mathematical dispersion of the data set relative to the mean. A low standard deviation and variance scores show that there is some convergence in the respondent's view on the statement under consideration. A

higher standard deviation and variance ratings indicate that the respondents' opinions on the statement under consideration vary significantly.

5.4.1 Are structures and inputs contributing to effective implementation of HIV and AIDS intervention programmes in the higher tertiary institutions?

The research sought to assess the relationship between structure, resources and effective implementation of HIV/AIDS intervention programmes. The structures, resources have impact on effective implementation of HIV/AIDS intervention programmes.

The hypothesis being tested is as follows **H_{01}:** Structures and resources do not contribute to the effective implementation of HIV/AIDS. The assessment is expected to assist stakeholders in terms of how variables structures, resources can influence effective implementation of HIV/AIDS prevention intervention programmes.

The findings on the following tables 5.1;5.1a; 5.1b; 5.2; 5.3 facilitate the assessment of the above hypothesis. The tables 5.1 shows frequency of responses for structures and resources with its extensions table 5.1a indicating mean, standard deviation, variance and 5.1b factor analysis; table 5.2 is an extension of table 5.1 reflects coefficients of variation of the respective statements to support descriptive statistics findings. Further table 5.2a shows factor analysis of the elements indicating the principal factor analysis scores for the most important components in support of structures and resources. Table 5.3 shows the students responses to predefined HIV/AIDS prevention statements with predefined communication sources and modes with the corresponding p-values. This is significant in establishing the most prominent communication sources, modes that facilitate information on HIV/AIDS prevention interventions among students and employees in tertiary institutions. In addition, supporting structures and resources contribute to effective implementation of HIV/AIDS prevention intervention programmes.

The effectiveness of implementing HIV/AIDS programmes is derived by presenting and analysing items for the structures and inputs variables that contribute to effective implementation of HIV and AIDS prevention interventions strategy. Structures and inputs are addressed by presenting, analysing the items and identifying mediating variables of structures, stakeholders and inputs, resources, communication channels available, educational approaches and communication used in institutions. Structures in the form of HIV/AIDS interventions policies, development partners, government institutions, other stakeholders and the

resources/inputs in the form of HIV/AIDS education programmes, communication modes are considered in general to address effective implementation of HIV/AIDS programmes at institutional level.

5.4.1.1 Intervention structures and stakeholders:

The identified elements facilitate the structures, stakeholders and resources in contributing to the effective implementation of desired HIV/AIDS interventions. Tables 5.1 and its extension 5.1a, 5.1b present findings on the stakeholders, interventions structures and resources/inputs that support the effective implementation HIV and AIDS intervention programmes in the higher and tertiary institutions. The tables portray descriptive statistics; mean, frequency, standard deviation, variance and principal factor analysis to establish the structures and stakeholders supporting the implementation of effective HIV/AIDS prevention intervention programmes in higher and tertiary. The following table 5.1 shows frequencies of Structures and Resources in percentile in support of the above findings.

Table 5.1 Response Frequencies on Structures, Resources in percentile

Statements	Number	Strongly Disagree (SD)	Disagree (D)	Somewhat Disagree (SWD)	Neutral (N)	Somewhat Agree (SWA)	Agree (A)	Strongly Agree (SA)
	Number	%	%	%	%	%	%	%
The government is doing enough to prevent the spread of HIV	296=100	11.2	17.2	3.4	12.9	24.1	12.9	18
The government is doing enough to support people with HIV	296=100	12.1	8.6	6.9	13.8	26.7	20.7	11.2
Community organisations are doing enough to support people living with HIV	296=100	12.9	11.2	3.4	12.9	31.9	19.0	8.6
My institution is doing enough to support people living with HIV	296=100	10.3	9.5	3.4	21.6	31.0	15.5	8.6
My institution is doing enough to prevent spread of HIV	296=100	14.7	17.2	19.8	34.5	9.5	3.4	0.9
Family members of the affected person are doing enough to support people living with HIV	296=100	14.7	24.1	10.3	16.4	26.7	6.0	1.7

Respondents who disagree with the statement that the government doing enough to prevent the spread of HIV was

Disagree 28.4% (11.2 (SD) + 17.2 (D).

Agree 31% (12.9 (A) + 18 (SA)) and 24.1% of respondents somewhat agree with the statement.

Neutral 12.9%. of the surveyed population are neutral.

The statement that government doing enough to support people with HIV

Disagree 20.7% (12.1 (SD) + 8.6 (D)) of the respondents disagree with the statement.

Agree 31.9% (12.9 (A) + 18 (SA)) of the respondents are in agreement with the statement and 26.7% somewhat agree with the statement.

Neutral 13.8% of the surveyed population are not sure/neutral.

The statement that Community organisations are doing enough to support people living with HIV;

Disagree 24.1% (12.9 (SD) + 11.2 (D)) of the respondents disagree with the statement.

Agree 27.6% (19.6 (A) + 8.6 (SA)) of the respondents agree and 31.9% somewhat agree with the statement.

Neutral 12.9% of the surveyed population are not sure/neutral to the statement.

The statement that my institution is doing enough to support people living with HIV;

Disagree 19.8% (10.3 (SD) + 9.5 (D)) of the respondents disagree with the statement.

Agree 24.1% (15.5 (A) + 8.6 (SA)) of the respondents are in agreement with the statement, and 31% somewhat agree with the statement.

Neutral 21.6% of surveyed population are not sure/neutral.

The statement my institution is doing enough to prevent spread of HIV;

Disagree 31.9% (14.7 (SD) + 17.2 (D)) of the respondents disagree with the statement.

Agree 4.3% (3.4 (A) + 0.9 (SA)) of the respondents are in agreement with the statement and 9.5% somewhat agree with the statement.

Neutral 34.5% of the surveyed population are not sure/neutral.

The statement that Family members of the affected person are doing enough to support people living with HIV;

Disagree 38.8% (14.7 (SD) + 24.1 (D)) of the respondents disagree with the statement.

Agree 7.7% (6.0 (A) + 1.7 (SA)) of the respondents are in agreement with the statement, and 26.7% somewhat agree with the statement. Neutral 16.4% of the surveyed population are not sure/neutral. From the above frequency table students, employees show a high agreement responses frequency that government, communities are contributing to effective implementation of HIV/AIDS interventions and low disagree responses. In addition, inferential statistics (degrees of freedom and *p*-values), two- sample *t*-test used in tables 5.3, 5.3a support the descriptive statistics and test the hypothesis.

Tables 5.3, 5.3a show that the items government, communities are doing enough to support HIV/AIDS programmes with p-values<0.05 . This results support the in agreement frequencies in table 5.1 above. The results from the frequencies on responses indicated that respondents (students and employees) agree that government and development partners contribute to

effective implementation of HIV/AIDS programmes in higher tertiary institutions. Clearly indicating that structure and resources/inputs do contribute to effective implementation of HIV/AIDS interventions. These results are against the H1 null hypothesis, but support the alternate hypothesis.

The instruments measure the effective structures and inputs that support HIV/AIDS interventions using 7-point Likert scale measures on the items. The7- point Likert scale is as follows:(1=Strongly Disagree to 7=Strongly Agree). A high score indicates positive contribution of structures towards the support of HIV/AIDS interventions and low scores show a negative contribution towards the support of HIV/AIDS interventions.

Tables 5.1a, 5.1b profile the views of the respondents on intervention structures based on the provided opinions.

Table 5.1a Structures and Resources responses: frequency, mean, standard deviation, variance

Structures/resources opinions	N	Min	Max	Mean	Responses Frequency	Std. Deviation	Variance
Government is doing enough to prevent the spread of HIV	296	1	7	4.365	186	2.187	4.785
Government is doing enough to support people with HIV	296	1	7	4.322	184	2.038	4.155
Community organisations are doing enough to prevent the spread of HIV	296	1	7	4.167	175	2.048	4.193
Community organisations are doing enough to support people living with HIV	296	1	7	4.183	175	1.978	3.912
My institution is doing enough to support people living with HIV	296	1	7	3.134	133	1.657	2.744
My institution is doing enough to prevent spread of HIV	296	1	7	3.372	142	1.884	3.550
Members of affected members' families are doing enough to support people	296	1	7	3.919	166	1.821	3.317

Source: Researcher

The findings from Table 5.1 indicate that the following structural items had a mean score of 4 and above. These preceding items contribute to effective implementation of the desired HIV and AIDS programmes higher and tertiary institutions in Zimbabwe:

- *Government is doing enough to prevent the spread of HIV (M=4.365)*
- *Government is doing enough to support people living with HIV (M=4.322)*
- *Community organisations doing enough to prevent the spread of HIV (M=4.167)*
- *Community organisations doing enough to support people living with HIV (M=4.183)*

Respondents were neutral on the extent to which stakeholders intervene towards addressing HIV/AIDS in the community, scoring means between 3 and 4 (Table 5.1) in the following statements:

- *My institution is doing enough to support people living with HIV/AIDS, to prevent HIV*

- *Members of affected member's families are doing enough to support people with HIV/AIDS*

Principal component factor analysis was executed to extract elements with an eigenvalue score of 1 and above from the above table 5.1a and presented in Table 5.1a extension below

Table 5.1a extension: Summary of items with mean 4 and above; eigenvalue 1 and above factor analysis of HIV/AIDS interventions structures stakeholders:

Statement	Mean	Responses Frequency	Cumulative %	Principal components' analysis –eigenvalue score
Government is doing enough to prevent the spread of HIV	4.365	192	65	4.080
Government is doing enough to support people with HIV	4.322	181	61	below 1 not extracted
Community organisations doing enough to prevent the spread of HIV	4.167	175	59	below 1 not extracted
Community organisations doing enough to prevent the spread of HIV	4.183	175	59	below 1 not extracted

Source: Researcher

The principal component analysis was applied on the seven variables that described structures in support of HIV/AIDS interventions. Finally, factor analysis extracted 1 item, dropped six items. The component extracted with the highest eigenvalue score 4.080 accounts for the variance of all items is "*the government is doing enough to prevent the spread of HIV"*.

Table 5.1a shows a summary of factor analysis for HIV/AIDS structures and stakeholders. The above findings are in support of the Table 5.1 on high response frequencies in agreement that government and communities support prevention to spread of HIV with p-value<0.05 in table 5.3, 5.3a below.

The next paragraphs address HIV/AIDS information, communication modes/sources, HIV/AIDS educational approaches, HIV/AIDS interventions mediating variables for structures and resources.

5.4.1.2 HIV/AIDS inputs (information) and communication modes

Table 5.2 presents summary of the HIV/AIDS inputs (information and communication modes). HIV/AIDS information needs to be communicated to the stakeholders involved in HIV/AIDS interventions. The mediating variables communication and information support dissemination of available structures and resources for effective implementing of HIV/AIDS interventions in the target population. The communication modes are dependent and HIV/AIDS inputs are independent variables. Findings of the structures (HIV/AIDS inputs) and communication channels are presented in the descriptive statistical table 5.2 and factor analysis table 5.2a. The instruments measure the effective structures (essential inputs for HIV/AIDS programmes) in relation to HIV/AIDS information communication modes using ten items. The items are measured on a 7- point Likert Scale (1=Strongly Disagree to 7=Strongly Agree) and high scores indicate positive support towards the use of communication modes and low scores show a negative towards the use of the communication modes. Principal factor analysis extracts items with an eigenvalue of 1above as relevant in contributing to the variable.

5.4.1.3 HIV/AIDS inputs (information) and communication modes

Tables 5.2, 5.2a profile the views of the respondents on HIV/AIDS inputs and information communication modes. Table 5.2 shows HIV/AIDS inputs (information) and communication modes followed by table 5.2 extension of coefficients of the variation table.

Table 5.2 HIV/AIDS inputs (information) and communication modes

Modes//Responses	N	Min	Max	Mean	Responses **Frequency**	Std. Deviation	Variance
Television	296	1	7	2.838	121	2.462	6.060
Radio	296	1	7	3.339	142	2.458	6.041
My School	296	1	7	4.048	172	2.617	6.846
Magazines	296	1	7	3.726	157	2.550	6.503
Other Relatives	296	1	7	4.270	181	2.463	6.068
Parents	296	1	7	3.661	154	2.493	6.214
Friends	296	1	7	3.349	142	2.434	5.926
Peer Educated	296	1	7	4.189	178	2.619	6.860
Clinic or Hospital	296	1	7	3.806	163	2.563	6.568
Internet	296	1	7	2.828	118	2.428	5.895

Source: Researcher

The findings from (Table 5.2) indicate that the modes *school, other relatives and peer educators*) with mean score of 4 above *(television, radio)* with an eigenvalue of 1 above support the inputs/resources that contribute to effective implementation of the desired HIV and AIDS programmes higher and tertiary institutions in Zimbabwe.

The statement under consideration, with mean score between 2 and 3, somewhat disagree with the statement. These are as follow:

I obtain information on HIV/AIDS from television scored a mean (M=2.838),

Internet scored mean (M=2.828)

Respondents are neutral to the extent with some communication modes on HIV/AIDS in the community, scoring means between 3 and 4(Table 5.2). The following modes:

"Radio, Magazine, Parents, Friends, Clinic" score means between 3.339 to 3.806 which fall in the neutral response group. The next table 5.2 is an extension of the above table 5.2 showing coefficient variation to support the other descriptive statistics findings.

Extension of Table 5.2 HIV/AIDS inputs (information) and communication modes: Coefficients of Variation

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.484	.310		1.559	.122	-.132	1.100
	I obtain HIV/AIDS information through the television	.424	.071	.455	5.938	.000	.283	.566
	I get information on HIV from my school	-.022	.085	-.021	-.259	.796	-.190	.146
	I get HIV information from magazines	.401	.083	.413	4.828	.000	.237	.566
	I get HIV information from my parents	-.096	.080	-.093	-1.211	.228	-.254	.061
	I get HIV information from other relatives	.153	.097	.145	1.568	.120	-.040	.346
	I get HIV information from friends	.138	.073	.134	1.895	.061	-.006	.282
	I get HIV information from my peer educator	-.115	.072	-.119	-1.594	.114	-.259	.028
	I get HIV information from the clinic	-.128	.067	-.127	-1.918	.058	-.261	.004
	I get HIV information from the internet	.189	.071	.193	2.673	.009	.049	.330

The above table 5.2 on coefficients variation indicate items television, magazine, internet with Beta 0.455, 0.413, 0,193 are volitale elements. Significance level of television, magazine, internet is at <0.05 are significantly facilitating HIV/AIDS inputs/resources contribute effectively to implementation of HIV/AIDS prevention intervention programmes

Table 5.2a Summary factor analysis of HIV/AIDS information communication modes:

Statement	Mean	Responses Frequency	Principal factor analysis score
My school	4.048	108	
Other relatives	4.270	114	
Peer educator	4.189	112	
Television	2.838	76	5.218
Radio	3.339	89	1.328

Source: Researcher

In Table 5.2a ten items were considered for principal component analysis, two items extracted and eight dropped. The two items with an eigenvalue 1 above were extracted '*television score 5.218; radio score1. 328". These items radio, television have a wide coverage and impact. These preceding two components are the popular communication channels easily accessible to the population under study and have an impact on behaviour, attitudes and perceptions of the respondents.*

5.4.1.4 HIV/AIDS educational approaches and communication modes/ sources in institutional settings

The study examined the contribution of the inputs HIV, AIDS educational approaches, and the supporting communication modes/sources in use for effective implementation of preferred HIV/AIDS interventions.

Table 5.3 outlines communication modes /sources and the respective educational approaches statements with the relevant p values. The findings are presented in inferential statistics *p*-values in Table 5.3 and Table 5.3a to establish significance of structure and inputs/resources to implementing of effective HIV/AIDS interventions and facilitate hypothesis testing of the contribution of structures and resources to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary.

Tables 5.3, 5.3a summarise the significance of views of the respondents on HIV/AIDS prevention modes, sources of communication and HIV/AIDS prevention response statements in institutional settings. The tables show the modes, sources used to communicate on HIV/AIDS prevention and the corresponding response statements by respondents.

Table 5.3 Analysis of students' responses to predefined HIV/AIDS prevention statements with predefined modes and sources of communication.

Modes& Sources /Statements	I	II	III	IV	V	VI	VII
Television	0.000*	0.000*	0.244	0.001*	0.055	0.000*	0.116
Radio	0.000*	0.000*	0.000*	0.001*	0.002*	0.000*	0.020*
My School	0.019*	0.000*	0.003*	0.000*	0.020*	0.129	0.000*
Magazines	0.000*	0.000*	0.000*	0.000*	0.007*	0.000*	0.000*
Parents	0.000*	0.003*	0.011*	0.000*	0.031*	0.002*	0.001*
Other Relatives	0.004*	0.282	0.000*	0.162	0.014*	0.001*	0.021*
Friends	0.002*	0.008*	0.000*	0.000*	0.016*	0.003*	0.047*
Peer Educator	0.004*	0.005*	0.096	0.000*	0.067	0.000*	0.001*
Clinic or Hospital	0.000*	0.000*	0.003*	0.000*	0.009*	0.000*	0.000*
Internet	0.000*	0.000*	0.003*	0.000*	0.005*	0.000*	0.000*

Notes

*= significant *p*-value, 0.05 threshold

HIV/AIDS prevention interventions response statements and related communication modes:

I= We have made many changes in our sexual behaviour to avoid HIV

II= We have counselling services available at the institution

III= We are satisfied with the counselling services offered at your institution

IV= We would like this service to be offered at the institution

V= We are satisfied with the HIV services, programmes and activities offered at our institution

VI= Condoms available at your institution

VII= Students and lecturers engage in sexual relationships at our institution

The findings in (Table 5.3) indicate that selected modes, sources (*Radio, Magazines, Parents, Friends, Clinic or Hospital, Internet*) are accepted in line with all stated response statements, significant with-*value* scores p <0.05. Table 5.3 clearly shows the insignificant *p-value* scores for *(Television, School, Other relatives, Peer educators)* as communication modes contributing to HIV/AIDS educational approaches and communication initiatives in the institutions.

The findings in Table 5.3 indicate three statements (I, III, VII) that are significant with the following descriptions:

I= We have made many changes in our sexual behaviour to avoid HIV

III= We are satisfied with the counselling services offered at your institution

IV= We would like this service to be offered at the institution

The above statements with p-values <0.05 support structures and resources to contribute towards effective implementation of HIV/AIDS prevention intervention programmes.

Table 5.3a: Analysis of predefined HIV/AIDS prevention communication modes, sources and predefined response statements on HIV/AIDS existing structures and resources;

Modes, Sources/Statements	I	II	III	IV	V	VI	VII
Television	0.000*	0.010*	0.003*	0.002*	0.065	0.352	0.002*
Radio	0.001*	0.000*	0.000*	0.000*	0.081	0.000*	0.001*
My School	0.003*	0.000*	0.000*	0.000*	0.014*	0.004*	0.011*
Magazines	0.000*	0.000*	0.000*	0.000*	0.000*	0.012*	0.000*
Parents	0.031*	0.070	0.000*	0.000*	0.001*	0.009*	0.066
Other Relatives	0.001*	0.004*	0.006*	0.002*	0.188	0.446	0.170
Friends	0.000*	0.000*	0.000*	0.003*	0.118	0.017*	0.441
Peer Educator	0.000*	0.000*	0.000*	0.218	0.066	0.059	0.124
Clinic or Hospital	0.000*	0.000*	0.001*	0.256	0.040*	0.010*	0.002*
Internet	0.000*	0.000*	0.000*	0.065	0.007*	0.055	0.069

Notes
*= significant *p*-value at 5%

HIV/AIDS Structures and resource statements
I= The government is doing enough to prevent the spread of HIV
II= Government is doing enough to support people with HIV
III= Community organisations are doing enough to prevent the spread of HIV
IV= Community organisations are doing enough to support people living with HIV
V= My institution is doing enough to support people living with HIV
VI= My institution is doing enough to prevent the spread of HIV
VII= Members of affected persons' families are doing enough to support people with HIV

In addition, inferential statistics (degrees of freedom and *p*-values), two- sample *t*-test were used in tables 5.3, 5.3a to support the descriptive statistics and test the hypothesis. The findings indicate that HIV/AIDS prevention communication modes/sources and HIV/AIDS structures and resources with p-values <0.05 contribute to effective implementation of HIV/AIDS interventions.

In summary, tables 5.1, 5.3, 5.3a profile the views of the respondents on structures and resources contributing to effective implementation of HIV/AIDS interventions.

Table 5.1 response frequencies indicate 55.1% agreed that government is doing enough to prevent the spread of HIV/AIDS with p-value<0.05 as opposed to 28.4% who disagreed; 58.6% agreed that government is supporting HIV positive people at p-value<0.05 as opposed to 20.7% disagreed; 51.5% agreed Community organisations are doing enough to prevent the spread of HIV with p-value<0.05 as opposed to 24.1% disagreed.

High frequency scores, p-values <0.05 on government, community indicators; indicate that students and employees agree that structures and resources contribute to effective implementation of HIV/AIDS programmes. In addition, tables 5.3, 5.3a show that the following variables HIV/AIDS prevention communication modes, sources p value scores <0.05 support existing structures, resources. Small p-value scores (p<0.05) were noted in the following statements:

I= We have made many changes in our sexual behaviour to avoid HIV

III= We are satisfied with the counselling services offered at your institution

IV= We would like this service to be offered at the institution

I= *The government is doing enough to prevent the spread of HIV*

II= Government is doing enough to support people with HIV

III= Community organisations are doing enough to prevent the spread of HIV.

The above elements are facilitating structures and resources contribute to effective implementation of HIV/AIDS intervention programmes.

Based on the above findings reject null hypothesis and accept alternate hypothesis as the p-values (range from 0.000-0.003) for resources and structure are below the 0.05 significance level. It shows that students and employees agree that structures and resources contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. These findings are in line with study on structures and environmental impact on HIV/AIDS by Strathdee et al (2010); NAC Report, (2011); UNAIDS Report 2012 that stated structures and resources contribute to implementation of HIV/AIDS programmes.

5. 4. 2 Analysis and Interpretation of structures and resources findings

Analysis of the findings indicates that respondents agree to get HIV/AIDS information through school, other relatives and peer educators scoring mean scores between 4 and 5. Further analysis in Table 5.2a where critical component analysis was used, the factor analysis identified the most contributing items with an eigenvalue 1 above as television, radio in support of the inputs/resources. In addition, results providing for all items with a commonality that is 0.3 and above are acceptable (Tabachnick & Fidel, 2007). The appropriateness of factor analysis is supported by the Kaiser-Meyer-Olkin measure of sampling adequacy test and Bartlett's test of sphericity, which is an indicator of the strength of relationship among variables (Hair *et al.*, 2010). While KMO measure of adequacy is 78% and Bartlett's Test sphericity is significant at a score of p-value 0.000 which is above the standard requirement of KMO 60% and Bartlett's sampling adequacy test significant 0>0.05(Hair *et al.*, 2010). Ten items in Table 5.2a considered for principal component analysis, two items extracted, and eight dropped. The respondents indicated two resources that disseminate HIV/AIDS information through radio and television. In addition, schools, magazines, other relatives, friends, clinics and the internet were also considered in the HIV/AIDS information empowerment among the respondents.

5.4.3 HIV/AIDS prevention communication modes, sources and response statements in the institutional setup.

The above results on table 5.3 show HIV/AIDS prevention communication modes, sources influence respondent's decisions. Three HIV/AIDS prevention communication modes, sources statements with *p*-values less than 0.05:

- *We have made many changes in our sexual behaviour to avoid HIV; (significant p<0.05)*
- *We are satisfied with the counselling services offered at your institution; (significant p<0.05)*
- *We would like this service to be offered at the institution (significant p<0.05)*

support the structures and resources that contribute to the effective implementation of the desired HIV and AIDS programmes in the higher and tertiary institutions in Zimbabwe.

The following with *p*-value (*p*>0.05) *My institution is doing enough to support people living with HIV, prevent the spread of HIV and members of affected persons' families are doing enough to support people with HIV* had insignificant *p*-values with items television, radio, other relatives, peer educators, and the internet respectively.

Finally, in table 5.3a the study considered the associations of HIV/AIDS prevention communication modes, sources and students' response statements to structures, resources in community setup. To identify the contributing structures, input for effective implementation of HIV/AIDS interventions, *p-value* facilitated the process. Table 5.3a indicate significant four statements with *p-value (p<0.05)*: I, II, III, IV, descriptions as follows:

I= The government is doing enough to prevent the spread of HIV

II= Government is doing enough to support people with HIV

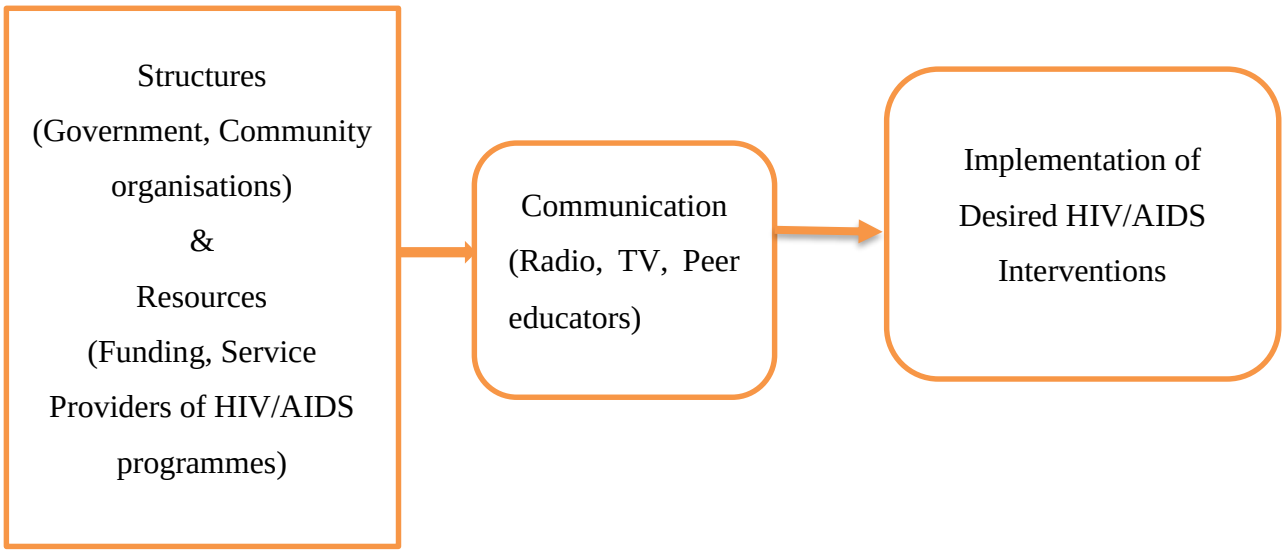
III= Community organisations are doing enough to prevent the spread of HIV

IV= Community organisations are doing enough to support people living with HIV in support of structures, resources/inputs. The government and community organisations support structure, inputs in the effective implementation of HIV/AIDS programs. The institutions and members of the society are not supporting HIV/AIDS structures, resources/inputs in effective implementation of HIV/AIDS programs.

The results from the above tables 5.3, 5.3a show that there is a relationship between structures, resources and effective implementation of HIV/AIDS programmes supported by *p-value scores* less than 0.05. The findings are in support of the hypothesis that structures and resources are contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary with test scores*'-value*s <0.05.

Figure 5.1: Structures and Resources for HIV/AIDS Implementation

Figure 5.1 Model 1: Interaction of structures, resources, communication and HIV/AIDS interventions



From the results, it shows that structures, provided by the government, community organisations and resources in the form of funding, service providers expertise facilitate HIV/AIDS communication through radio, television, peer educators and others leading to implementing of effective desired HIV/AIDS interventions

Structure and resources/inputs are facilitated by the mediating variables HIV/AIDS programmes, HIV/AIDS education initiatives, information dissemination to contribute to effective implementation of HIV/AIDS interventions. These elements empower individuals with knowledge to identify structures, resources in support of providing HIV/AIDS interventions. The identified providers of structures, resources are the backbone to successful implementation of effective HIV/AIDS interventions. The government and community organisations were identified as supporting structures and inputs of HIV/AIDS programmes. In addition, the government was identified as the most prominent provider of HIV/AIDS programmes funding supported with an eigenvalue above1. Lack of adequate information on available HIV/AIDS structures, resources for the institutions hinders the implementation of effective HIV/AIDS interventions. The respondents highlighted inadequate counselling services, lack of HIV/AIDS educational programs identified with changes in sexual behaviour to avoid HIV at the institution as supporting inputs/resources of HIV/AIDS programs. The HIV/AIDS educational programmes support HIV/AIDS structures and resources; lack of relevant information on elements that support education programmes affects them. Any change in the educational programmes information dissemination could have a negative or positive impact on selection of HIV/AIDS interventions available to the population.

The students and employees agree that the structures supported by elements government, development partners/ donors, communities, institutions, HIV/AIDS policies and resources/inputs supported by elements HIV/AIDS educational programmes, communication modes these are radio, television, schools, magazines, internet, friends, mass media campaigns in place contribute to the effective implementation of desired HIV/AIDS prevention interventions that reduce HIV/AIDS incidence in the higher and tertiary institutions population.

5.4.6 Summary findings on structure and resources/inputs

The findings show that government and community organisations are the main providers of structures, resources in the study supported by these structural items: the government is preventing the spread of HIV through HIV/AIDS educational programmes facilitated by communication modes television, radio, school, magazines, other relatives, friends, clinic and internet and supporting people living with HIV significant at (*p-value <0.05)* level of significance. HIV/AIDS educational programmes exclude issues on the available structure, resources/input and ZNASP.HIV/AIDS prevention interventions with regard to sexual behaviour noted that the respondents agreed to changes in sexual behaviour to avoid HIV and were satisfied with counselling services at the institution significant at p-value < 0.05. Furthermore, respondents needed counselling services to be offered at the institution with (*p*-value at 5% level of significance). The variables, structures and inputs are significant at p-value less than 0.05, supporting the effective implementation of HIV and AIDS programmes in the higher and tertiary institutions. The findings are significant at p-value <0.05 in support of the Alternate hypothesis, structures and resources are contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. The findings suggest that students and employees agree structures and resources are contributing to the effective implementation of HIV/AIDS intervention programs in higher and tertiary institutions.

5.5 Findings on the contribution of Knowledge and Awareness of HIV and AIDS

Does knowledge and awareness of HIV and AIDS in the higher and tertiary institutions contribute to effective implementation of HIV and AIDS intervention programmes?

The research sought to assess the relationship of knowledge and awareness of HIV and AIDS and effective implementation of HIV/AIDS intervention programmes. Subsequently knowledge and awareness of HIV and AIDS have impact on effective implementation of HIV/AIDS intervention programmes.

The hypothesis being tested is **H_{02}** that knowledge and awareness are not contributing to the effective implementation of HIV/AIDS intervention programmes among students and employees in higher tertiary institutions.

The findings on the elements associated with knowledge and awareness of HIV and AIDS in the implementation of HIV/AIDS interventions in higher tertiary institutions are presented in Tables 5.4, 5.4a and 5.5, 5.5a. Tables 5.4 show response frequencies, 5.4a measured items in

p-values and percentile percentage for easy analysis. These findings are aligned to demographic elements gender, age, and marital status, analysed and presented in Tables 5.5, 5.5a. These tables present the level of knowledge and awareness trend among students, employees in the higher tertiary institutions. The presentation, analysis, and discussions of findings follows the descriptions of the statements on findings. For ease of analysis, the following statements explained the findings. Agreement /disagreement are synonymous with the level of knowledge and awareness. Instruments measured the level of knowledge and awareness of HIV/AIDS towards effective implementation of the desired HIV/AIDS interventions by the following 20 items. Items measured on 7- point Likert Scale (1=Strongly Disagree to 7=Strongly Agree).

A high score indicated the positive contribution of knowledge and awareness to HIV/AIDS level towards effective implementation of the desired HIV/AIDS interventions. Low scores show a negative contribution of HIV/AIDS knowledge and awareness to effective implementation of HIV/AIDS interventions in the study population. Standard deviation and variance show the mathematical dispersion of the data set relative to the mean. A low standard deviation and variance scores show that there is some convergence in the respondent's view on the statement under consideration. A higher standard deviation and variance scores indicate that the respondents' opinions on the statement under consideration vary significantly.

Factor and principal component analysis facilitated in extracting correlation matrix, regression analysis for the study. Factor analysis extracted elements with eigenvalue of 1 above. Significance measured by p value of less than 0.05 and above 0.05 as insignificant.

5.5.1 Descriptive tables:5.4 response frequencies, 5.4a and 5.5, 5.5a

Table 5.4 Response frequencies on Knowledge and awareness of HIV/AIDS

Item	Number	Agree	Disagree	Neutral
	296	%	%	%
A person diagnosed with HIV has AIDS	296	37	-	63
HIV destroys the body's immune system causing illness to occur	296	94	6	-
HIV exists in high concentration in bodily fluids	296	86	14	-
A person living with HIV who is healthy can still transmit the virus to other people	296	96	4	-
A healthy person with a strong immune system can get HIV	296	85	15	-
A child born of an HIV positive mother will automatically be born HIV positive	296	-	73	27
You can identify HIV positive individuals based on their appearance	296	-	45	55
HIV can live in the body for years before symptoms appear	296	68	32	-
There is a cure for AIDS	296	-	85	15
HIV can be transmitted via mosquito bites	296	-	90	10
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person (Disagree)	296	-	89	11
An HIV positive lecturer should be allowed to continue teaching my institution (Agree)	296	82	18	-

The results for the above table were as follow:

A person diagnosed with HIV has AIDS

Disagree 63% of the respondents disagree with the statement.

Neutral 37% of the surveyed population are not sure/neutral to the statement.

HIV destroys the body's immune system causing illness to occur HIV destroys the body's immune system causing illness to occur
Agree 94% of the respondents agree with the statement
Disagree 6% of the surveyed population to the statement

HIV exists in high concentration in bodily fluids
Agree 86% of the respondents agree with the statement
Disagree 14 % of the surveyed population disagree to the statement

A person living with HIV who is healthy can still transmit the virus to other people
Agree 96% of the respondents agree with the statement
Disagree 4% of the surveyed population disagree to the statement

A healthy person with a strong immune system can get HIV
Agree 85% of the respondents agree to the statement
Disagree 15% of the surveyed population disagree to the statement

A child born of an HIV positive mother will automatically be born HIV positive
Disagree 73% of the respondents disagree with the statement
Agree 27% of the surveyed population agree to the statement

You can identify HIV positive individuals based on their appearance
Disagree 45% of the surveyed population disagree to the statement
Neutral 55% of the respondents are neutral with the statement

HIV can live in the body for years before symptoms appear
Agree 68% of the respondents agree to the statement
Disagree 24% of the surveyed population disagree

There is a cure for AIDS

Disagree 85% of the respondents disagree to the statement
Neutral 15% of the respondents are neutral with the statement

HIV can be transmitted via mosquito bites
Disagree 90% of the surveyed population disagree to the statement
Agree 10% of the respondents agree to the statement

HIV can be spread by sharing of towels and utensils (cups and spoons, etc.) used by an HIV positive person
Disagree 89% of the surveyed population disagree to the statement
Agree 11% of the respondents agree with the statement

An HIV positive lecturer should be allowed to continue teaching my institution
Agree 82% of the respondents agree to the statement
Disagree 18% of the surveyed population disagree with the statement. Findings from the frequency table 5.4 show that all age groups are aware of the effects of HIV/AIDS infections supported with high agree responses of male (95%) and female (93%), significant p-values < 0.05 in favour of the alternate hypothesis. Table 5.4 was further supported with table 5.4a to establish the significant elements that facilitate the variable knowledge and awareness towards contributing to effective implementation of HIV/AIDS interventions.

Table 5.4a Response Frequencies: Summary of Knowledge and awareness of HIV/AIDS by gender and age in percentages

Item	Male	Female	Age(years) 17-20	Age(years) 21-28	Age(years) 28+	p-value
	%	%	%	%		
A person diagnosed with HIV has AIDS	62	70	57	66	78	0.013
HIV destroys the body's immune system causing illness to occur	95	93	91	97	91	0.000
HIV exists in high concentration in bodily fluids	90	84	88	87	84	0.009
A person living with HIV who is healthy can still transmit the virus to other people	98	95	94	64	91	0.000
A healthy person with a strong immune system can get HIV	81	90	93	86	81	0.000
A child born of an HIV positive mother will automatically be born HIV positive	67	80	81	72	66	0.000
You can identify HIV positive individuals based on their appearance	46	64	52	57	53	0.000
HIV can live in the body for years before symptoms appear	58	79	64	69	81	0.000
There is a cure for AIDS	83	89	100	79	91	0.000
HIV can be transmitted via mosquito bites	87	94	99	87	97	0.001
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person (Disagree)	91	88	93	88	94	0.000
An HIV positive lecturer should be allowed to continue teaching my institution (Agree)	81	85	88	84	69	0.000

The frequency table 5.4a shows responses on knowledge and awareness by gender and age as follow: 97% of the respondents are in the age range of 21-28 years with the highest number of both male (95%) and females (93%) are significant at p value <0.05 respectively; 3% are in age group 17-20 years and above 28 years. This age range of 21-28 years has high knowledge and awareness of the effects of HIV/ AIDS on an infected person as compared to 3% with low knowledge and awareness. The results show that all the age groups are aware of all the effects of HIV/ADS infections as indicated by the percentages of both male and female respondents and all items supporting knowledge and awareness are significant with p-values<0.05 for all the responses. Frequency responses on modes of HIV transmission are as follows male scored 87% compared to female 94% in disagreement to HIV can be transmitted via mosquito bites; male 91% compared to female 88% disagreement to HIV can be spread by sharing of towels; male 81% and female 85% agreement to an HIV positive lecturer should continue teaching;

male 81% and female 90% in agreement to A healthy person with strong immune system can get HIV. The responses on modes of HIV transmission are all significant at p-values< 0.05. Furthermore, response frequencies of the respondents show students and employees agree that knowledge and awareness of HIV/AIDS contribute to effective implementation of HIV/AIDS programmes. Clearly, indicating all respondents (students and employees) agree that knowledge and awareness of HIV/AIDS contribute to effective implementation of desired HIV/AIDS interventions in higher tertiary institutions. The findings are in support of the alternate hypothesis as indicated by the frequency responses of the respondents that is significant p-value <0.05. Table 5.4a below is an extension of table 5.4a above profiles the views of the respondents on Knowledge and awareness of HIV/AIDS by gender, age, marital status based on p-values to establish the significance of the items to variable knowledge and awareness.

Table 5.4a: Summary of p-values of Knowledge and awareness of HIV/AIDS by gender, age, marital status

Item	**Gender**	**Age(years)**	**Marital status**
	p-value	***p-value***	***p-value***
A person diagnosed with HIV has AIDS	0.766	0.013	0.000
HIV destroys the body's immune system causing illness to occur	0.347	0.000	0.127
HIV exists in high concentration in bodily fluids	0.019*	0.009	0.416
A person living with HIV who is healthy can still transmit the virus to other people	0.089	0.000	0.226
A healthy person with a strong immune system can get HIV	0.005*	0.000	0.741
A child born of an HIV positive mother will automatically be born HIV positive	0.005*	0.000	0.000
You can identify HIV positive individuals based on their appearance	0.002*	0.000	0.028
HIV can live in the body for years before symptoms appear	0.002*	0.000	0.000
There is a cure for AIDS	0.001*	0.001	0.654
HIV can be transmitted via mosquito bites	0.099	0.000	0.801
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person (Disagree)	0.003*	0.000	0.870
An HIV positive lecturer should be allowed to continue teaching at my institution (Agree)	0.366	0.000	0.000

***= significant : statistical significance: *p*-value, 0.05 threshold**

Table 5.4a above profiles the views of the respondents and significance of responses. Gender, age of respondents plays an important role in establishing the elements facilitating HIV/AIDS knowledge and awareness using p-value. The responses with p-value score <0.05 identified as

mediating variables significantly support knowledge and awareness to contribute towards effect implementation of HIV/AIDS interventions in higher tertiary institutions. These mediating variables are as follow: HIV concentration in the bodily fluids, strong immune system, appearance, no symptoms, no cure and not spread by sharing with an HIV positive person are significant scoring p values <0.05) in the responses. The responses are as follow

HIV exists in high concentration in bodily fluids (significant p<0.05)

A healthy person with a strong immune system can get HIV (significant p<0.05)

You can identify HIV positive individuals based on their appearance (significant p<0.05)

HIV can live in the body for years before symptoms appear (significant p<0.05)

There is a cure for AIDS (significant p<0.05)

HIV can be spread by sharing of towels and utensils (cups and spoons, etc.) used by an HIV positive person (Disagree) (significant p<0.05) and any change in their status affects contribution of knowledge and awareness to effective implementing of HIV/AIDS interventions. The preceding clearly indicates that students and employees in higher tertiary institutions agree that knowledge and awareness of HIV/AIDS contribute to effective implementation of HIV/AIDS prevention interventions. The preceding findings were supported with response frequencies in table 5.4 showing high response frequencies and are significant at p-value<0.05 as per shown in table 5.4a p-values. Further analysis using factor analysis on the items that influence knowledge and awareness is shown in tables 5.5, 5.5a to establish mediating variables.

Tables 5.5, 5.5a profile the views of the respondents on knowledge and awareness of HIV/AIDS on the provided opinions

Table 5.5: Knowledge and Awareness of HIV/AIDS

Item statement	N	%	Min	Max	Mean	Std. Deviation	Variance
A person diagnosed with HIV has AIDS	296	63	1	7	2.98	2.19	4.78
HIV destroys the body's immune system causing illness	296	94	1	7	6.128	1.109	1.231
HIV exists in high concentration in bodily fluids	296	86	1	7	5.834	1.295	1.677
A person living with HIV can still transmit the virus	296	96	1	7	6.241	1.122	1.259
A healthy person with a strong immune system can get HIV	296	85	1	7	5.925	1.472	2.166
A child born of an HIV+ mother will have HIV	296	73	1	7	2.674	1.743	3.038
You can identify HIV+ people based on appearance	296	55	1	7	3.112	1.788	3.197
HIV can live in the body for years before symptoms appear	296	68	1	7	5.044	1.928	3.719
There is a cure for AIDS	296	85	1	7	1.877	1.380	1.904
HIV can be transmitted via mosquito bites	296	90	1	7	1.759	1.316	1.732
HIV can be spread by sharing of utensils etc. used by an HIV+ person	296	89	1	7	1.791	1.334	1.779
An HIV+ lecturer should be allowed to teach at my institution	296	82	1	7	5.567	1.884	3.548
Work in the same office	296	94	1	7	6.176	1.216	1.479
Share the same bed	296	80	1	7	5.652	1.532	2.346
Use the same toilet	296	87	1	7	5.828	1.563	2.446
Eat at the same apple	296	94	1	7	6.155	1.219	1.487
Touch him or her	296	81	1	7	5.674	1.519	2.307
Share an apple	296	50	1	7	4.316	2.253	5.077
Drink from the same cup	296	69	1	7	5.241	1.909	3.646
Socialise outside of work or school	296	95	1	7	6.310	1.126	1.269

Source: Researcher

The below Table 5.5a an extension of table 5.5profiles Principal component factor analysis of the findings on HIV/AIDS knowledge and awareness. A set of twenty items in the instrument that describe the level of knowledge and awareness of HIV/AIDS contribution towards implementing effective HIV/AIDS interventions were considered for principal component analysis. Seven items extracted and 13 items dropped. Seven components with an eigenvalue 1 and above were extracted from twenty items. These seven components support the level of knowledge and awareness of HIV/AIDS contributing to effective implementation of the desired HIV and AIDS programmes in the higher and tertiary institutions in Zimbabwe. The extracted components supporting education and awareness of HIV/AIDS were:

Aware that HIV destroys the body immune system with Eigenvalue of 1.633.

Work in the same office with HIV positive person eigenvalue of 4.388,

Share a bed, toilet, and apple; eat with HIV positive person eigenvalue of 1.521.

A person diagnosed with HIV has AIDS eigenvalue of 2.310

You can identify HIV+ people based on appearance eigenvalue of 1.801

HIV can live in the body for years before symptoms appear eigenvalue of 1.186

There is a cure for AIDS eigenvalue of 1.050

Table 5.5a Factor analysis, mean scores, percentile of knowledge and awareness of HIV/AIDS

Statement	Mean scores	%	Cumulative %	Principal factor analysis – eigenvalues
HIV destroys the body's immune system causing illness	6.128	94		Not extracted below 1.0 and low variance 1.231
A person living with HIV can still transmit the virus	6.24	63		Not extracted below 1.0 and low variance 1.259
Eat at the same apple	6.155	95		Not extracted below 1.0 and low variance 1.487
Aware that HIV destroys the body immune system	2.98	94	66	1.633
Share a bed, toilet, apple, eat with HIV positive person	5.652	87		1.521
Work in the same office with HIV positive person	6.176	95		4.388
A person diagnosed with HIV has AIDS	2.98	63		2.310
You can identify HIV+ people based on their appearance	3.112	55		1.801
HIV can live in the body for years before symptoms	5.044	68		1.186
There is no cure for AIDS	1.877	85		1.050
Socialise outside of work or school	6.310	95		Not extracted below 1.0 and low variance 1.269

Source: Researcher

The preceding tables 5.5, 5.5a profile that the principal component analysis extracted seven items these are mediating variables scoring a cumulative percentage 66% in supporting variable knowledge and awareness of HIV/AIDS. These seven items scored p-values <0.05, indicating that they significantly facilitate knowledge and awareness in contributing to effective implementing of HIV/AIDS interventions. In addition, the items significantly indicate that knowledge, awareness contribute to effective implementation of HIV/AIDS intervention programmes.

The findings indicate students and employees agree that knowledge and awareness of HIV/AIDS contribute to effective implementation of HIV/AIDS programmes in higher tertiary institutions. Based on the above findings reject null hypothesis and accept alternate hypothesis. It shows that knowledge and awareness contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. These findings are in line with study on Knowledge and awareness by *Shokoohi et al.*, (2016): Asaduzzaman, Higuchi et al (2016).

5.5.3 Analysis and Interpretation of findings

The results from table 5.5 show that there is a relationship between knowledge, awareness and effective implementation of HIV/AIDS programmes supported by p-value scores < 0.05 significance. These findings indicate that mediating variables at p-value <0.05 significantly facilitate HIV/AIDS knowledge and awareness in contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. The items with an eigenvalue of one above contribute to knowledge and awareness of HIV/AIDS prevention interventions and are significant at p-value <0.05. These significant items are as follows (*diagnosed with HIV and AIDS has AIDS, HIV destroys the body immune system, sharing with HIV positive person, identifies HIV+ people by appearance, HIV live in the body without symptoms, no cure for AIDS).* Any positive or negative change in the items eigenvalue affects the level of knowledge and awareness of HIV/AIDS contributing to the effective implementation of HIV/AIDS interventions. The students and employees revealed a high level of knowledge and awareness of HIV/AIDS indicated by a response rate of 85% in agreement with the items. Females showed a high level of HIV/AIDS knowledge and awareness as compared to males. Grey areas exist on HIV modes of transmission and the life cycle of the virus among the students and employees in the universities as noted from the above findings. The preceding findings show that the students and employees agreed to knowledge and awareness are contributing to the effective implementation of the desired HIV/AIDS interventions in the higher tertiary institutions in Zimbabwe. The preceding findings are in support of the alternate hypothesis on knowledge and awareness as a contributory factor to the effective implementation of desired HIV/AIDS interventions in the universities.

In addition, the following are the significant items in support of variables knowledge and awareness contributing to effective implementation of HIV/AIDS interventions with the p-values:

- The respondents were in agreement (*p*-value at 5% level of significance) scoring *(p<0.05)* that *HIV exists in high concentration in bodily fluids; A healthy person with a strong immune system can get HIV; HIV can live in the body for years before symptoms appear (p<0.05),* (*p*-value at 5% level of significance*).*
- Respondents were in disagreement (*p*-value at 5% level of significance) scoring *(p<0.05)* with the following statements *A child born of an HIV positive mother will*

automatically be born HIV positive; You can identify HIV positive individuals based on their appearance; There is a cure for AIDS HIV (Disagree); HIV can be spread by sharing of towels and utensils (cups and spoons, etc.) used by an HIV positive person (p<0.05), (at 5% significance level*).*

The above items support the variables, knowledge and awareness of HIV/AIDS as essential for the effective implementation of HIV and AIDS programmes in the higher and tertiary institutions. The preceding findings are significant at p-value <0.05 in support of the Alternate hypothesis, knowledge and awareness are contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. The findings suggest that students and employees agree that knowledge and awareness are contributing to the effective implementation of HIV/AIDS intervention programs in higher and tertiary institutions. Any change in the level of HIV/AIDS knowledge and awareness affect the effective implementation of HIV/AIDS intervention programmes.

Knowledge and awareness facilitated by elements that support HIV/AIDS programs in form of HIV/AIDS information available to the population. These elements empower individuals with knowledge, awareness to identify effective HIV/AIDS interventions from the availed HIV/AIDS programs. The identified elements of knowledge and awareness facilitate the successful implementation of effective HIV/AIDS interventions. The respondents identified elements: *HIV existence bodily fluids; strong immune system can get HIV; HIV can live in the body for years, child born of an HIV positive mother will not automatically be HIV positive; cannot identify HIV positive individuals based on their appearance; no cure for AIDS HIV; HIV cannot be spread by sharing items with an HIV positive person but through infected body fluids* in support of knowledge and awareness of HIV/AIDS programs. Any change positive or negative in preceding elements for knowledge and awareness impact the level of knowledge and awareness in the population. In addition, higher tertiary institutions were not identified as contributing to knowledge and awareness, showing a gap in HIV/AIDS knowledge, awareness which needs to be addressed. The basic facts on HIV/AIDS were prevalent among the students and employees but grey areas on HIV transmission modes, treatment of opportunistic infections that need to be addressed. HIV transmission and treatment of opportunistic infections are related to behaviour of an individual. The students and employees agree to knowledge and awareness contributing to the effective implementation of the desired HIV/AIDS interventions in the institutions. The respondents showed a high level of knowledge and understanding of

HIV/AIDS issues which help in implementing effective HIV/AIDS interventions for students and employees in higher tertiary institution setups. They are grey areas on HIV transmission and HIV/AIDS life cycle as indicated by low correct responses to the HIV/AIDS transmission and life cycle among the respondents. In conclusion, there are deficiencies in the level of knowledge and awareness of HIV/AIDS interventions by age, marital status, gender, year of study in the study population. The previous studies on knowledge and awareness of HIV/AIDS preventions were generalised because they disregarded the impact of the gender, age and marital status factors that this study considered to establish the groups that need more HIV/AIDS knowledge and awareness.

Female respondents proved to be more knowledgeable on HIV/AIDS issues and participated more in the activities as compared to males. There is a greater relationship between the variables as denoted by a p-values range of 0.026 – 0.05. A high level of knowledge and awareness of HIV/AIDS exist among the population, which stands above 75%. Females have a higher level of HIV/AIDS knowledge and awareness as compared to males in line with other studies done previously (UNICEF Report, 2016).

The contribution of HIV/AIDS knowledge and awareness towards the effectiveness of implementing the desired interventions indicate that the more people became aware of the activities, the higher their realisation of related diseases and prevention interventions availed. Principal component analysis extracted components that support knowledge and awareness of HIV/AIDS. These are HIV destroys the body's immune system, working with HIV positive person, share a bed, toilet, and food with HIV positive person. The understanding of the above components facilitates in the implementation of effective HIV/AIDS interventions. Any change in the composition of the components extracted lead to a positive or negative impact on the HIV/AIDS knowledge and awareness level among the participants. The transmission of HIV through bodily fluids is clearly grey area that needs more knowledge and awareness among respondents to reduce stigmatisation and contribute to effective implementation of desired HIV/AIDS in the higher and tertiary institutions population. Furthermore, the study considered how perceptions and attitudes on condom use and sexual behaviour of the respondents affect the implementation of effective HIV/AIDS interventions. The following paragraph addresses sexual behaviour practices, attitudes, perceptions and condom use variables contribution towards effective implementation of desired HIV/AIDS prevention interventions for students and employees in higher tertiary institutions.

5.6 Findings: Sexual behaviour and Practices

Do sexual behaviour practices among the young adults in the higher tertiary institutions support effective implementation of HIV and AIDS intervention programmes in the higher tertiary institutions?

Firstly, data is presented followed with analysis and discussion of the findings. Using the same scale as for knowledge and awareness, data on sexual behaviour and attitudes, perception on condom usage are in Table 5.6. Table 5.6 presents the items involved with sexual behaviour practices that contribute to the implementation of effective desired HIV/AIDS interventions among students and employees in the higher and tertiary institutions in Zimbabwe. This table is based on descriptive statistics results. The instruments measured the sexual behaviour practices, attitudes and perception on condom use that support implementation of effective HIV/AIDS interventions using 7-point Likert scale measure on the items. The 7- point Likert scale is as follows (1=Strongly Disagree to 7=Strongly Agree) and high score indicated the positive contribution of structures towards the support of HIV/AIDS interventions and low scores showed a negative contribution towards the support of HIV/AIDS interventions.

The research sought to assess if sexual behaviour practices among the young adults in the higher tertiary institutions support effective implementation of HIV and AIDS intervention programmes. Subsequently sexual behaviour practices among the young adults in the higher tertiary institutions support effective implementation of HIV and AIDS intervention programmes. The hypothesis being tested is **H_{03}** that Sexual behaviour practices are not contributing to effective implementation of HIV/AIDS interventions programmes among students and employees in higher tertiary institutions. The findings in tables 5.6, 5.6a, 5.6b, 5.6c facilitate in testing the above hypothesis.

Findings

The findings are presented using descriptive statistics in tables 5.6, 5.6a, 5.6b, 5.6c and factor analysis tables respectively. The preceding table 5.6b summaries opinions on sexual behaviour practices by gender and age.

Below table 5.6 shows frequency distribution on sexual behaviour practices t

Table 5.6: Response Frequencies on Sexual behaviour practice in percentiles and numbers

Item statement	N	Agree %	Agree Number	Disagree %	Disagree Number
It does not feel good to use condom	296	67	198	33	98
I would insist on using condom	296	58	172	42	124
I am embarrassed to buy condoms	296	74	219	26	77
I am embarrassed to get the free condoms available	296	78	231	22	65
People who carry condoms have sex with a lot of people	296	72	213	28	83
If I did not have a condom would have sex anyway	296	73	216	27	80
I have always been faithful	296	61	181	39	115
I have never had sexual intercourse with another person while in a relationship	296	62	184	38	112
I have always been faithful in my relationship with the previous partner	296	64	189	36	107

The above table 5.6 frequency distribution shows that respondents are in agreement with statements scoring 58% to 78%, indicating that sexual behaviour practices contribute to effective implementing of HIV/AIDS interventions. On the other hand, 22% to 42% disagree with the statements in the table. The students and employees agreed sexual behaviour practices contribute to effective implementation of HIV/AIDS prevention intervention programmes. The table below is an extension of Table 5.6 summarises items that support sexual behaviour practice based on mean, variance.

Table 5.6a profiles sexual behaviour practice based on means and standard deviation

Table 5.6a: Sexual behaviour practice

Item statement	N	Min	Max	Mean	Std. Deviation	Variance
It does not feel good to use condom	296	1	7	2.289	2.684	7.206
I would insist on using condom	296	1	7	2.941	2.900	8.410
I am embarrassed to buy condoms	296	1	7	1.845	2.215	4.906
I am embarrassed to get the free condoms available	296	1	7	1.548	1.956	3.827
People who carry condoms have sex with a lot of people	296	1	7	1.936	2.299	5.286
If I did not have a condom would have sex anyway	296	1	7	1.903	2.339	5.472
I have always been faithful	296	1	7	2.700	2.905	8.437
I have never had sexual intercourse with another person while in a relationship	296	1	7	2.647	2.895	8.380
I have always been faithful in my relationship with the previous partner	296	1	7	2.524	2.787	7.767

A low standard deviation and variance scores were noted on items with high frequencies between 72% to 78%and are significant at p value <0.05, show that there is some convergence in the respondent's view on the statements under consideration. A higher standard deviation and variance scores were noted on items with low frequencies between 58% to 64% indicating that the respondents' opinions on the statement under consideration vary in general. These items with a higher standard deviation and variance when considered under sexual behaviour faithfulness are significant at p- value <0.05. The findings indicate students and employees agreed that sexual behaviour practices contribute to effective implementation of HIV/AIDS interventions programmes

In addition, table 5.6b shows the p-values to further support the significance of the findings in table 5.6.

Table 5.6b outlines p-value, percentile of the relationship between genders, age of respondents with the statements that describe sexual behaviour faithfulness.

Table 5.6b: Opinion on sexual behaviour faithfulness by gender and age

Statement (positive responses)	**Male**	**Female**	***p-value***	**Age 17-20**	**Age 21-28**	***p-value***
	%	**%**		**%**	**%**	
I have always been faithful to my partner in my current relationship	36	34	0.052	22	34	0.008
I have never had sexual intercourse with another person while in a relationship	29	35	0.010	22	31	0.000
I have always been faithful to my previous partners	29	29	0.001	19	26	0.018

Table 5.6b shows that males are faithful in a relationship scoring 29% to 36% as compared to female scoring 29% to 35%. Opinions from both male and female are significant at p-value<0.05. The results indicate that students and employees agreed sexual behaviour practices contribute to effective implementation of HIV/AIDS prevention intervention programmes supported with significant p-value <0.05. These findings are in favour of the alternate hypothesis. Tables 5.6a, 5.6b profile the views of the respondents on testing the hypothesis that

In summary, tables 5.6, 5.6b findings show that sexual behaviour practices contribute to effective implementing of HIV/AIDS programmes. In table, 5.6 respondents agree that sexual behaviour practices contribute to effective implementing HIV/AIDS programmes. In addition, table 5.6b indicates the significance of sexual behaviour practices of the respondents to testing the null hypothesis. Table 5.6b shows the following variables are significant scoring values <0.05) in the responses:

I have always been faithful to my partner in my current relationship (significant at p<0.05)
I have never had sexual intercourse with another person while in a relationship (significant at p<0.05)
I have always been faithful to my previous partners (significant at p<0.05) in agreement to the alternate hypothesis. The above findings show a high agreement percentage to the statements and test of significance of the statements scored p-value <0.05 indicating that sexual behaviour practices contribute to effective implementation of HIV/AIDS programme in higher tertiary institutions.

Based on the findings reject the null hypothesis and accept alternate hypothesis. It shows that sexual behaviour practices are significant in contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. These findings concurred with (Kost and Henshaw, 2014); (Bamidele *et al.,* 2016) ;(Nwozichi *et a*l., 2016) on sexual behaviour among youth.

5.7 Findings: Attitudes, Perceptions and Condom use

Do attitudes, perceptions on condom use among the young adults in the higher tertiary institutions support the implementation of effective HIV and AIDS intervention programmes in the higher tertiary institutions?

Firstly, data is presented followed with the analysis and discussion of the findings. Using the same scale as for knowledge and awareness, data on attitudes, perception on condom usage are presented in Table 5.7. Table 5.7a is an extension of table 5.7 presents the items involved with attitudes, perceptions, and condom use that contribute to the implementation of effective desired HIV/AIDS interventions among students and employees in the higher and tertiary institutions in Zimbabwe. This table 5.7a is based on descriptive statistics results. The instruments measured the sexual behaviour practices, attitudes and perception on condom use that support the implementation of effective HIV/AIDS interventions using a 7-point Likert scale measure on the items. The 7- point Likert scale is as follows (1=Strongly Disagree to 7=Strongly Agree) and a high score indicated the positive contribution of structures towards the support of HIV/AIDS interventions and low scores showed a negative contribution towards the support of HIV/AIDS interventions. The research sought to assess if attitudes, perceptions on condom use among the young adults in the higher tertiary institutions support effective implementation of HIV and AIDS intervention programmes. Subsequently attitudes, perceptions on condom use among the young adults in the higher tertiary institutions support

effective implementation of HIV and AIDS intervention programmes. The hypothesis being tested is **H_{04}** that Attitudes, perceptions on condom use are not contributing to effective implementation of HIV/AIDS interventions programmes among students and employees in higher tertiary institutions. The findings in tables 5.7, 5.7a, 5,7b, 5.7c, 5.7d facilitate in testing the above hypothesis. Table 5.7 shows frequency distribution on attitudes, perceptions of condom use in percentiles and numbers.

Table 5.7 Response Frequencies on Perception, Attitudes and Condom use

Statements: Perception	N	Agree %	Agree N	Disagree %	Disagree N
This person cares about me	296	55	163	45	133
This person does not Care	296	84	249	16	47
This person Does not trust me	296	68	201	32	95
I cannot trust this person	296	72	213	28	83
It is the man who decides whether or not to use a condom	296	72	213	28	83
I do not end up using condom	296	67	198	33	98
I am tired of learning about HIV	296	62	184	38	112
Current messages about HIV in Zimbabwe have no relevance for my behaviour	296	66	195	34	101
Attitudes					
I would leave HIV+ partner	296	33	98	67	198
Would go for Counselling and testing	296	25	74	75	222
Embarrassed by HIV+ family member	296	56	166	44	130
Embarrassed if diagnosed HIV+	296	41	121	59	175
Would disclose HIV Status to partner before sexual intercourse	296	24	71	76	225
Insist couples go for HIV testing in every new relationship	296	23	68	77	228
Would have a partner who is HIV+	296	66	195	34	101
Would have sex with HIV+ person	296	75	222	25	74
Would marry HIV+ person	296	75	222	25	74
Would have a child with HIV+ person	296	76	225	24	71
Average frequency		**72**		**28**	

Table 5.7 on response frequencies, shows that respondents are in agreement that perception on condom use, attitude contribute towards effective implementation of effective HIV/AIDS

programmes supported by thirteen agree statements. These agree statements scored an agree average frequency score of 72%. Only five disagreed statements were noted scoring a disagree frequency score of 28%. In summary, students and employees are in agreement that perception on condom use, attitude contribute towards effective implementation of effective HIV/AIDS interventions supported by high agreement responses of 72% as compared to 28% disagree. Table 5.7a is an extension of table 5.7 shows the respective results to the corresponding statements.

Table 5.7a profiles mean, standard deviation, variance and factor analysis of the items in support of sexual behaviour practices, attitudes and perception on condom use in effective implementation of HIV/AIDS interventions

Table 5.7a Perceptions, Attitudes, and Condom use

Statement Perception of condom Usage	**N**	**Min**	**Max**	**Mean**	**Standard Deviation**	**Variance**
This person cares about me	296	1	7	3.128	3.101	9.617
This person does not Care	296	1	7	1.091	1.447	2.094
This person Does not trust me	296	1	7	2.253	2.644	6.990
I cannot trust this person	296	1	7	1.984	2.408	5.800
It is the man who decides whether or not to use a condom	296	1	7	1.968	1.607	2.583
I do not end up using condom	296	1	7	2.311	1.991	3.967
I am tired of learning about HIV	296	1	7	2.667	1.894	3.586
Current messages about HIV in Zimbabwe have no relevance for my behaviour	296	1	7	2.403	1.729	2.988
Attitudes						
I would leave HIV+ partner	296	1	7	4.694	2.208	4.873
Would go for Counselling and testing	296	1	7	5.226	2.038	4.154
Embarrassed by HIV+ family member	296	1	7	3.081	1.925	3.707
Embarrassed if diagnosed HIV+	296	1	7	4.108	2.211	4.890
Would disclose HIV Status to partner before sexual intercourse	296	1	7	5.285	1.894	3.589
Insist couples go for HIV testing in every new relationship	296	1	7	5.392	1.971	3.883
Would have a partner who is HIV+	296	1	7	2.323	1.690	2.858
Would have sex with an HIV+ person	296	1	7	1.758	1.153	1.330
Would marry an HIV+ person	296	1	7	1.769	1.237	1.530
Would have a child with an HIV+ person	296	1	7	1.672	1.103	1.216

Table 5.7a Factor analysis of sexual behaviour practices, attitudes and perception on condom use

Statement	Principal factor analysis –eigenvalues
A partner insists on condom usage I mean he cares about me	2.575
It is a man that decides to use a condom	1.515
Most of the time I do not use a condom even when I want	1.132
It does not feel right to use condoms during sexual intercourse	4.721
I would insist on using condoms also if my partner does not wish to	1.373
I am embarrassed to buy condoms at shops	1.204

Table 5.7b below outlines the relationship between gender of the respondents, p-values, age and the items/ statements that support attitudes towards condom use

Table 5.7b Summary of p-values, percentiles on attitudes, perceptions towards condom use by gender, age.

Attitudes, perceptions towards condom use by gender and age

Item (positive responses)	Male	Female	*p*-value	Age 17-20	Age 21-28	*p-value*
	%	%		%	%	
It does not feel good to use condoms during sexual intercourse	38	18	0.002	21	26	0.029
I would insist on using condoms even if my partner does not want to	37	45	0.001	42	39	0.459
I am embarrassed to buy condoms	11	21	0.000	18	18	0.310
I am embarrassed getting the free condoms available at the institution	11	15	0.002	15	12	0.000
People who carry condoms have sex with a lot of people	18	20	0.169	16	18	0.357
If I did not have a condom I would have sexual intercourse anyway	29	11	0.009	15	20	0.168

Table 5.7b indicates 18% females responded that they do not feel good to use condoms against 38% males in the age group (17 -21 years). As the respondents mature, they are willing to take risks. Age groups 21-28 years on the same response are mature but a risky behaviour group. These findings indicate 45% females noted that they would insist on use of condom with p-value=0.001 which is less than statistical significance: p value, 0.05 threshold. In addition, 29% males in both age groups are risk takers indicate that they could have sex without a condom.

Table 5.7c Summary of p-values, percentiles on perception, condom usage by gender and age

Item (positive responses)	Male	Female	*p*-value	Age 17-20	Age 21-28	*p-value*
	%	%		%	%	
That this person cares about me	45	47	0.051	46	41	0.331
This person does not care about me	7	3	0.020	3	4	0.290
That this person does not trust me	37	14	0.000	21	25	0.258
That I cannot trust this person – he or she probably has other partners	27	14	0.040	19	16	0.831

Table 5.7c profiles responses to opinions on attitudes, perceptions and condom use by gender and age. Respondents show low positive responses to the opinions, scoring significant p-values< 0.05. Clearly indicating attitudes, perceptions and condom use do affect the effective implementation of HIV/AIDS prevention intervention programmes in higher tertiary institutions.

Table 5.7d outlines p-value, genders, age of respondents in percentile with the statements that describe attitudes, perceptions, sexual behaviour faithfulness.

Table 5.7d Opinion on attitudes, perceptions, sexual behaviour faithfulness by gender and age

Statement (positive responses)	Male	Female	*p*-Value	17-20	21-28	*p*-value
	Agree %	Agree %		%	%	
I have always been faithful to my partner in my current relationship	36	34	0.052	22	34	0.008
I have never had sexual intercourse with another person while in a relationship	29	35	0.010	22	31	0.000
I have always been faithful to my previous partners	29	29	0.001	19	26	0.018

Average combined positive/agreed score 32%

Average combined negative/ disagreed score 68%

Table 5.7d profiles that attitudes, perceptions and sexual behaviour are significant with p-values <0.05 on all statements contributing to effective HIV/AIDS prevention interventions. The respondents positively/ agreed with an average combined responses score of 32% far below 50% that attitude, perception, sexual behaviour faithfulness facilitate outcome of behaviour and contribute to implementation of HIV/AIDS interventions. Students and employees are neutral to attitudes, perceptions, sexual behaviour faithfulness contributing to effective implementation of HIV/AIDS prevention programmes.

In summary the above tables 5.7, 5.7a, 5.7b, 5.7c profile the views of the respondents on the hypothesis that attitude and perception to condom use are not contributing in the effective implementation of HIV/AIDS interventions in higher and tertiary institutions among students and employees.

Table 5.7 students and employees are in agreement that perception on condom use, attitude contribute towards effective implementation of effective HIV/AIDS interventions supported by a high agreement of 72% as compared to 28% disagree. Attitude and perception on condom use are significant at *p-value<0.05* contributing to the effective implementation of HIV/AIDS interventions in higher tertiary institutions among students and employees. The p-value determined the significance of the results and small *p*-value scores (p<0.05) were noted on the following statements:

I have always been faithful to my partner in my current relationship (significant at p-value <0.05)

I have never had sexual intercourse with another person while in a relationship (significant at p-value <0.05)

It does not feel good to use condoms during sexual intercourse (significant at p-value <0.05)

I would insist on using condoms even if my partner does not want (significant at p-value <0.05)

I am embarrassed to buy condoms (significant at p-value <0.05)

If I did not have a condom I would have sexual intercourse anyway (significant at p-value <0.05)

I have always been faithful to my previous partners (significant at p-value <0.05)

I have never had sexual intercourse with another person while in a relationship (significant at p-value <0.05) indicating strong evidence for the alternate hypothesis. Based on the findings the null hypothesis is rejected and alternate hypothesis accepted. It shows that attitude and

perception on condom use contribute to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. These findings concurred with (Abiodun *et al.*, 2014); (ZekariyasSahile *et al.*, 2015) that knowledge, attitude, perception of HIV and condom use influence HIV/AIDS programmes. Furthermore, concurred with (Nwozichi*et a*l., 2016) on condom use utilisation. In addition, below correlation matrix models were extracted in favour of the alternate hypothesis reflecting attitude, perception, behaviour, intention and social norm.

Models

Correlation coefficients facilitated to the creation of correlation matrices. The results begin with correlation matrices for the two groups in Table 5.7 male and Table 5.8 women. This is followed by combined regression analysis for female and male respondents portraying the relations of attitude, perception, social norm, age intention and behaviour.

Table 5.7: Correlation matrix of intention and social norm for young male adults

	Intention	Age	Social norm	Attitude	Perceivedbehaviour
Intention	1				
Age	-0.071	1			
Social norm	0.261	0.081	1		
Attitude	0.072	0.182	0.678	1	
Perceived behaviour	-0.166	0.375	-0.154	-0.067	1

Table 5.7 presents the correlation matrix results for young male adults. The results show that there is a weak positive correlation between social norm and intention (0.261), social norm and age (0.081) between attitude and intention (0.072), attitude and age (0.182) and between perceived behaviour and age (0.375). Only attitude and social norm recorded a moderate positive relationship (0.678). Weak negative correlations also were recorded between age and intention (-0.071), perceived behaviour and intention (-0.166), perceived behaviour and social norms (-0.154) and perceived behaviour and attitude (-0.067).

Table 5.8: Correlation matrix of intention and social norm for young female adults

	Intention	Age	Social norm	Attitude	Perceived Behaviour	p-value
Intention	1					
Age	-0.186	1				0.019
Social norm	0.104	0.025	1			0.032
Attitude	-0.028	-0.034	0.768	1		0.159
Perceived Behaviour	-0.341	0.020	0.083	0.195	1	0.00

There were no significant differences between the correlations matrix results for female young adults and those for young male adults. As shown in Table 5.8, female young adults' results also show weak positive relationships between social norm and intention (0.104), social norm and age (0.025) and between perceived behaviour and age (0.020), perceived behaviour and social norm (0.083) and perceived behaviour and attitude (0,195). Similar to results obtained from the analysis of young male adults, young female adults also recorded a moderate- strong positive relationship between attitude and social norm (0.768). A weak negative correlation was recorded between age and intention (-0.186), attitude and intention (-0.028), attitude and age (-0.034) and lastly between perceived behaviour and intention (-0.341).

A more rigorous assessment of the relationship and implications between young adults' intention and their age, perceived behaviour, attitude and social norm proceeded to a regression analysis of these variables with intention/ willingness to communicate about HIV/ AIDS prevention among young adults as the dependent variable. The preceding led to developing two models in relation to sexual behaviour practices of individuals in relation to the theory of planned behaviour variables social norm, attitude, perceived behaviour. These models in tables 5.9 and 5.10 explain the theoretical relationship between components of theory of planned behaviour and intention to communicate on HIV/AIDS issues.

Table 5.9 shows the HIV/AIDS intervention behavioural regression analysis model on theoretical relationships of variables attitude, perceived behaviour, and social norm that supports affect HIV/AIDS interventions.

Table 5.9HIV/AIDS intervention- Behavioural Regression analysis model on the intention

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Males	0.3218	0.1036	0.0749	9.0463
Females	0.4249	0.1805	0.1543	9.5967
Predictors: (Constant), Perceivedbehaviour, Attitude, Age, Social norm				

The regression analysis results in Table 5.9 show that the male young adults' model was only able to explain 10.36% of variations in intention. The female young adults' model was able to explain about 18.05% of differences in intentions. Thus, the explanatory variables in both models were way below average in terms of their explanation of the young adults' willingness to communicate about HIV and AIDS prevention. One possible reason put forward by the

WHO (2009) is that attitude, and social norm do not necessarily correspond with an individual's intentions. However, the intentions may impudence these attitudes and beliefs if norms become internalised.

A model-based on perceived behaviour, attitude, social norm and willingness to communicate on HIV and AIDS information is shown in the preceding table 5.10. The attitude which is the degree to which a person evaluates or appraise the behaviour in question to favourable or unfavourable captured in a dimension of pleasant or not pleasant (Janzen 2001). Behaviour found to be stemming from attitude but not part of attitude (Janzen& Fisher, 1980) (Sparks & Guthrie, 1998). Subjective norms (SN) construct is different social references that exert influence to perform the behaviour (Fisbein & Janzen, 2010). In this section, the researcher presents the correlation analysis together with the regression analysis results of the variables attitude, perceived behaviour, social norm, male, female in the study. Independent variables are males, females, age, social norm, and attitude, perceived behaviour while intention is the dependent in the model below.

Table 5.10 displays the regression analysis coefficients models on perceived behaviour, attitude, social norm, intention variables and communication of HIV/AIDS interventions.

Table 5.10 Regression analysis coefficients Models on HIV/AIDS interventions- intention Model 2:

Model		**Unstandardized Coefficients**		**Standardised Coefficients**	**T**	**Sig.**
		B	Std. Error	Beta		
Males	(Constant)	26.557	3.406		7.796	0.000
	Age	-0.560	2.061	-0.025	-0.272	0.786
	Social norm	1.497	0.474	0.368	3.159	0.002
	Attitude	-0.168	0.109	-0.180	-1.540	0.126
	Perceivedbehaviour	-0.578	0.479	-0.112	-1.206	0.230
Females	(Constant)	33.136	3.436		9.643	0.000
	Age	-4.380	1.845	-0.193	-2.374	0.019
	Social norm	1.280	0.590	0.277	2.170	0.032
	Attitude	-0.190	0.134	-0.184	-1.417	0.159
	Perceived behavior	-2.349	0.601	-0.324	-3.906	0.000

Dependent Variable: intention

Table 5.10 summarises the regression analysis results. The two models explain the explanatory variables attitude, social norm and perceived behaviour with intention as the dependent variable. The results show that social norm is a significant predictor (at the 5% level) of intention or willingness to communicate about HIV/ AIDS prevention interventions among young adults as the observed p-values for both sexes were less than 0.05 ($p<0.05$). Age, attitude and perceived behaviour have an insignificant negative influence on the intention of young male adults as the p-values for the three variables were all above 5%.
However, for female, young adults, age and perceived behaviour were found to be having a significant influence on the intention with attitude, also having a negative non-significant impact as in young male adults.

The following section addresses the analysis of findings on sexual behaviour practices, attitudes, perceptions on condom use, aligning them to the preceding tables and models.

Analysis and Interpretation of findings:

The preceding paragraph analysed the subsidiary objective in support of the main objective. To assess sexual behaviour practices, attitudes and perception on condom use among the young adults in the higher tertiary institutions and contribution towards the effectiveness of implementing HIV/AIDS interventions. The instruments measured the sexual behaviour practices, attitudes and perception of condom use among the young adults in the higher tertiary institutions, and the impact on the effective implementation of desired HIV/AIDS interventions using the following 27 items in Table 5.6. Items are measured on a 7- point Likert Scale as follows (1=Strongly Disagree to 7=Strongly Agree). A high score indicated a positive contribution of the sexual behaviour practices, attitudes and perception on condom use to the effective implementation of desired HIV/AIDS interventions. In addition, low scores indicated a negative contribution of the sexual behaviour practices, attitudes and perception of condom use to the effective implementation of HIV and AIDS interventions. The variables play a vital part in the implementation of the interventions as shown by the response.

The findings from (Tables 5.6, 5.6a, 5.6b, 5.6c) indicate that students and employees in higher tertiary institutions agree that the items for sexual behaviour practices, attitudes and perception on condom use support variables towards effective implementation of HIV/AIDS programmes. The following are the items; (*I would leave HIV positive partner, I am embarrassed if diagnosed with HIV, Would go for Counselling and testing, Disclose HIV Status to partner*

*before sexual activity, Insist couples go for HIV testing in every new relationship),*with mean scores 4 above and items with an eigenvalue of 1 and above (*Have made many changes in our sexual behaviour to avoid HIV, Have counselling services at the institution, A partner insists on condom usage I mean he cares about me, It is a man that decides to use a condom, Most of the time I do not use a condom even when I want, It does not feel right to use condoms during sexual intercourse, I would insist on using condoms also if my partner does not wish to, I am embarrassed to buy condoms at shops*). The preceding items facilitate variables sexual behaviour practices, attitudes and perception on condom use to contribute in effective implementation of the desired HIV and AIDS programmes among students and employees in the higher and tertiary institutions in Zimbabwe.

Respondents were neutral on the extent to which sexual behaviour practices, attitudes and perception on condom use contribute to effective implementation of HIV/AIDS programmes with item scoring means between 3 and 4in (Table 5.6). These items are indicated below as follows: "*The person who cares about me, Embarrassed by HIV+ family member".*

Condom use the respondents were neutral or not sure about the statement with mean score between 3 and 4 respectively. *The person cares about me scored M=3. 128.Respondents* also somewhat disagreed with the 9statements, which had mean scores between 2 and 3.
The neutral statements scored high standard deviation and variance indicating that the responses vary significantly to the statements under consideration.
Three statements for perception on condom usage scored low mean between 1 and 1.999 representing disagreeing with statements.
Four statements on sexual behaviour practices and condom use scored a low mean. These were supported with disagree and strongly disagree. Respondents somewhat agreed with two statements under consideration which had mean scores range between 4 and 5.

Findings Do attitudes, perceptions and condom use among the young adults in the higher tertiary institution support of implementation of effective HIV and AIDS intervention programmes in the higher tertiary institutions. Attitudes towards HIV status of a person, condom use, applied the same scale as perception. Three statements (*Would go for Counselling and testing, Disclose HIV Status to partner before sexual activity)* on attitudes towards HIV showed that respondents agreed with the statements whose mean score were between 5 and 6.

Factor analysis using principal component analysis established a clear relationship among the variables and concluded on the most effective elements in support of HIV/AIDS sexual behaviour, attitudes, perception and condom use. Factor analysis applied on the 27 items extracted eight items and dropped 19 items. The principal component analysis applied on twenty-seven items/variables to establish the most contributing items for the variables. Eight items with eigenvalues 1 and above supported sexual behaviour practices, attitudes and perception on condom use among the young adults in the higher tertiary institution. The eight items affect sexual behaviour practices, attitudes and perceptions on condom use contribution to effective implementation of desired HIV/AIDS interventions among students and employees in higher tertiary institutions.

Tables 5.6a and 5.6c are summaries of p-values for the items that support sexual behaviour practices, attitudes, perception and condom use. Table 5.6a reflects attitudes towards condom use by gender and age. Both male and female are in agreement with the items scoring a significant p-value <0.05. The respondents both male and female, in table 5.6c on perception towards condom use are in support of all the items with test-t p-value<0.05. In both cases, age is insignificant with a p-value>0.05.

The responses on sexual faithfulness by age have significance to sexual behaviour scoring p-values range 0.000 to 0.018. The responses by gender have significance on sexual behaviour faithfulness signified by p-value range 0.001 – 0.010 ways below 0.05 level of confidence. Faithfulness is not important in sexual behaviour practices and cannot affect the implementation of desired HIV/AIDS interventions among students and employees in higher tertiary institutions.

Analysis of the regression models show that behaviour, attitude, perception variables focus on individual behaviour, normative belief, attitudes, motivations to comply with social norm (SN) and the intention to perform the behaviour (Janzen, 2011). The three constructs attitude, behaviour and social norms affect an individual in decision-making.

Summary of findings

The findings profile that gender, age, changes in sexual behaviour practices, counselling, insistence on condom use, decisions on condom use, contribute positively towards intervening variables sexual behaviour practice, attitudes, perceptions, condom use to effective implementation of HIV/AIDS interventions in the population. The social norm, attitude, perception variables contribute to the willingness to communicate on HIV/AIDS sexual

behaviour practices issues. A social norm is significant to sexual behaviour with a p-value less than 0.05. Knowledge interacts with attitude, perception, social norm internalise to influence behaviour and persistent practice leading to behaviour practice. In turn, knowledge, attitude, perception and social norm facilitate decision making of the desired HIV/AIDS interventions. The three constructs attitude, behaviour and social norms affect an individual in decision-making.

Analysis and Interpretations of findings

Sexual behaviour practice is influenced by attitude, perception, social norm, and age, gender any change in the relationship of the variables can have a positive or negative on choices implementing effective HIV/AIDS interventions. The significant social norm indicate that general social pressure plays an important role pertaining to issues on sexual behaviour practices among students and employees in the higher tertiary institutions. Any negative change on social norm can affect decisions on desired HIV/AIDS interventions. Behaviour is facilitated by the attitude, perception, social norm of an individual. Acquired knowledge leads to manifesting of attitude; perception depends on social norms leading to intention and behaviour. The behaviour with practice gradually turns into behaviour practice absorbed in daily practices affecting the decision making of an individual. Knowledge is the cornerstone of behaviour through internalisation of attitudes, perceptions, social norms and intention to change.

Conclusion of the findings

The following: gender, age, changes in sexual behaviour, counselling, insistence on condom use, decisions on condom use, contribute positively towards sexual behaviour practice, attitudes, perceptions, condom use as intervening variables that facilitate towards implementation of effective HIV/AIDS interventions in the population. The social norm, attitude, perception variables contribute to the willingness to communicate on HIV/AIDS sexual behaviour practices issues. Social norm is significant to sexual behaviour with a p- value less than 0.05, indicating that general social pressure plays an important role pertaining to issues on sexual behaviour practices among students and employees in the universities

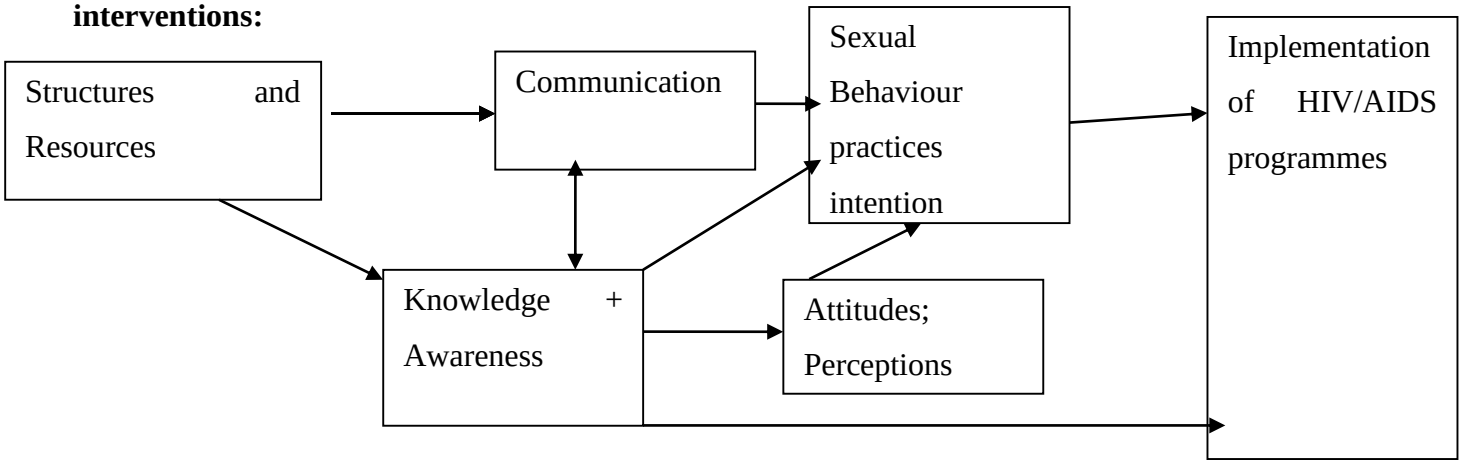
The students and employees in the universities agree that sexual behaviour practices, attitudes and perception on condom use contribute towards the effective implementation of HIV/AIDS programmes in the higher tertiary institutions. Any change in the contributions to the intervening variables might have a positive or negative effect on implementing effective

HIV/AIDS interventions. Sexual behaviour practice has relations with dependent variables age, gender, perception, attitude, intention, the social norm that facilitate the implementation of effective preferred HIV/AIDS interventions as signified by p-values less than 5%. The variable behaviour is supported by attributes that connect to the success of the HIV/AIDS interventions. Behaviour, attitude and perception variables of the theory of planned behaviour support this study in contributing to effective implementation of HIV/AIDS programs.

Concluding findings indicate that age at the first sexual encounter, changes in sexual behaviour, insistence on condom use, decision on condom use, perception and attitude on condom use are significant at p-value- 0.000 far below the recommended 5% confidence level in implementation of the effective desired HIV/AIDS interventions in the higher tertiary institutions in Zimbabwe. Any variations in the variables indicate a change that needs investigation. HIV/AIDS knowledge is supported by attitude, behaviour and social norm; interact into a model that identifies contributory elements towards choices of effective HIV/AIDS interventions. Social norm interacts with intention significantly in communicating on HIV/AIDS interventions and facilitates in decision making of implementing effective desired HIV/AIDS interventions. The Theory of Planned Behaviour facilitated in better understanding of the relationships among the variables associated with sexual behaviour practices. Based on the above results the variables were statistically significant at p-value $p<0.05$. The variables sexual behaviour, attitude, perception on condom use with $p< 0.05$ are contributing towards the effectiveness of implementing desired HIV/AIDS interventions in the university.

In conclusion, the students and employees agree that sexual behaviour practices; attitudes, and perceptions contribute towards the effectiveness of implementing desired HIV/AIDS interventions in the universities' population. The preceding figure 5.3 depicts a Model 4. On factors affecting implementation of HIV/AIDS interventions

Figure 5.3: Model 4 based on findings: Factors affecting implementation of HIV/AIDS interventions:



Structures and resources in support of HIV/AIDS programmes support communication on HIV/AIDS thereby increasing level of knowledge and awareness. Knowledge and awareness is increased through direct information from structures and resources and updates communication with new information not communicated before. Communication affects sexual behaviour through information from structures, resources, knowledge, and awareness. Knowledge influence attitudes, perceptions in turn sexual behaviour practices and intention for effective implementation of desired HIV/AIDS programmes in the respective population.

5.8 Findings: HIV and AIDS prevention interventions applied in higher and tertiary institutions populations

The findings on sexually active, HIV responses, relations with HIV positive, learning about HIV/AIDS and ranking of HIV/AIDS prevention methods contribute to the selection and implementation of effective desired HIV/AIDS interventions among students and employees in the higher and tertiary institutions. Descriptive tables, p-values tables and factor analysis tables support these. Tables 5.11, 5.12, 5.13, 5.14, 5.15, 5.16profile the views of the respondents on reasons for sexual activities and HIV/AIDS prevention methods available to the respondents. Tables 5.11, 5.12 profile the views of the respondents on reasons for being or not being sexually active based on the provided opinions.

Table 5.11 Reasons for not being sexually active by age

Opinion	17-20		21-28		All		*p*-value
	N	%	N	%	N	%	
Religion	7	10	16	8	23	9	0.000
Afraid of catching HIV or STI	5	7	1	1	6	2	
Taking HIV and AIDS treatment (ARV)	1	1	2	1	3	1	
Do not know my HIV status	1	1	5	3	6	2	
Other health problems	2	3	0	0	2	1	
Waiting for marriage	10	15	20	11	30	12	
Fear of unwanted pregnancy	4	6	22	12	26	10	
Lack of opportunity	0	0	10	5	10	4	
Not interested	8	12	18	9	26	10	
Average %		**55**		**50**			

The age group 17-20 years on average 55% had reasons to abstain from sexual as compared to 50% in the mature group.

Table 5.12: Reasons for not being sexually active by gender

Item	Male		Female		All		*p*-value
	N	%	N	%	N	%	
Religion	8	6	15	10	23	8	0.024
Afraid of catching HIV or STI	4	3	7	5	11	4	
Taking HIV and AIDS treatment (ARV)	2	1	1	1	3	1	
Do not know my HIV status	3	2	3	2	6	2	
Other health problems	2	1	0	0	2	1	
Waiting for marriage	16	11	16	11	32	11	
Fear of unwanted pregnancy	23	16	5	3	28	10	
Lack of opportunity	7	5	7	5	14	5	
Not interested	10	7	16	11	26	9	
Average %		**52**		**48**			

Overall average male scored 52%; female 48% for not being sexually active indicating males abstain from sexual activities as compared to females.

Table 5.13 profile the views of the respondents on perceived most feared risk in relation to HIV/AIDS.

Table 5.13 Perceived Most Feared Risk

Item Statement	N	Min	Max	Mean	Std. Deviation	Variance
HIV and AIDS	296	3	7	3.043	2.272	5.165
Crime	296	3	7	4.343	2.286	5.226
Financial insecurity	296	1	7	2.032	1.761	3.102
Health problems other than HIV	296	2	7	2.919	1.891	3.577
Health problems other than HIV	296	2	7	2.919	1.891	3.577
The environment	296	3	7	4.349	2.297	5.277
Unemployment	296	1	7	2.962	2.044	4.177
Road Safety	296	3	7	4.627	2.408	5.800

Perceived most feared risks are crime, environment and road safety as compared to HIV/AIDS among respondents.

Table 5.14 profiles the views of the respondents on learning about HIV by gender, age in relation to HIV/AIDS prevention methods.

Table 5.14 Learning about HIV by gender, age

Item (positive responses)	Male %	Female %	*p*-value	Age Years 17-20	Age Years 21-28	*P* Value
It is the man who decides whether or not a condom should be used	17	5	0.000	3	14	0.007
Most of the time I want to use a condom but I often end up not using one	16	14	0.001	15	16	0.028
I am tired of learning about HIV	17	19	0.000	19	15	0.007
Current messages about HIV in Zimbabwe have no relevance or meaning for my sexual behaviour	10	11	0.000	6	14	0.001

Respondents agree to learning about HIV with high response rates except females with 19% positive rate on I am tired of learning about HIV compared to males 17%.

All the items at p-values <0.05 are contributing to selection of effective HIV/AIDS prevention interventions.

Table 5.15 profiles the views of the respondents on HIV prevention methods availed to the respondents.

Table 5.15: HIV Prevention methods

Prevention methods	N	Min	Max	Mean	Std. Deviation	Variance
Traditional Medicine	296	1	3	0.075	0.422	0.178
Bathing After Sex	296	1	3	0.097	0.489	0.239
Church (Deliverance and Prayer)	296	2	3	0.312	0.798	0.637
Sex with a Virgin	296	2	3	0.179	0.601	0.361
Abstinence	296	2	3	1.086	0.635	0.403
Being Faithful	296	2	3	1.715	0.991	0.983
Consistent Condom Use	296	1	3	2.075	1.197	1.432

The students and employees preferred HIV/AIDS prevention interventions abstinence with mean score 1.086, Being Faithful mean score 1.715 and Consistent Condom Use mean score 1.197. These HIV/AIDS prevention interventions were further ranked in order of most important, important and least important in table 5.16. The next table 5.16profiles the views of the respondents on ranking of HIV/AIDS prevention methods available to the students and employees in higher tertiary institutions.

Table 5.16: Ranking of HIV/AIDS prevention methods

Item	Most important		Important		Least important	
	N	%	N	%	N	%
Traditional medicine (muti)	6	2	1	0	4	1
Bathing after sex	4	1	3	1	6	2
Church (deliverance and prayer)	6	2	22	7	12	4
Sex with a virgin	4	1	9	3	5	2
Abstinence	221	77	23	8	16	5
Being faithful	26	9	157	65	56	19
Consistent condom use	25	8	47	16	162	67

Abstinence is the most important with the highest score of 77% next is Being Faithful as important scoring 65% and Condom Use scoring 67% as the least important. Clearly indicating that students and employees prefer Abstinence, Being Faithful; Consistent Condom Use as the most effective HIV/AIDS prevention interventions for implementation in higher tertiary institutions to reduce HIV/AIDS incidence.

5.8.1 Analysis and Interpretation of findings:

The above descriptive tables, p-values show that the instruments measured elements in support of effective HIV/AIDS interventions. The following opinion on reasons was used: not being sexually active; perceived most feared risk; HIV prevention methods; ranking of HIV prevention methods for contributions to effective implementation of selected HIV/AIDS interventions among students, employees in higher tertiary institutions. The following response rates were applied: Respondents agreed with the classification of HIV/AIDS intervention as important classified with mean score between1 and 3; somewhat agreed with the following statement with mean score between 1 above and 3. Respondents disagree/ strongly disagree with the mean score between 0 and 1. Descriptive statistics t-test p- values, percentiles facilitated in the analysis of the results.

The respondents' response rate on demographic variables in tables 5.11, 5.12 above indicate that the 17-20 years' age group had a high response to reasons for not being sexually active. Scoring 55%responses as compared to the 21-28 years' age group that scored 50% responses. Table 5.12 profiles the views of respondents on reasons for not being sexually active by gender. It indicates that male had a high score of 52% as compared to female with a score of 48%. The above table 5.14 profile the views of respondents on learning about HIV/AIDS by age and gender. Male respondents scored high 60% as compared to female respondents who scored 49%.

In addition, items in the tables were analysed using the above classifications. In table 5.15 on HIV prevention methods, the respondents agreed with items mean scores 1 and above. These were as follow:

The statement *consistent condom use scored (Mean (M) 2.075).* Two statements on the ranking of HIV/AIDS prevention methods scored a mean between 1 and 1.999. *Abstinence scored mean (M= 1.086) and while being faithful scored mean (M=1.715)* respectively.

Respondents somewhat agreed with the following statement of classifying the HIV/AIDS preventions as important scoring between 1 above and 3.

Respondent disagrees with the four items classification of HIV/AIDS intervention as crucial with a mean score between 0 and 1. Indicating the respondents strongly disagree with classifying the HIV/AIDS prevention interventions as important. The four items are: *Traditional medicine mean score 0.075, Bathing after sex mean score 0.097, Church deliverance and prayer mean score 0.312, Sex with virgin mean score 0.179.*

Ranking of prevention methods

Table 5.16 profiles the views of the respondents on the ranking of desired HIV/AIDS prevention intervention methods. The classification for ranking was as follows most important, important, least important based on the number of votes obtained under each classification. The table indicate that Abstinence was classified as most important with a score of 221. Being faithful scored 57 classified as important. Condom use was classified as important with a score of 42. The *summarised* scores are as follow;

Abstinence most important score 221 supported with response rate 77% as most important

Being faithful important score 157 supported with 65% as important

Consistent condom uses important score 47 supported with 67% as least important

The findings indicate that abstinence, being faithful, consistent condom use were the most effective preferred HIV/AIDS interventions identified with the students and employees in the higher tertiary institutions.

The study considered the risks of HIV infection among the study population, and the findings presented in table 5.13. Existence of a significant relationship within the nine reasons for not being sexually active by age with the HIV/AIDS prevention programmes that are in place to reduce the spread of HIV/AIDS signified by the significant p-value of 0.000 which is far less than the required 0.05. Table 5.13 reflects on the risk of infection in the study population and ranks the chance of getting HIV infection as compared to other life risks.

Response rate agreed with the statement consideration mean scored between 4 and 5. These are

crime as a factor scored mean (M= 4.343),

the environment scored a mean (M= 4.349),

road safety scored a mean (M= 4.627).

Neutral with the statement consideration mean score between 3 above and 3.99. The statement *HIV/AIDS scored a mean of 3.043*

Disagree with the item statement as a risk factor mean score between 2 and 3. These are

Financial insecurity scored a mean (M= 2.032),

health problems other than HIV scored mean (M= 2.919).

Unemployment mean score of (M=-2.962).

The respondents somewhat agreed with the statement under consideration which had mean scores ranging between 4 and 5. The assessment of comments was according to individual importance. While HIV and AIDS as a risk factor, the respondents were neutral regarding the type of risk. Three statements on the ranking of risk factors concerned by respondents scored between 2 and 3, representing disagreement that the elements are important.

The principal component analysis determined the ranking of the variables according to the riskiest to the least concerning perceived risks. Components with an eigenvalue above one extracted were:

HIV and AIDS infection scored 1.827

Afraid of crime scored 1.354

Financial and security scored 1.125

Health problems 1.013 and cumulative % of 75.98

Ranking HIV/AIDS concerning perceived risks indicate that HIV and AIDS infection scored the highest eigenvalue 1.827, afraid of crime scored 1.354, financial and security scored 1.125and health problems 1.013, significant at p-value 0.00 and support with a cumulative percentage of 75.98%.

Analysis and Interpretations of findings

It can be reckoned that it is unlikely to identify effective HIV/AIDS interventions for implementation, where respondents are not clear on reasons for being sexually active and religion, perceived risks, current HIV/AIDS messages relevance to sexual behaviour practices, and available HIV/AIDS interventions at the disposal. The students, employees agree that elements; being sexually active, perceived feared risks, learning about HIV/AIDS, HIV prevention methods facilitate in identifying, implementing effective preferred HIV/AIDS interventions for higher tertiary institutions. In addition, reducing HIV/AIDS infection rates in higher tertiary institutions in Zimbabwe.

5.8.2 Effectiveness of HIV and AIDS interventions:

The respondents highlighted three HIV and AIDS prevention interventions these were abstinence, being faithful, and condom use. Focus group discussions supported the preceding HIV/AIDS interventions to be effective in reducing HIV incidences among young adults. Condom use was very effective due to the nature of use and availability. Abstinence has no cost involved but empowers knowledge at the individual level making it effective in terms of cost and use. Awad et al., (2015) in a study on voluntary medical male circumcision involving abstinence, being faithful, condom use scale-up programmes noted the effectiveness among the population with increase in HIV infected averted.

5.8.3 Summary of findings

The respondents highlighted reasons and the elements in support of identifying effective HIV/AIDS interventions for implementation in higher tertiary institutions. These were: *for not being sexually active, religion was significant at p-value<0.024;* perceived most feared risks the elements extracted with eigenvalue 1 and above were; *HIV and AIDS infection, Afraid of crime, financial and security, health problems.* These elements with eigenvalues 1 and above were significant at p-value < 0.05, accounting for a cumulative percentage of 75.98% of the

perceived feared risks. Learning about HIV/AIDS opinion was supported with elements *decision not to use a condom, tired of learning about HIV/AIDS, current messages not relevant to sexual behaviour all were significant at p-value <0.05.* In addition, current messages not relevant to sexual behaviour practices had a p-value of 0.001. Three HIV/AIDS interventions were identified by the respondents; abstinence, being faithful, condom use. In addition, ranked as follows: abstinence as most important with 77% responses, being faithful as very important with 65% and consistent condom use as least important at 67% respectively.

The following paragraph addresses discussions of the study objective findings on HIV and AIDS prevention interventions implemented in higher and tertiary institutions populations.

Conclusion on focus group findings

The following is the summary on focus group discussions, the researcher created a score sheets with columns for each theme, code number to identify the theme. Each relevant phrase or word to a theme was assigned the code on the captured notes from the discussion. At the same time a stick was assigned for each word or phrase entered the on the score sheets according to the theme. The scores were summarised up according to theme to get a total. At the end of analysis the ticks were added up to get total phrases found. Each theme had a total which was used to calculate the proportion of each theme to the overall themes total in percentage. The table below shows the summary of themes using word count method. The methods used to capture data ensured application of cross checking to confirm if the word or phrase was included.

Summary findings from word count of focus group discussions

Scores	**Structures Resources**	**Knowledge Awareness**	**Sexual behaviour practices**	**HIV/AIDS interventions**	**Total scores**
Scores	**103**	**389**	**141**	**162**	**795**
% Scores	**13%**	**49%**	**18%**	**20%**	**100**

In conclusion, focus groups concurred with most of the findings from quantitative findings but highlighted the need to strengthen peer dynamics on issues of sexual choices, testing for HIV, and parents' communication skills on sex, HIV issues.

Focus groups with agreed that knowledge and awareness of HIV/AIDS issues was high among the study population scoring 49%. Awareness programmes did not consider cultural elements and were too general not targeting a specific group. There were some misconceptions with regard to the difference between HIV and AIDS from other health diseases like STD because of the impression that HIV is acquired through STD. On sexual behaviour practices, attitudes

and perception it was noted that young adults lack sexual negotiation skills as an adult's condom negotiation skills. Discussions on sex, HIV/AIDS were rarely done at family and community levels due to traditional beliefs, this was supported by scoring 18% in the discussions. The focus groups indicated that preferred ABC HIV/AIDS interventions scoring 20% on the discussions, citing lack of comprehensive information on other HIV/AIDS interventions. The participants indicated lack of information on structures, resources supporting HIV/AIDS prevention intervention programmes scoring 13%.

5.9 Discussion of the findings

5.9.1 Structures and resources contributing to effective implementation of the desired HIV/AIDS interventions in universities.

Respondents were asked to state structures and resources/inputs that support the implementation of HIV/AIDS programmes. As shown in table 5.3 the analysis of findings on structure stakeholders and essential inputs for the HIV and AIDS prevention interventions failed to support the null hypothesis. The government is at the forefront of the stakeholders in supporting and giving the needed assistance in the HIV and AIDS programmes. The findings indicate that the government and community organisations are significant with p-value (p<0.05) supporting structures and resources to contribute towards effective implementation of HIV/AIDS programmes in the higher tertiary institutions. The government and community organisations accounted for a cumulative percentage of 65% in support of structures and funding for the HIV/AIDS interventions. This is an indicative fact that HIV/AIDS prevention cannot be sustainable where accessing structures, resources is the biggest obstacle to effective implementation of HIV/AIDS interventions. Similarly, the government is the main provider of HIV/AIDS structures and resources in South Africa and controls most of the HIV/AIDS activities in the country (South Africa National AIDS Council, 2017).

The structures have bearing on the HIV/AIDS information frequency of communication and policy in place in an institution. The information facilitates in identifying the structures, resources in support of the implementation of HIV/AIDS activities. The descriptive statistics results in Table 5.3 show the respondents obtain HIV/AIDS information through television supported with eigenvalue 5.218 and through radio scoring an eigenvalue 1.328. Indicating television and radio are the preferred mode of communicating HIV/AIDS messages and cover a large population base. Television, radio disseminate information on HIV/AIDS structures,

resources available that support HIV/AIDS interventions. In addition, table 5.3a reflects educational approaches together with communication initiatives in the study population that show mixed relationships about supporting HIV positive individuals. Reflecting the community does not always assist the HIV positive people. This could be due to limited resources availed to the community for HIV/AIDS interventions implementation.

Significant associations in support of structures, resources for HIV/AIDS interventions were from the following communication channels; television, radio, schools, magazines, clinics, internet, friends. The remaining elements; peer educator, parents, other relatives had an insignificant association with p-values of 0.218, 0.256 and 0.065 respectively. Indicating a need for further study on education approaches and use of the peer educators, parents and other relatives in curbing the spread of HIV and strengthening HIV interventions at the higher and tertiary institutional level. More so, there exists a mixed relationship between the fact that institutions are doing enough to support people living with HIV and the communication channels. Results indicated significant association on schools, magazines, parents, clinic or hospital and internet usage with the rest of communication channels having p-values of greater than 0.005. Furthermore, this is the case on the institution's initiatives to prevent the spread of HIV using various communication means. The radio, schools, magazines, parents, friends and clinics or hospital had significant association as justified by p-values ranging below 0.05 while other communication modes showed an insignificant relationship. The last variable is the members of the affected person's families being supportive of the infected person also had mixed associations with the communication models. Five communication modes have significant association these are television, radio, schools, magazines and the clinics or hospital as warranted by p-values of less than 0.05 and the rest having an insignificant relationship. Further friends, other relatives, peer educators have an insignificant association with a p-value of more than 0. 05.

These findings are similar to findings of a study done in Ethiopia by Sahile *et al.,* (2015) on peer educators, friends. They indicate need to address the modes of communication: friends, other relatives and peer educators in the target population. Mass media campaigns targeted at influencing sexual behaviour and raising knowledge and awareness of HIV are elements that support the structures that contribute towards the implementation of effective HIV/AIDS interventions. Mass media campaigns with radios, television, influential newspapers and the

internet were effective in promoting HIV/AIDS prevention interventions and facilitated in making choices for the desired HIV/AIDS interventions. The preceding mass media campaigns communication modes are supported by the government and community organisation as alluded top-values of $p<0.05$ as per table 5.3. Clearly, indicating that mass media campaigns are funded by government and community organisations, the main source of funds. The universities lack funding to spearhead the HIV/AIDS campaigns, implement effective HIV/AIDS interventions relying on government and community organisations for the required services.

The challenge of limited resources for the higher and tertiary institutions HIV and AIDS programmes led to the implementation of HIV and AIDS programmes without considering the perceived, actual needs and preferences of the target population (NAC, Report 2013). This is evident in the students and employees highlighting government and community organisations as the sole providers of HIV/AIDS interventions. In addition, respondents did not associate with the implemented interventions in the universities. Lack of deliberate needs assessments for the population in higher and tertiary institutions led to implementing programmes, which are not desirable and have no effectiveness impact on the HIV/AIDS interventions to the target population.

Table 5.3 indicates three (independent variables) notions: changes in sexual behaviour to avoid HIV, being satisfied with HIV services or programmes and that the students and lecturers are engaging in sexual relationships at the institutions that have significant relations with all the HIV/AIDS educational approaches. Communication modes (dependent variables): television, radio, schools, magazines, parents, other relatives, friends, peer educator, clinic or hospital and the internet were significant warrant *p*-values of all less than 5%. The *p*-values ranged between 0.000 - 0.005. There is mixed relationship with the *counselling* services offered at the institution, other relatives had an insignificant relationship with a *p*-value of 0.282. Similarly, the notion that the respondents would like the HIV services to be offered at their institution had an insignificant relationship with a *p*-value of 0. 162.The notion that they are satisfied with HIV services programmes and activities offered at their institutions and peer educators scored a p-value 0.067, which is an insignificant relationship. Proctor (2000) in the study of university students on HIV/AIDS interventions, noted that peer mentor programmes support the university and reach to groups with specific HIV information through the workshops.

In this study, it was the opposite: the respondents were not in support of the peer mentor programmes that facilitate HIV/AIDS interventions. Showing that the information dissemination through peer programmes is poor and needs to be activated. Significant relationships scored on the eight communication channels: radio, my school, magazines, relatives, friends, clinic, hospital and internet with government and community organisation structures show that they do contribute towards the effective implementation of the desired HIV/AIDS interventions in the study population. In conclusion, the communication channels television, radio, magazines had significant association in the dissemination of HIV/AIDS information scoring *p*- values less than 0.05. Peer educators, clinics, learning about HIV/AIDS, and the internet have an insignificant association in the dissemination of HIV/AIDS information with *p*-values above 0.05. Indicating the need for further study of HIV/AIDS educational approaches, use of the internet and peer educators as modes for communicating HIV/AIDS information to curb the spread of HIV and strengthen HIV interventions at higher tertiary institutions.

The findings on structures, resources/input facilitate in aligning to the national spending on HIV/AIDS prevention interventions. Henceforth focusing on effective implementation of desired HIV/AIDS interventions to reduce HIV incidence among the student and employee in higher tertiary institutions. Small p-values ($p<0.05$) on elements in support of structures, resources indicated strong evidence in favour of the alternate hypothesis. In summary, structures and resources/inputs were significant at p-value <0.05 confirming the alternate hypothesis that structures and resources are contributing to the effective implementation of HIV/AIDS intervention programmes in higher and tertiary. In conclusion, students and employees agree that structures and resources contribute to the effective implementation of desired HIV/AIDS interventions in the universities. The discussion on the subsidiary objective to identify HIV and AIDS prevention interventions that are desirable to the target population in the universities and are effective contributes to the finding solution to the main problem. Most HIV and AIDS programmes are driven by government, non-governmental organisations under the guidance of NAC and focus on prevention programmes targeting out of school and in-school youth. These HIV/AIDS programmes concentrate in the following areas: raising awareness on HIV and AIDS, peer education, skills training together with sexual reproductive health programmes (NAC Report 2012). Research findings showed that lack of programme coordination resulted in specific programme areas not being covered, even excluding many

young adults in the various sectors of the population. The streamlining of HIV and AIDS programmes for young adults in tertiary institutions handled by MOHTE was a noble idea in the fight against HIV and AIDS. The empowering in fight against HIV/AIDS, a grey area among the students and employees in the higher and tertiary institutions is not considered in HIV/AIDS programmes.

Empirical evidence from various studies of the risk groups from Kenya and Tanzania established that effectiveness in implementing HIV and AIDS prevention activities increased with the identification of a proportion of HIV positive in the client population (UNAIDS, Report 2014). The Zimbabwe National AIDS Strategic Plan (ZNASP) is the yardstick for all HIV and AIDS programmes. The success of HIV prevention interventions depends on well - designed inclusive HIV and AIDS policy and framework for the development, implementation of relevant HIV and AIDS prevention interventions desirable to the target populations. Similarly, in South Africa, a study on structures, resources in higher tertiary institutions revealed that a standard framework was in place to guide HIV/AIDS interventions implementation (Prata *et al.* 2005)

Table 5.14show that p-values for all the seven variables were significant below 0.005. Indicating any positive initiatives in learning about HIV by gender will result in high levels of knowledge about the subject under study and hence low levels of HIV transmission. Female respondents, 19% agreed to the notion that they are tired of learning about HIV. In comparison, 81% still want to learn about HIV, similar to the case study in Ethiopia by Zekaryas Shailer *et al.* (2015). On another note, 17% of male respondents agreed with the notion of being tired of learning about HIV, while 83% wanted to learn about HIV. However, females also indicated a high percentage of 11% against males who had 10% on the fact that the current messages about HIV in Zimbabwe have no relevance on their sexual behaviour. The statistics indicate strong relationships between learning about HIV by gender and HIV prevention programmes in place. The mean score indicates the males have more knowledge on HIV/AIDS issues as compared to females, thereby signifying the need for new information dissemination modes on the subject matter.

The study further assessed the relationship between learning about HIV by age and prevention programmes that are in place to support the analysis of the above variables. The p-values for all the seven variables are significantly below 0.005. Any positive initiatives in learning about HIV by gender result in high levels of knowledge about the subject under study and hence low levels of HIV transmission. On the same note, females had a high response of 19% on the notion that they are tired of learning about HIV as compared to males who had only 17%. The above statistics indicate that there are far better educational prevention methods to create awareness and knowledge to the students and employees of the universities in Zimbabwe.
A gap in educational prevention methods when analysed on a gender basis exists. Creating the need to have tailor-made educational prevention programmes geared for the male.

The study went further to assess the relationship between learning about HIV prevention programmes by gender and age groups, as shown on table 5.14. The following dependent variables; man decides to or not use a condom, most of the time the condom is not used, being tired of learning about HIV and current messages about HIV considered for sexual behaviour were used with the independent variables. The results showed that they have no relevance to sexual behaviour against independent variables two age groups 17-20 years and 21-28 years, respectively. However, a higher percentage for both age brackets indicated that they are tired of learning about HIV signified by 19% and 15% respectively. These figures are low meaning that 81% and 85% of people are keen to learn daily about the risks that surround them towards mitigating the spread of HIV. On average, the misconceptions that it is the men that decide condom use and the current messages about HIV in Zimbabwe have no relevance.

A strong association between learning about HIV programmes by age and the prevention methods exists. As indicated by significant p-values of 0.007; 0.028, 0.007, and 0.001 respectively for the conceptions, decisions on condom use during sexual activities, the fatigue of learning about and current messages about HIV have a meaning for sexual behaviour. Indicating any positive or negative choice towards HIV prevention initiatives will automatically affect the HIV/AIDS intervening variable knowledge level of the population under study.

The institute-based education is a critical input in HIV/AIDS preventions and involves conducting training sessions and workshops to students mainly aimed at promoting HIV prevention. Institute based learning linked to the HIV/AIDS prevention interventions through knowledge and awareness availed to the population in the respective institutions. Any positive initiatives in learning about HIV by gender, age result in a high level of HIV/AIDS knowledge. This result is supported by p-values for all the seven variables significantly below 0.05 and hence low levels of HIV transmission. Female respondents show high willingness to learn about HIV as compared to male. This was similar to the case study of high HIV/AIDS knowledge among women in Ethiopia by Zakarys Shailer *et al.* (2015). A strong association between learning about HIV programmes and the prevention methods do exist. This finding has significant p-values of 0.007; 0.028, 0.007, and 0.001 respectively for the conceptions decision on condom use by men, regular use of condoms during sexual activities, the fatigue of learning about and current messages about HIV have no meaning for sexual behaviour. Any positive or negative choice towards HIV prevention initiatives automatically affects the HIV/AIDS intervening variable knowledge level of the population under study.

5.9.2 Level of knowledge and awareness of HIV and AIDS contribution towards the effective implementation of the desired HIV/AIDS interventions of the population in the universities.

Descriptive statistics facilitated interpretation of the results, concurring that knowledge and awareness of HIV/AIDS contribute to the effective implementation of the desired HIV/AIDS interventions among the students in the higher and tertiary institutions. The elements that identified the adoption of HIV/AIDS knowledge and awareness level as a contributory factor to effective implementation of the desired HIV/AIDS interventions were those with mean scores of 4 and above. The levels of knowledge and awareness of: transmission of HIV, existence of HIV, sharing items with an HIV positive person, support the choices of/and effective implementation of HIV/AIDS programmes. In addition, the response to HIV transmission via mosquito bites, sharing utensils used by HIV positive is on the low side indicating some grey areas on knowledge of HIV transmission not understood within the population. This indicates an area in HIV/AIDS knowledge and awareness that needs to be addressed. The respondents understand the HIV life cycle: the initial infection stage, transmission stage and progression to AIDS.

These findings are in agreement with the study on university students by (Haroun Det. al, 2016). Haroun Det. al, (2016) did not consider the contributions of the variables items leading to a general understanding of the HIV transmission area. The HIV life cycle progression is part of the HIV transmission modes area, which is not well understood, indicating the grey areas not considered by Haroun D et, al, (2016). This current study applied principal component analysis to establish the factors that best contribute to knowledge and awareness of HIV/AIDS interventions. The following paragraph addresses the factor analysis on knowledge and awareness of HIV/AIDS contributory factors in the implementation of effective HIV/AIDS programmes.

Principal factor analysis extracted elements that measure knowledge and awareness of HIV/AIDS and variables with an eigenvalue one above were extracted. The extracted elements were considered in determining their contribution to knowledge and awareness of the HIV/AIDS intervention. The elements were: (*Person diagnosed with HIV and AIDS has AIDS, Aware that HIV destroys the body immune system, Work in the same office with HIV positive person, share a bed, toilet, apple, eat with HIV positive person, you can identify HIV+ people based on their appearance, HIV can live in the body for years before symptoms, there is no cure for AIDS).* The variables explained the correlation between variables adequately supported with the high measure of sampling adequacy (KMO 82%).While significance test score p-value 0.000 which is below the 5% significance level showing that the hypothesis on knowledge and awareness of HIV and AIDS is acceptable at a 95% confidence level

Assessing the level of knowledge and awareness of HIV and AIDS in the higher and tertiary institutions and aligning to the gender, age and marital status variables strengthened the findings to focus on the needs of the participants. In Tables 5.5 and 5.5a age, gender and marital status are significant with scores p-values of less than 0.05 supporting level of knowledge and awareness contribution to the effective implementation of HIV/AIDS interventions to reduce the HIV infections rate in higher tertiary institutions. The level of knowledge and awareness of HIV/AIDS and gender, females present a superior power in terms of HIV and AIDS awareness over males. This indicates that females are more knowledgeable on issues of HIV and AIDS that affect their decision-making choices on HIV and AIDS interventions. The research findings denoted that the 28 years and above age group had more knowledge, awareness of HIV/AIDS and showed a superior understanding of the subject under study.

The preceding findings are strongly significant denoted by test p-value<0.005 of 0.013 and any change in the age setup influences knowledge and awareness contributing to effective implementation of HIV/AIDS programmes. This concurs with a study by Mostafa *Shokoohi et al.*, (2016) that noted the age group 25-29 years had more knowledge on HIV compared to the others in the study. The above findings support the hypothesis that knowledge and awareness contribute to effective implementation of HIV/AIDS interventions among students and employees in higher tertiary institutions.

Further analysis of age indicates that knowledge on HIV transmission is crucial as alluded by the study findings. The study shows greater awareness in respect of the areas agreed on and disagreed with regard to HIV/AIDS. In analysing knowledge and awareness of HIV/AIDS by age other researchers indicated that there is high knowledge between the age of 15-25 for both males and females but females dominate with 7% (UNICEF, 2016). Furthermore, the findings show lower levels of disagreement with the notion that a person diagnosed with HIV has AIDS. The test results on the same note revealed that the notion significantly affects the level of knowledge and awareness thereof. More information and clarity are needed pertaining to the preceding notion there seem to be doubting elements among the population. Similar findings were established in a study on university students in Emirates (Haroun et. al., 2016)

The results obtained from the opinion that a child born of an HIV positive mother will automatically be born HIV positive in disagreement were a bit similar to the formerly discussed notion. There exists a low level of understanding of this statement as represented by low levels of disagreement. Test statistics also indicate a significance of this concept as denoted by the p-value of 0.000 far below the required benchmark of 0.05 confidence level.

There exists an average of neutral understanding and awareness to the conception that one can identify an HIV positive individual based on their appearance. This is defensible by the research results, which fell just above the cut off percentage of 50%. Moreover, this perception is significantly vital in assessing the knowledge and awareness of HIV/AIDS as justified by a p-value of 0.028, which is far below 0.05. Knowledge is so diversified and involves several variables on the same note HIV duration in the body received different views.

Mixed views are obtained from the version that HIV can live in the body for years before symptoms appear. A high level of awareness and knowledge exists, indicated by agreement from the conceptions HIV destroys the body's immune system causing illness to occur, HIV

exists in high concentration in bodily fluids, a person living with HIV who is healthy can still transmit the virus to other people, healthy person with a strong immune system can get HIV and an HIV positive lecturer should be allowed to continue teaching at my institution. On the same notion disagreements were indicated for the conceptions; there is a cure for AIDS, HIV can be transmitted via mosquito bites, HIV can be spread by sharing towels and utensils (cups and spoons, etc.) used by an HIV positive person. This is justified by higher levels of disagreement from the research findings and the level of significance of p-value 0.099. The above results are in line with findings by Haroun *et al.*, (2016) in the study on knowledge of HIV/AIDS among University Students in the Arab Emirates. The study did not assess knowledge and awareness based on gender, year of study and marital status, which this current study considered.

The following paragraph assessed the knowledge and level of awareness of the above activities by age. Table 4 (Appendix 4) show activities with someone who is HIV positive by age so as to confirm on knowledge and awareness results previously covered in the research study.
All the age groups indicated a lower positive response on sharing an apple of 47%, 52% and 50% among the age brackets of 17 to 20 years, 21 to 28years and 28+ respectively. All the seven variables secured higher positive response of greater than 75% across the age groups except drinking from the same cup the 21 to 28years' age group with 64%. These findings revealed highest levels of association of these activities by age groups having significance p-value 0.000 far below the standard 0.05. The findings indicate that the higher people become aware of the HIV/AIDS activities the greater the knowledge they acquire in terms of HIV/ AIDS-related diseases.

5.9.3.1 Marital status and knowledge and awareness of HIV/AIDS findings

Table 5(Appendix 4) reveals that sample respondents had the least positive responses from sharing items with an HIV positive person across all marital status statistics justified by those who are single with only 42%, married/ cohabitate 59%, separated/ divorced/ widow 58% and finally those in a relationship with only 57%. Furthermore, there exists a strong association between the variable of sharing items with the level of knowledge and awareness of HIV by marital status signified by a p-value of 0.000. However, those who are married and those that are separated gave a higher percentage of 81% and 92% respectively. There is a more significant relationship between the variables as denoted by a p-value of 0.026.

Table 5 (Appendix 4) summarises the relationship of the independent variable activities with someone who is HIV positive by marital status with dependent variables to establish the level of knowledge and awareness. The discussion on findings for the contribution of HIV/AIDS knowledge and awareness towards implementation of effective HIV/AIDS show a positive impact on the interventions. Furthermore, across the remaining denominations by marital status, there is a strongly understanding of the noted above variables warranted by strong positive responses across all marital differences as denoted by above 75% responses and strong relationships signified by test-t p-values below 0.005 except for use of the same toilet and eat the same apple reported insignificance by p-values above 0.05.

The study sought to assess how the level of HIV/AIDS knowledge and awareness among students in tertiary instructions contribute to the effective implementation of preferred HIV/AIDS interventions. Knowledge and awareness of HIV.AIDS is measured using twenty-one variables, and the findings from the survey presented in Table 5.5. Assessing the level of knowledge and awareness of HIV and AIDS in the higher and tertiary institutions using respective statements that covered knowledge variable was of paramount importance. Knowledge was the independent variable while dependent variables, gender, institutions and age facilitated the findings. The level of knowledge and awareness of HIV/AIDS between genders indicate that in most cases, the females present a superior power of awareness as compared to males. The interpretation of results using percentile quarter a scale of 75% based on the judgement of the researcher, therefore, it meant that the respondents with the variable score of less than 75% for male and or female were significantly viable for the analysis. Furthermore, the findings reveal that both males and females disagree with the notion that a person diagnosed with HIV has AIDS signified by 62% and 70% respectively. Table 5.5 above supported the above results by indicating that it was insignificant, as presented by p-value > 0.05 of.0766. The respondents had significantly low values when it came to the identification of a person who is infected by HIV based on their appearance as indicated by a quiet male disagreement of 46% and female of 64%. Justified by a p-value<.005 of.002. On the same note, females presented a superior power in terms of HIV and AIDS awareness over males as presented above indicating that females are more knowledgeable on issues of HIV and AIDS that affect their decision making choices on HIV and AIDS interventions. The respondents were not entirely in agreement with the notion that HIV can live in the body for years before the symptoms appear as presented by male respondents of 58% and slightly above the

judgemental benchmark for females of 79%. The findings were also significantly associated with the understanding of HIV elements as evidenced by the significance score of p-value <.005 of 0.00252. Furthermore, the respondents had more excellent knowledge of all the remaining variables as evidenced by the high responses.

The findings were significant as justified by a p-value of 0.000 indicating some elements of HIV/AIDS knowledge among the respondents and that indeed the population in higher and tertiary institutions is in disagreement that an HIV positive person is identifiable by physical appearance. Further investigation was on knowledge and awareness of HIV/AIDS of the population under study by age. Table5.5a clearly articulated the findings aligning them to the several variables including age. The research findings indicated a profound disagreement with the notion that a person diagnosed with HIV has AIDS denoted by 57%, 66% and 78% on 17-20, 21-28, and 28+ age brackets, respectively. The researcher noted that the 28+ age had a superior understanding of the subject understudy. Further, the findings are strongly significant represented by the Test p-value <.005 of 0.013. Reflecting the actual real population under study with the knowledge about HIV status and helps in decision making on action to take for HIV prevention. Findings concur with an investigation by Mostafa Shokoohi *et. al;* (2016) that noted the age group 25 to 29 years had more knowledge on HIV compared to the others in the study.

The respondents also indicated that they could not identify HIV positive individuals based on their physical appearances as denoted by a lower level of disagreement to the variable of 52%, 57% and 53% respectively among the age groups. Further analysis conducted to find the view of whether HIV can live in the body for years before symptoms appear. The statistics indicated low levels of agreement represented by 64%, 61% and 21% of the age groups, respectively. Furthermore, analysis of age suggests that knowledge on HIV transmission is crucial as alluded by the study. In addition, there exist grey area in the HIV/AIDS transmission, behaviour of the virus in the body of an individual.

In analysing knowledge and awareness of HIV/AIDS by age, other researchers have indicated that there is excellent knowledge between the age of 15 to 25 years for both males and females, but females dominate with 7% (UNICEF, 2016). Low levels of disagreement with the notion that a person diagnosed with HIV has AIDS were recorded revealing that the notion significantly affects the level of knowledge and awareness thereof.

More information and clarity about the idea is required, there seem to be doubting elements among the population. Similar findings were established in a study on university students in Emirates (Haroun *et al.*, 2016)

The further analysis considered knowledge and awareness with activities with someone who is HIV positive along with the variable gender to support the previous findings in the study. The following Table 7 (Appendix 4) show the results of the variables. Table7 revealed strong positive responses from the male in the following activities which include: in work in the same office with 97%, use the same toilet with 94%, eat the same table with 97%, socialise outside of work or school with 97% also and also sharing the same bed with 80% response. Furthermore, revealed that 78% and 75% from the activity of touching the infected person and drinking from the same cup respectively were obtained from male and female. However, there existed low levels of positive responses from sharing an apple as justified by the positive response of 57%. Similar results were obtained from the female respondents with also the fore mentioned conception having 45% positive response. Showing the existence of even knowledge between males and females. Furthermore, these statistics indicated high levels of education and awareness from the sample understudy as warranted by the high levels of positive responses.

Table 4 (Appendix 4) show activities with someone who is HIV positive by age to confirm knowledge and awareness results previously covered in the research study. All the age groups indicated a lower positive response on sharing an apple the age brackets of 17 to 20 years, 21 to 28years and 28+ respectively. All the seven variables secured a higher positive response of greater than 75% across the age groups except drinking from the same cup the 21 to 28years' age group with 64%. The findings revealed the highest levels of association of these activities by age groups having a significance p-value 0.000 far below the standard 0.05. Taking into consideration the activities associated with the transmission of the virus, which are covered earlier in the study, grey areas exist on HIV modes of transmission among the participants.
Table 7 (Appendix 4) shows that on average all the activities from the male had a high positive response of greater than 75% except for sharing an apple which does have only 57%. Similar to the female respondents, the activity of sharing an apple had only 31%, which is far much lower than 75%. Also, females had a different view from the males who had a high positive response of 75% on drinking from the same cup as represented by a lower percentage of only

58%. The test results also show a significant association for most of the activities signified by p-values< 0.05 except for socialising outside of work or school which had a p-value of 0.272, which is far higher than 0.05. The findings revealed insignificant associations for knowledge and awareness of HIV/AIDS with activities working in the same office, share in the same bed, share an apple, drink from the same cup and socialise outside of school scoring insignificant p –values range 0.117 to 0.271 well above p-value 0.05. Indicating low HIV transmission modes knowledge in the study population leading to stigmatisation.

5.9.4 Sexual behaviour practices; Attitudes and perception on condom use among the young adults in the higher tertiary institutions contribution towards effectiveness of implementing HIV/AIDS interventions

The principal component analysis in table 5.6a exhibits the extracted elements with an eigenvalue 1 and above. These elements support; sexual behaviour practices, attitudes, and perceptions, age, condom use of students and employees in contributing to the effective implementation of HIV/AIDS interventions. The findings indicate items: age, changes in sexual behaviour, counselling, insistence on condom use, decisions on condom use, contribute positively towards sexual behaviour practices, attitudes, perceptions as intervening variables. The preceding variables facilitate the implementation of effective desired HIV/AIDS interventions in the institutions that reduce HIV/AIDS infection rates. Any change in the composition of the items affects the contributions to the intervening variables and HIV/AIDS incidence rate among students and employees in higher tertiary institutions.

In addition, this might have a positive or negative effect on the implementation of effective preferred HIV/AIDS interventions in higher tertiary institutions.

The findings in tables 5.6a and 5.6c indicate that the respondents both male and female agree that attitudes, perception towards condom use contribute to effective implementation of the desired HIV/AIDS interventions in the universities. Gender and age are significant to sexual behaviour practices signified by a p-value range of 0.001-0.018. Any change in the age and gender of the population can have a positive or negative impact on sexual behaviour practices, attitudes, perception, condom use among the students, employees and choices of HIV/AIDS interventions in higher tertiary institutions. The sexual behaviour practices, attitudes, perceptions on condom use are further supported by justification for being sexually active as per tables 5.11, 5.12, and 5.13. Tables 5.11, 5.12. These tables addressed the reasons for being

sexually active by gender and age. It is noted that a relationship exists between reasons for not being sexually active by gender with the religion signified by p-value < 0.05 of 0.024. Any change in these variables will directly affect the spread of HIV in communities and institutions set up. The gender classes in both cases showed no fear of other health problems and taking ARV treatment for HIV and AIDS. This indicates a high level of HIV and AIDS treatment knowledge in addressing the HIV/AIDS incidence among students and employees.

Existence of significant relationship within the nine reasons for not being sexually active by age with the prevention programmes that are in place to reduce the spread of HIV/AIDS was significant with a score p-value of 0.000 that is far less than the required 0.05. The statistics further revealed that waiting for marriage and not being interested in sexual activities were the main reason for not involving in sexual activities. These findings on the respondents indicated the understanding of variables in arresting the HIV/AIDS incidence among students and employees in the institutions.

The above findings were strengthened by analysing the perceptions and attitudes towards HIV among the population. The findings show that both males and females indicated willingness to disclose the individual HIV status. Clearly, indicating the willingness to take measures to prevent the spread of HIV/AIDS among the students and employees.

Table 5.6 tabulated the HIV responses by age and the findings indicated strong relationships between responses by age with the prevention mechanisms that are in place to address the spread of HIV. Respondents indicated high positive responses that were significant in the following variables: going for an HIV counselling and insisting in HIV testing. Clearly, indicating the willingness to address the HIV incidence among the students and employees.

The following subsection described condom use by gender and age as prevention mechanisms that are in place to reduce the spread of HIV. Similarly, results were obtained from the relationship by gender in the condom use. There exists a strong relationship between sexual relationship with someone who is HIV positive and HIV prevention mechanisms as warranted by p-value < 0.05 of 0.000. The same case applies to the conception that one would marry someone they know is HIV positive and the fact that they can have a child with someone they know is HIV positive as justified by p-values of 0.000 and 0.001 respectively. The different

age groups indicated an insignificant relationship between having a partner who is HIV positive and the prevention of HIV, as shown by a p-value of 0.063. Findings from the study support that level of knowledge on HIV transmission and applicable HIV preventions in place do not play a vital element in the decisions on sexual activities with an HIV+ person which concurred with similar studies (Zak-Place, Stern 2004). The research further considered opinion on sexual behaviour faithfulness by gender and age to support attitudes, perception, intentions of an individual in choosing the preferred HIV/AIDS interventions. The responses on sexual faithfulness by age have significance to sexual behaviour scoring p-values range 0.000 to 0. 018. Furthermore, analysis of the same variable based on gender as shown in Table 5.6d above indicated gender has significance on sexual behaviour faithfulness signified by p-value range 0.001 – 0.010 way below 0.05 level of confidence. The findings on attitude, perception, sexual behaviour faithfulness are significant and have a positive influence on sexual behaviour practice. Sexual behaviour practices in turn contribute to effective implementation of HIV/AIDS prevention interventions among students and employees in the higher tertiary institutions to reduce HIV/AIDS incidence.

This facilitated the applying of correlation, regression analyses to the variables in order to formulate a regression model.

Table 5.7c shows findings on perceptions on condom usage, females excelled over male scoring 47% as compared to the males 45% showing that they care about their partners. However, males felt that the usage of condoms indicates that the person does not trust their partner as warranted by a higher percentage of the positive response of 37% against females who had only 14%. The findings are more similar to the notion that the usage of condoms brings the perception that the partner has other partners as warranted by males having 27% and females having 14%. Nwozichi*et al.* (2016) had similar findings in a cross-sectional study of students at university as above of portraying mistrust among the partners due to condom use. But the study failed to indicate a relationship between condom use and sexual intercourse frequencies by women, which has been evidenced by high sexual frequencies and high condom usage by women. In addition, these findings above were interpreted as an indication of great knowledge and awareness on protection against HIV infection among women.

Table 5.7c reflects on all the variables based on positive responses; there exists an insignificant association between the sexual frequencies by women and condom usage by age as justified by

p-values of all greater than 0.05. It can be deemed that it is unlikely that age contributes to variables sexual behaviour practices, condom use. This could be an indicator of elements that lead to high HIV/AIDS incidence among the women population a contribution to knowledge on HIV/AIDS interventions. In line to the significance as noted, these values indicated the superiority of the negative responses. In addition, care about a partner does not constitute much to the conception of condom usage by age but the reasons for not being sexually active in line with condom usage is important. It can be deduced that it is unlikely for sexual behaviour practices to be contributing to the effective implementation of HIV/AIDS programs if the respondents were not clear on condom use when choosing effective HIV/AIDS interventions.
Table 5.7a above revealed opinions on attitudes towards condom usage, indicating that most of the variables in terms of positive responses gave a strong association with gender denoted by the p-values < 0.005 except for the conception that people who carry condoms have sex with a lot of people as represented by a p-value of 0.169. There exists a strong relationship between the usages of condoms and gender. A high percentage of the respondents are in favour of the condom use though there are a few who do not agree to the condom use.

The higher percentage of males who felt that the usage of condoms during sexual intercourse reduces the pleasure of the act as denoted by a positive response percentage of 38% against 18% for females. Hattie (2014) also postulated that in the context of gender differences, the usage of condoms was less likely, especially with casual partners. On average it, therefore, implies that both males and females disagreed to the notion. More so a high percentage of females indicated that they would insist on using a condom even if the partner does not agree to as represented by 41% against males with only 37%. Meaning that males are more exposed to the risk of getting infected with HIV/AIDS than females as their attitude respondents is a bit low. Furthermore, males can easily risk their lives by having sexual intercourse if they do not have condoms anywhere as justified by the highest score of 57% against females with only 11%. Reckoning that females are more cautionary than males supported by responses below 50% indicating that most females participate in sexual activities without using condom for protection against HIV/AIDS infection. However, on average females felt embarrassed to buy condoms or getting them for free from institutions on all occasions as represented by 32%, 23% against males who had both 11% on both occasions. Furthermore, on average, both age groups recorded similar views in terms of embarrassment in buying condoms and taking them from institutions, as represented by an average of between 15-18% positive responses. Indicating the

need to encourage condom use by providing better ways of distributing condoms among the respondents.

The statistics revealed a greater risk to the age group of 17 to 20 years, who indicated that they would have sex even if they do not have condoms. The results concurred with the descriptive statistics means for the variables as stated earlier and were in line with (Abiodun *et al.*, 2014) findings. The cross-sectional study on sexual behaviour, attitudes, perception on condom usage by Abiding *et al.*, (2014) did not consider factor analysis of the variables to establish the factors that contribute most to the sexual behaviour, attitudes, perception towards condom use. These findings also revealed that nowadays, the age bracket of 17 to 20 years are also participating in the sexual activities for they have an appreciation of the sexual world, justified by 29%. These findings concurred with the study findings by Kost and Henshaw (2014) and Kearny and Levine (2012) who also noted that the rates of teen pregnancy are considerably higher than other age groups. Furthermore, CDC (2014a) noted that HIV and other sexual related diseases (gonorrhoea) are highest in the age group between the ages of 15 to 24 years. The age factor is of prime importance as the world is also dynamic and as such activities differ with time. Wilson, (2015)in line with the above findings denoted that 47% of high school teens engage in sexual activities, 6% do so before the age of thirteen years and quite disturbing is the fact that 15% of those teens do have four and above partners. Moreover, CDC (2013b) postulated that almost 40% of these teens reported not having used condoms in their last sexual acts. The findings furnish, a sound research study for valid information collected from the right informants.

The table 5.6, 5.6a above and table 6(Appendix 4) reveal sexual encounter, sexual behaviour faithfulness by gender and age, respectively. In table5.6 the summary of sexual behaviour and practices based on sexual encounters indicates that the males were more participative in sexual practices than females supported by the higher score of 57% and females scored 49%. The first sexual encounters males are leading as compared to females in the age group between 24 to 27 years indicating that males were more sexual participative than females. The age group between 16 years to 24 years were more participative in sexual activities as compared to those above 27 years. Consistent with other researches, the above findings may reflect the tendency of teens to want to fit in with like-minded peers or act in a way similar to their peer group (Crosnoe & McNeely, 2008). However, a lower percentage obtained from those above 27 years

signified by only 2% for males and 5% for females. Clearly articulates that females get involved in sexual activities at an older age than males.

Furthermore, HIV/AIDS continues to be a major public health problem among young and older adults (CDC, 2011). The other researches indicated that there is a higher incidence of HIV/AIDS and a higher mortality rate among adults compared to other groups (CDC,2012). The analysis to assess the sexual behaviours and practices between first sex encounters and partner's age bracket. Table 6 (Appendix 4) show that females had a higher percentage of having sex with older partners than males. However, males dominated on the section of having sex with partners of the same age as represented by 43% as compared to females who only claimed 18%. Supporting the above findings of females having sexual acts with older partner's analysis was done on the sexual act last encounters based on time measured in hours, days, months and years. The females were engaged in sexual activities regularly than males. An indication of poverty experienced by women, and they end up being commercial sexworkers for survival. Previous studies on sexual behaviour did not address the sexual encounters with gender but generalised as a result making it difficult to identify the group that needs assistance. There is a need to consider sexual behaviour faithfulness as an independent variable during the study. The age as a dependent variable to establish a relationship with gender results are shown in tables 6 (Appendix 4). Tables 5.6breveal that the age brackets were sub-divided into two categories which are 17 to 20 years and 21 to 28 years. The age bracket of 21 years to 28 years showed more sexual behaviour faithfulness as compared to the young age group, depicting that maturity might be the cause for being faithful to the relationship. However, UNICEF, (2016) indicated higher condom usages in Zimbabwe as indicated by 65% for males and 43% for females. The higher condom usage by men indicates the power imbalance in society where men always considered to bathe main decisions makers in society. Thereby influencing high unfaithfulness among the population. An area not researched when studying HIV/AIDS interventions and is related to cultural values.

In Table 5.6b males dominated in terms of faithfulness on not having sexual intercourse with another person while in a relationship and being absolutely faithfulness to the previous partners as denoted by the 42% and 41% level of positive responses as compared to females who had 35% and 29% in their order. The positive responses from men is below 50% this can be attributed to most men do not regard faithfulness in sexual activities and tend to change partners

as they desire. Sexual behaviour and practices contribute to determining the desired HIV and AIDS interventions in the study population significantly supported by p- values range 0.001 - 0.010.

Table 6 (Appendix), the results indicate that males contributed much in answering the questions based on duration, frequencies, age and were more participative in sexual practices than females. The age group 16-19 years' females dominated participating in sexual practices and the age group between 24 to 27 years the males were leading. This was inconsistent with other researches findings which reflect the tendency of teens to want to fit in with like-minded peers or act in a way similar to their peer group (Crosnoe & McNeely, 2008). Some studies have indicated that there is a higher incidence and higher mortality rate of HIV/AIDS among adults compared to other groups (CDC, 2012). However, males dominated faithfulness in a relationship as compared to females who had a lead in frequencies of sexual activities. The reason could be due to the economic advantage of older men on young women. HIV and AIDS incidence rate is low among males, interpreted as having good knowledge of HIV/AIDS transmission modes which help an individual to make wise decisions. The results indicate both females and males are trying to stick to one partner to reduce the chances of HIV transmission among couples. Thereby changing their sexual behaviour to lowering the risk of HIV infection. These sexual behaviour elements need to be encouraged among the population to reduce the HIV incidence rate. Sexual behaviour and condom use work together to reduce HIV transmission in the community.

Knowledge of HIV/AIDS prevention methods empowers the individuals to use the available HIV/AIDS interventions at their disposal to curtail the transmission of HIV. The findings contribute to the board of knowledge about understanding the impact of HIV/AIDS prevention initiatives and education, awareness levels of the population which can have positive or adverse effects. The success of the HIV/AIDS prevention method used depend on the attitudes, perception towards the intervention. In the case of condoms, it depends on the views and understanding of its usage. The next paragraph addresses the exploration of attitudes and perceptions on condom usage, which help to establish the most appropriate, effective HIV/AIDS interventions applicable to the population in the higher and tertiary institutions. The success of condom usage depends on the attitudes, perceptions of the participants.

The principal component analysis helped to establish the elements that contribute most to attitude, perceptions on condom use. The findings displayed that elements age at the first sexual encounter, changes in sexual behaviour, insistence on condom use, a decision on condom use, perception and attitude on condom use facilitate attitude, perception on condom use in choices of the desired HIV/AIDS interventions. The increase in the eigenvalues of the above elements indicate the importance of variables sexual behaviour, attitudes, perceptions in the effective implementation of HIV/AIDS interventions. Any variation of elements must be analysed to establish the causes whether positive or negative and corrective measures taken to address the situation. This ensures that the applicable, effective desired HIV/AIDS interventions are implemented for the population, thereby cutting costs on undesired interventions and improving the desired HIV/AIDS interventions.

Factor analysis in table 5.6b show that all reasons respondents considered greatly affect sexual behaviour practices, attitudes, perception, condom use. Reckoning that it is unlikely for sexual behaviour practices, attitudes, perception, condom use to be static, stable, contribute to effective implementation of HIV/AIDS interventions. In addition, where students, employees were not clear on elements of sexual behaviour practices, attitudes, perceptions, condom use they are faced with a challenge in choosing effective HIV/AIDS intervention.

This study further considered descriptive statistics, factors analysis to establish the relationships of the study variables; sexual behaviour practices, attitudes, perception, intention, social norms and application of theory of planned behaviour. The contributing factors towards effective implementation of the desired HIV/AIDS interventions among the university population. The above variables relationships facilitated in extracting relevant models for the study based on the theory of planned behaviour. The following section addresses the application of the theory of planned behaviour to sexual behaviour practices, attitudes, perceptions and intention.

The individual behaviour, normative belief, attitudes, motivations comply with social norm (SN) and the intention to perform the act, in this case, communication (Ajzen, 2011). The tables 5.7 and 5.8 show correlation matrices for the female and male groups leading to a combined regression analysis. This regression analysis for female and male respondents portrayed the relations of attitude, perception, social norm, age intention and behaviour. There were no

significant differences between the correlations matrix results for female young adults and those for young male adults. A more rigorous assessment of the relationship and implications between young adults' intention and their age, perceived behaviour, attitude and social norm followed with regression analysis. A regression analysis of the above variables with intention/ willingness to communicate about HIV/ AIDS prevention among young adults as the dependent variable facilitated models. The developed two models were in relation to sexual behaviour practices of individuals and theory of planned behaviour. These models in tables 5.9 and 5.10 explain the theoretical relationship between components of theory of planned behaviour and intention to communicate on HIV/AIDS issues. Table 5.9 show the HIV/AIDS intervention behavioural regression analysis model on theoretical relationships of variables attitude, perceived behaviour, the social norm that support effect HIV/AIDS interventions. The model indicates that both female and male respondents are not willing to discuss or communicate on issues pertaining to HIV/AIDS area. Clearly, showing that more effort is required to empower individuals to have confidence in discussing HIV/AIDS issues. Thus, the explanatory variables in both models were way below average in terms of their explanation of the young adults' willingness to communicate about HIV and AIDS prevention. One possible reason put forward by the WHO (2009) is that attitude, and social norms do not necessarily correspond with an individual's intentions. However, the intentions may influence these attitudes and beliefs if norms become internalised.

Table 5.10 shows a model-based on perceived behaviour, attitude, social norm and willingness to communicate on HIV and AIDS information. The three constructs attitude, behaviour and social norms affect an individual in decision making (Ajzen, 2011). The attitude which is the degree to which a person evaluates or appraise the behaviour in question to favourable or unfavourable captured in a dimension of pleasant or not pleasant (Ajzen 2001). Behaviour found to be stemming from attitude but not part of perception (Ajzen& Fisher, 1980) (Sparks & Guthrie, 1998). Subjective norms (SN) construct is different social references that exert influence to perform a behaviour (Fisbein & Ajzen, 2010). The summary of two regression models indicates the independent variables are males, females, age, social norm, attitude, perceived behaviour and intention as the dependent used in the model. Furthermore, the above models explain the explanatory variables attitude, social norm and perceived behaviour with intention as the dependent variable. Social norm is a significant predictor of intention or willingness to communicate about HIV/ AIDS prevention interventions among young adults.

The male young adults' age, attitude and perceived behaviour had no influence on the willingness to communicate about HIV/AIDS interventions. However, for female, young adults, age and perceived behaviour were found to be having a significant influence on the intention to communicate about HIV/AIDS interventions. Clearly, indicating a gap in the understanding of HIV/AIDS intervention programmes among the young adults, an area this study did not consider.

Further analysis conducted on the ranking of the HIV prevention methods based on most desired or preferred HIV prevention Table 5.15, 5.16 elaborates the movement of the preferences based on frequencies classified as *most important* and *least important*. Abstinence from sexual intercourse scored the highest on "most important" represented by a response of 221. This finding indicates that respondents regard *abstaining from sex*es prevention mechanism is the most applicable in choosing from available HIV and AIDS interventions (Wilson, 2015). The finding follows from the fact that condom use does not guarantee 100% safety during sexual activity. A comparative study CDC, (2013) indicated that about 40 percent of the sexually active population, especially in high schools, was not using a condom. The young adults were more likely to adopt risk-reduction behaviours if they are confident on the positive outcomes of condom use or abstinence. The outcomes include the prevention of STIs, unplanned pregnancy and being faithful (Jemmott & Jemmott, 2007), (Watts & Nagy, 2000).

However, the studies ignored the correlations of the variables in HIV/AIDS interventions, an area that this study covered by applying factor analysis, that highlighted variables contributing to the success of the response. CDC, (2012), Nunn *et al.*, (2012) and Timmons, (2009) however argued that churches shy away from the epidemic of HIV disproportionately in control measures. Berkley *et al.* (2010), alluded churches are equipped with easy tools to deliver HIV education and support services to their congregations at large. The respondents proposed three HIV prevention interventions, namely: abstinence, being faithful and consistent use of condoms for the tertiary institutions. Additionally, the present study identified complementary intervention programmes; these are counselling and raising knowledge and awareness. These are identifiable inputs associated with the HIV prevention interventions availed to the population in the higher and tertiary institutions. Abstinence education and religion also play a crucial role in informing young adults to abstain from sexual activities until they get married. Abstinence delays age for initiation of sexual activity and avoidance of multiple sex partners

(Walsh, 2013). Mass media campaigns targeted at influencing sexual behaviour, knowledge and awareness of HIV, and are in line with being faithful. Large-scale media campaigns with radios, television, influential newspapers and the internet tend to have impact on sexual behaviour, knowledge and awareness of the available HIV/AIDS prevention interventions. Consistent use of condoms would require that condoms be easily accessible by students who engage in sexual activities, and a 100% condom use can achieve better HIV prevention (Galarraga *et al.*, 2009). While counselling and testing as an HIV/AIDS intervention is supported by the input of voluntary counselling and testing at clinics considered to be less expensive (Galarraga *et al.*, 2009). Most tertiary institutions in Zimbabwe have clinics and voluntary counselling and testing facilities, which are readily available for the students.

In conclusion, the students and employees of tertiary institutions agree that structures, knowledge and awareness, sexual behaviour practices, attitudes and perceptions facilitate in identifying HIV/AIDS interventions abstinence, been faithful, consistence condom use as the most desired effective interventions to implement order to reduce HIV infection in the population.

The Regression Model Table 5.9 results show that attitude and social norms do not necessarily correspond to an individual's intentions. However, they may influence the attitudes and beliefs if patterns become internalised. While the Regression Model Table 5.10 results show that social norm is a significant predictor (at the 5% level) of intention or willingness to communicate about HIV/ AIDS prevention interventions among young adults as the observed p-values for both sexes were less than 0.05 ($p<0.05$).

The intention of students and employees is not a result of attitude and social norms. But intention can influence attitudes and beliefs if pattern is internalised. Social norm is important among the students and employees with regards to willingness or intention to communicate on HIV/AIDS issues in the higher tertiary. Any change in social norm will affect the intention to communicate on HIV/AIDS issues. The students and employees agree that the following factors structures, resources, knowledge, awareness, sexual behaviour, attitude, perception on condoms contribute to effective implementation of the preferred HIV/AIDS interventions.

5.10 Summary of the findings from focus group discussions

Qualitative data was collected using focus group discussions (FGD). The researcher held eight focus group discussions composed of ten participants each, from August 2017- September 2017. These focus group discussions were held in Bulawayo with the assistance of HIV/AIDS coordinating personnel. Firstly, the researcher obtained permission to keep the focus groups from university authorities and interviewed the HIV/AIDS Coordinators first before holding focus groups. Focus group discussions supported the findings from the survey and content analysis. Data was collected from eight focus groups with ten tentative group members each. The focus group discussions used a questionnaire guide or outline to cover the research problem and avoid getting astray during the discussions. The focus group discussions followed the structure of the survey to get an in-depth understanding of the research problem under consideration.

5.10.1 Knowledge and awareness

To find out the knowledge and awareness level of the participants, a question on knowledge, awareness of HIV/AIDS was included in the guide. The responses show that most of the people had a general knowledge of HIV and AIDS transmission that is mostly through sexual activities, infected blood and fluids. Furthermore, participants hinted that HIV and AIDS awareness was high but not considering cultural elements in the awareness. As a result, people avoid discussions on HIV/AIDS openly in the setup of different ages. Participants noted there are no follow-ups to awareness and knowledge of HIV/AIDS campaigns. In particular, the content, meaning, reaction to drives, how campaigns affected or altered sexual behaviour (if at all) and how they can improve to more effectively reach teens. Participants also indicated that it is challenging to separate HIV and AIDS from other health diseases like STD because of the impression HIV is acquired through STD. Yet STD can be treated confusing the population. Some of the responses were:

"*HIV anyone can get it but only people who sleep around with many partners but for married people it is rare."*

From the discussions, awareness programmes were too general, people do not associate themselves with the actor's messages in the campaigns and lack human touch primarily artistic side. Participants were of the view that some campaigns on sexual behaviour tend to encourage sexual activities, especially condom use, without promoting abstinence.

"Most HIV and AIDS awareness messages are boring and make people uninterested in the messages because of the lack of aligning to the people's needs."

5.10.2 Sex and relationships

The results show that participants were of the view that protection and precautions used by sexually active teens are similar to the protections used by adults. Yet, teens do not have sexual practices negotiation skills as an adult's condom negotiation skills. The participants also indicated that teenagers faced embarrassment or fear surrounding the purchase of condoms, availability of condoms to youth, getting tested and fear of stigmatisation. Participants indicated communication on sex issues, HIV/AIDS were rarely discussed in the family setup with young adults. Questions on when safe to stop using condoms, faithfulness and getting tested were ignored in most HIV and AIDS discussions. Another challenge highlighted during the discussion were issues connected to long term relationships trust among couples that must be built before stopping the use of condoms. There was a lengthy discussion on the ages of a sexual encounter, and participants indicated that some young adults get involved in sexual activities because of poverty, peer pressure and ignorance. Some participants supported that young girls and boys are free from HIVand had a right to have sexual relations.

"Young *girls are pure and can help one recover from sexual problems, and believed having sex with virgin cures most sexual diseases."*

a) Abstinence

Participants were asked on the messages and campaigns about abstinence and their views. Results show participants 'misconception to abstinence which is promoted mostly in traditional churches and those who have lost partners. Some participants indicated it is difficult to abstain because of poverty, women end up getting involved in sexual activities against their free will. The other problem highlighted with the abstinence was the involvement of teenagers with older partners. Teenagers have sexual relationships with older partners for financial assistance, protection from poverty. *'Why should one go hungry when money is available after all one is going to die one day.'*

b) Multiple sexual partners

In the discussion of having more than one sexual partner, most participants were against having many partners due to the spreading of HIV and endangering young people. However, others, especially the traditional-minded or conservative participants were of a different opinion in support of having more than one sexual partner. They argued that it was traditionally accepted as shown by some of their responses:

"It is culturally acceptable for men to have more than one partner because of their nature."

c) Self-esteem

The participants also discussed self-esteem in a relationship and its impact on sexual choices, habits and practices. The participants noted most ladies have low self-esteem and could not make any choices on sexual decisions. Participants indicated that culturally the man has more power in making decisions in any relationship, thereby giving women a secondary position in relation with no say or decision-making ability to make individual choices. Respondents also stated that:

"It is not proper for a lady to start discussing using protection during sex because a woman is supposed to be submissive to the man."

Confidentiality issues

The researcher sought to find out the reasons for the low turnout in HIV/ AIDS testing and counselling sessions. Participants indicated avenues for youth to seek guidance from counsellors were not easily accessible, coupled with lack of personal confidence in getting tested and shyness in purchasing condoms. The issue of confidentiality is a significant challenge common within the society pertaining to the willingness of the participants to go for testing, coupled with the fear of being diagnosed with HIV. Participants also indicated fear of stigma and discrimination was another challenge that prevents the youth from HIV testing services, including the willingness to be around and attend school with HIV+ people. Participants noted that stigma and discrimination of HIV+ are rampant and scaring individuals to open up on their HIV status. The researcher asked participants why many youths fear pregnancy more than HIV. The participants indicated that, due to the cultural stigma of getting pregnant before marriage, young people are more scared of getting pregnant than HIV because they are not yet ready for the responsibilities of being a mother or father.

Participants also indicated the role of peer dynamics on sexual choices, highlighting that with proper education and awareness campaigns, peer groups could encourage each other to go for testing even to adhere to HIV treatment. In some instances, peers discourage someone from getting tested. Therefore, peer pressure plays a role in HIV and AIDS interventions. Someone echoed that:

"There is no need to go for HIV testing if you are not sick just impregnate a woman if the baby dies it means you could be HIV positive or your partner is forced to be tested before giving birth the results will apply to you also".

Discussions with peers, parents or guardians about HIV, AIDS and sex:

It was easy to talk about sex with peers, but in some instants, the peers sometimes mislead the others. While with parents or guardians, it was difficult because it is like reporting oneself. Lack of communication skills were a problem, instead of advising parents tend to direct the action to be taken and are not open with their children on HIV/AIDS discussions due to cultural values which regard sexual discussions among families as taboo.

Implications of the findings

HIV/AIDS is still on the rise among the young adult population in Zimbabwe as evidenced by recent official statistics pointing to an increase in the number of new cases of HIV (The Sunday News, 2018). However, research on the factors operating on the higher and tertiary institutions population support of HIV and AIDS interventions is limited and only scarce studies on the preceding issue have been done on young adults in the universities.

The results of this study highlight the possibility that there is still more to be learned about differentiating factors such as gender, age range, religion, marital status, educational attainment and income status, which influence the acceptance by the targeted age group of 18 years and above of the HIV/AIDS interventions. The findings of the current study have several implications to the stakeholders who identified with the survey being: higher and tertiary institutions executive management, National Aids Council (NAC), Ministry of Higher and Tertiary Education and Students Unions involved in the implementation of HIV/AIDS programmes. The following are the implications aligned to the respective stakeholders.

- **Higher and tertiary institutions management**

  Management should consider reviewing the HIV and AIDS interventions in the institutions and concentrate on the HIV and AIDS prevention interventions that are desirable to the population.

The mode of communication on issues of HIV and AIDS should be friendly and not intimidating to the students. HIV and AIDS prevention interventions information dissemination should be supported by practical work involving the participants so that the reality can sink into the minds of the individuals. Institutions should consider increasing the structures supporting HIV and AIDS interventions that are very few compromising of knowledge and awareness of HIV and AIDS. Most of the HIV and AIDS policies are too general and do not address the environment in which the students live.

- **NAC**

  The NAC should engage in understanding the trends in sexual behaviour among adults who are interested and involved in HIV/AIDS programmes implementation in the higher and tertiary institutions, to contribute to finding effective HIV/AIDS interventions for the study population. The organisation should identify future public health policies that would promote cost-effective intervention strategies based on cultural and behavioural patterns observed among the young adult population.

- **Ministry of Higher and Tertiary Education**

  The Ministry of Higher and Tertiary education has the task of ensuring that higher and tertiary institutions operate within the scope of the ministry's strategic framework. The strategic plans of all the institutions should follow a well-designed HIV and AIDS framework aligned to the population in the institutions.

Due to the lack of a well-established uniform structure in the HIV and AIDS sector, the desired interventions are not in place. Funds are spent on non-contributing interventions at the expense of the preferred HIV/AIDS intervention. There is a lack of well-documented information on HIV/AIDS programmes in the institutions, well documented information would help to channel funds to support the HIV/AIDS interventions in a particular institution.

5.12 Chapter Summary:

The conceptual framework for the implementation of effective HIV/AIDS interventions guided the research findings supported with hypotheses. This chapter explained how the results were presented and analysed with the aid of statistical tests.

The discussion and interpretations of findings were aligned with the research objectives to consolidate the study contributes to the body of knowledge. The implications of the results were beneficial to the following stakeholders; management in the institutions' government organs involved with the higher tertiary institution, donor communities in decision making on HIV/AIDS issues especially policy formulation to support the effective HIV/AIDS interventions. Ethical protection measures were discussed with the participants to ensure that confidentiality was maintained. The findings for the study indicated that structures and resources were essential for effective implementation of HIV/AIDS programmes. The identified structures and resources were development partners and government, these were facilitated by the following elements: government funding, donor funds, HIV/AIDS educational programmes, HIV/AIDS policies, communication modes, for the effective implementation of desired HIV/AIDS interventions. Government is the primary driver in managing the implementation of HIV/AIDS interventions as well as the providing the funds needed.

Three preferred HIV prevention interventions were indicated namely abstinence, being faithful and consistent use of condoms in higher tertiary institutions for implementation to effectively reduce HIV/AIDS incidence among students and employees. In addition, complementary intervention programmes were identified as counselling, raising knowledge and awareness to aid in reducing HIV/AIDS incidence in the higher tertiary institutions. These preferred HIV/AIDS interventions were relevant to this mobile population characterised with ever changing residing locations. The interventions were not expensive to the community but depend on individual perceptions. The HIV/AIDS information disseminated through television and radio was the most preferred by the population.

The intervening variables knowledge and awareness of HIV/AIDS, sexual behaviour, attitudes, perception, and condom use facilitate in implementation of effective desired HIV/AIDS interventions for the population. These respective HIV/AIDS intervening variables were supported by elements that enable them to work towards identifying effective HIV/AIDS interventions for the higher and tertiary institutions population. The elements with the highest eigenvalues above 1.0 indicating they cover most of the characteristics of the supporting elements were considered for each intervention variable.

Female participants who showed a high level of knowledge and awareness of HIV/AIDS were mostly involved in the HIV/AIDS activities as compared to their male counterparts. Education and learning about HIV/AIDS increase knowledge, awareness of HIV, impact sexual behaviour, attitude, perception and condom use among the population. This ripple effect, in turn, influence the decisions on choices of the desired effective HIV/AIDS interventions adopted in the population. Chapter 5 focused on data presentation and analysis for a mixed-methods descriptive cross-sectional study. The chapter addressed the data presentation, analysis, discussions of the study guided by study research questions and objectives. The next chapter six covers conclusions and recommendations of the study, thereby concluding the study.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

The previous chapter covered data presentation and analysis. This chapter highlights the major findings, their contribution to knowledge and appropriate recommendations to address the problem. The purpose of this study was to establish the extent to which students and employees agreed that structures and resources, knowledge and awareness, sexual behaviour and practices as well as attitudes and perceptions to condom use, contribute to the effective implementation of HIV and AIDS interventions. Additionally, the study aimed at identifying the desired HIV/AIDS intervention programs preferred by students and employees in higher and tertiary institutions. The HIV/AIDS interventions at the disposal of students and employees were found to be targeted at the general population. The students characterised with a high HIV/AIDS infection rate had no specific HIV/AIDS interventions targeting this specific population in the universities. Students and young people play a critical role in the societal and economic development of a country. They are the most sexually active members and exhibit the highest frequency of infection group in contracting HIV/AIDS. There is a need for specific HIV/AIDS interventions targeted at students in universities to reduce HIV incidences. The effectiveness of HIV/AIDS intervention programmes must be aligned to what students know, otherwise such interventions will be inadequate or misplaced. This led to considering the factors that facilitate in identifying desired HIV/AIDS intervention programmes in the universities.

This chapter concludes the research findings in terms of the essence of effective implementation of targeted HIV and AIDS interventions to reduce HIV/AIDS incidences among students and employees. In addition, the study makes recommendations on the basis of the results. The study further highlights the areas for further research studies that add value and increase the knowledge on effective implementation of HIV/AIDS interventions and maintaining the standards of the preferred HIV and AIDS interventions. The proceeding section of the study explores the knowledge contribution of this study in essence of the study findings.

6.1 Knowledge Contribution

Given the gravity of HIV/AIDS in developing countries that do not have sufficient resources to mitigate the negative effects of the malaise, it is important to ensure that intervention initiatives are effectively implemented.

In this regard, this study analyses the effectiveness of interventions that are targeted at the youth in universities who are most vulnerable and crucial to the development of Zimbabwean society. The study explored the contribution of variables structures and resources; knowledge and awareness; sexual behaviour and practices, attitude and perception on condom use to the effective implementation of HIV/AIDS interventions. These variables are the basis for a conducive environment in the implementation of HIV/AIDS programmes. The study investigates the extent to which students agree on the efficacy of these factors from their point of view. This will hopefully make the administration of HIV/AIDS interventions relevant and meaningful to the recipients in tertiary institutions. There has never been a study investigating the effectiveness of implementing HIV/AIDS programmes among students and employees in higher tertiary institutions in Zimbabwe.

The study is of benefit to the implementing partners and policymakers to channel the limited resources to effective HIV/AIDS programmes desirable to students and employees in tertiary institutions. Policymakers will benefit by including the identified interventions of abstinence, being faithful and consistent use of condoms into the institutional and national policy documents. Both policymakers and implementing partners can make use of the framework to identify HIV/AIDS intervention programmes appealing to the population in tertiary institutions. This framework can be aligned to the National HIV and AIDS strategic plan to facilitate identifying available structures and resources to support the effective implementation of HIV/AIDS programmes.

NAC Reports, (2015) noted that young adults did not participate in HIV/AIDS programmes rolled out to the general population. The report cited the lack of inclusiveness of the young adults needs in the programming of HIV/AIDS activities. The programmes materials were too bulky and cumbersome for them to identify the desired HIV/AIDS programmes, thus leading to their non association with the previous interventions. Students in tertiary institutions use e-learning and have knowledge of the latest technology, preferring electronic information to hard copy materials which are supplied to the general population. The use of electronic media to identify effective desired HIV/AIDS interventions helps the young adults associate with the programmes and develops a sense of ownership which encourages participation in implementing the interventions.

The research developed these models for use in any disease epidemic. The models are as follows:

Model 1: Interaction of structures, resources, communication and HIV/AIDS interventions figure 5.1. The preceding model highlights how structures, resources and communication interact to contribute towards effective implementation of HIV/AIDS intervention programmes.

Model 2: Behavioural regression analysis on intention table 5.9 shows how intention facilitates attitude, perception and behaviour to communicate the desired HIV/AIDS interventions.

Model 3: Regression analysis coefficient models on HIV/AIDS interventions and intention.

Table 5.10 with Model 2 and Model 3 depicts how behaviour supported with intention facilitates to the implementing of effective HIV/AIDS interventions.

Model 4: The factors affecting the implementation of HIV/AIDS interventions in figure 5.2, this conceptual framework could be applied in similar disease epidemic situations. The study identified the following factors structures, resources, knowledge, awareness, communication, sexual behaviour practices, attitudes and perception that contribute to the implementation of effective HIV/AIDS programmes. The three HIV/AIDS interventions were identified as abstinence, being faithful and consistent use of condoms for use in higher tertiary institutions in Zimbabwe. The developed models are assisted for use in Zimbabwe by policymakers such as the Ministry of Health and Child Care which could lead to an institutional policy being formulated.

This study contributes to knowledge in the theoretical field by designing a model for conceptual framework in figure 5.2; whilst Model 4: depicts the factors affecting the implementation of effective HIV/AIDS programmes in higher tertiary institutions. Figure 3.3 depicts the model conceptual framework that facilitates in guiding, identifying and implementing effective HIV/AIDS programmes for universities. This is an area not considered in previous studies and therefore no HIV/AIDS conceptual framework for universities existed in the country. In addition, the regression analysis coefficient Models on HIV/AIDS interventions in table 5.10 were developed to facilitate the selection of desired HIV/AIDS interventions for higher tertiary institutions in Zimbabwe, an area not covered in other studies.

These preceding models depict constructs of social norm, attitude, perception and intention that affect the decisions of taking up of the available HIV/AIDS interventions for this study. Any change in the models' constructs of social norm, attitude, perception and intention affects the decisions to establish identified HIV/AIDS programmes among students and staff in higher tertiary institutions, an area not considered in previous studies. These models can be replicated, adapted and implemented for any pandemic. The higher and tertiary institutions population indicated that the three preferences of HIV/AIDS prevention interventions were abstinence, being faithful and the consistent use of condoms could be implemented in tertiary institutions to address HIV/AIDS incidences. There has not been a study identifying HIV/AIDS interventions for higher and tertiary institutions in Zimbabwe.

The three HIV/AIDS prevention interventions of abstinence, being faithful and consistent condom use can be adopted and implemented by the ministry of higher and tertiary education in Zimbabwe. The higher and tertiary institutions population are the most vulnerable, sexually active and bear the highest risk of contracting HIV/AIDS. The effectiveness of HIV/AIDS intervention programmes must be aligned to the students' knowledge, otherwise such interventions will be inadequate or misplaced. Exploring the factors that contribute to effective implementation of HIV/AIDS interventions among the population in higher tertiary institutions was important in reducing HIV/AIDS incidences. The study identified the factors as well as the structures and resources in place which were as follows: HIV/AIDS knowledge, awareness, sexual practice behaviour, attitudes, perception and condom use which facilitate in implementing effective HIV/AIDS programmes. The preceding factors converge together to facilitate in choosing effective HIV/AIDS interventions, this had not been done before. The existence of structures and resources supporting HIV/AIDS interventions is important for sustainability. There had not been another study which covered the knowledge and awareness of the available HIVAIDS interventions helping to choose the desired effective intervention which in turn affects the behaviour and the choice of effective interventions. These variables structures, resources, knowledge and awareness, sexual behaviour and practices, attitudes and perception on condom use are facilitating the fight against HIV/AIDS among the students and employees. The structures and resources, knowledge and awareness plus the sexual behaviour patterns are critical in the management of the HIV/AIDS pandemic, especially among students

and staff in tertiary institutions**.**This knowledge does not currently exist. Any change in the composition of variable elements affects the contribution of the respective factor in implementing effective HIV/AIDS programmes. The Principal factor analysis extracted important specific elements contributing to the success of each variable in identifying the desired HIV/AIDS interventions for the universities. In addition, no other studies considered using principal factor analysis to extract prominent elements supporting factors/variables contributing to implementation of effective HIV/AIDS interventions.

This study considered the changes in the causal relationships of the HIV/AIDS intervening variables of knowledge and awareness along with behavioural variables. These changes assist determination of the direction taken in the implementation of effective HIV/AIDS interventions, a contribution to knowledge which was not considered in previous studies. There has not been a systematic study that aligns literature on behavioural theories elements to the availed HIV/AIDS interventions among the population in the higher and tertiary institutions in Zimbabwe. This study used primary data collected at source from the students and employees, making the findings a relevant solution to the problem under study.

6.2 Conclusions:

In this Quantitative - Qualitative cross-sectional study, the survey explored mediating and moderating variables that support HIV/AIDS factors plus the exposure to and contributions towards implementing effective desired HIV/AIDS prevention interventions. The structures and resources that support effective implementation of the desired HIV/AIDS interventions were identified as direct government organisations, institutions and donor communities. The female respondents displayed more HIV/AIDS knowledge and awareness, and participated more in HIV/AIDS activities than their male counterparts. HIV/AIDS knowledge and awareness integrate with sexual behavioural practices, prevailing attitudes, perceptions and condom use and modes of communication to furnish informed decisions. Communication facilitated in making choices and implementing the effective HIV/AIDS prevention interventions. The respondents selected three HIV/AIDS interventions, which were favourable to their mobile population. These were *abstinence, condom use, behaviour change and being faithful.* Complementary HIV/AIDS interventions ART, HIV/AIDS counselling and testing were reported. The findings of the present study were reported, summarised and concluded in line with the research objectives in the following section.

6.2.1 Structures and resource inputs for the effective implementation of desired HIV/AIDS programmes in higher and tertiary institutions.

The current structures and resources for HIV/AIDS interventions are derived mostly from the government of Zimbabwe and its development partners. The stakeholders in the universities lack knowledge of the national HIV/AIDS Policy framework and Strategic Plan on the structures and resources for HIV/AIDS interventions implementation at their disposal. The universities lack funding for HIV/AIDS programmes and cannot sustain the preferred effective HIV/AIDS prevention interventions. The study concluded that students and employees agree that the existing structures and resources contribute to the effective implementation of HIV/AIDS intervention programmes. There is an inadvertent exclusion of higher and tertiary institutions in terms of existing structures and resources targeting the students and employees in higher tertiary institutions. This gap must now be addressed to effectively implement HIV/AIDS intervention programmes in higher tertiary institutions.

6.2.2 Knowledge and awareness of HIV and AIDS in the higher and tertiary institutions.

In general, the students and employees showed correct knowledge and awareness on HIV/AIDS, they agreed with the principles behind any intervention programme that supported the effective implementation of HIV/AIDS interventions. There existed a low level of knowledge and awareness on HIV transmission, its life cycle stages and HIV/AIDS characteristics and discrimination, that need clarification. There exists no established specific database, social media groups, participatory educational programs to share more information on HIV/AIDS area in the institutions. The students and employees agreed that the knowledge and awareness of HIV/AIDS contribute to the effective implementation of the preferred HIV/AIDS intervention programmes for the population.

6.2.3 Sexual behaviour and practices of young adults

The current sexual practices are perceived as the most feared risk and learning about HIV/AIDS are the key elements associated with sexual behaviour practices, attitudes and perception on condom use when designing effective HIV/AIDS prevention interventions. The most feared risk and learning about HIVAIDS affect individual sexual behaviour. The individuals are selective, attentive to their best interests and sensitive to the invariance of

causal relations leading to a specific sexual behaviour.

The positive sexual behaviour, attitude and perception of condoms are of significance to the recipients and facilitate the effective implementation of the desired HIV/AIDS interventions. Any change in the composition of the key elements for sexual behaviour practices affects the spread of HIV/AIDS in the community and institution. These key elements should form the basis for promotion of behavior modification via segment-targeted campaigns in line with the current HIV/AIDS prevention interventions best practice for this target population.

Attitudes, perceptions, condom use:

The positive attitude and perception of condoms are of significance to the recipients and facilitate the effective implementation of the desired HIV/AIDS interventions. Any change in the attitudes, perceptions on condom use affects the spread of HIV/AIDS in the community and institution. These key elements form the basis for promotion of condom use modification via segment-targeted campaigns in line with the current HIV/AIDS prevention interventions best practice for this target population.

The study concludes that the students and employees agree the sexual behavioural practices, attitudes, and perception of condom use of individuals contribute to the identification and effective implementation of the preferred HIV/AIDS interventions programs for the target population.

6.2.4 HIV/AIDS prevention methods availed in the higher and tertiary institutions

The students and employees identified three preferred HIV/AIDS interventions:abstinence, being faithful and consistent condom use,for effective implementation to reduce HIV/AIDS incidence among the university population. In addition, the students and employees agreed that factors such as the structures and resources, knowledge and awareness, sexual behaviour practices, attitudes and perceptions on condom use facilitated in identifying HIV/AIDS intervention programs for higher tertiary institutions. Knowledge and awareness on the available HIV/AIDS interventions were obtained through television, radio programs and not the institutions. This limits the choices to only the known interventions without consideration of the student environment.

The Theory of planned behaviour variables which are the social norm, attitude, and perception, partially explained the population's willingness to communicate about HIV/AIDS and the behaviour of adults in this study. The findings fill a gap in the literature for the population in higher and tertiary institutions on the contribution of attitude, social norm and perceived behavioural control, relative to the implementation of effective HIV/AIDS prevention interventions, an area not previously covered in similar studies.

The study formulated two regression analysis coefficient models based on the explanatory variables of attitude, social norm and the perceived behaviour as independent variables and intention as a dependent variable. Social norms were indicated as a significant predictor of intention or willingness to communicate about HIV/AIDS prevention interventions among young adults as indicated by a p-value<0.05. Social norms facilitate communication about HIV/AIDS prevention interventions, thereby contributing to choices of effective HIV/AIDS interventions that reduce the spread of the HIV/AIDS epidemic.

6.3 Recommendations

The recommendations are based on the conclusions to the findings on the structures and resources/inputs, knowledge and awareness of HIV/AIDS, the sexual behavioural practices, attitudes, perception on condom use and the desired HIV/AIDS intervention programmes for the students and employees in the higher tertiary institutions.

6.3.1 Structures and resources

There is a need to broaden the capacity of structures and resources of HIV/AIDS and the following actions are recommended:

- The responsible authorities in the government and development partners must hold literacy programme workshops with stakeholders on the national HIV/AIDS Policy framework and Strategic Plan highlighting the structures and resources for HIV/AIDS interventions implementation at their disposal.
- The universities must participate more in HIV/AIDS programmes and source funding to sustain the preferred effective HIV/AIDS prevention interventions.

6.3.2 Knowledge and awareness of HIV/AIDS

HIV/AIDS knowledge and awareness are crucial to understanding the vulnerability to HIV infection, the HIV transmission, life cycle stages and characteristics. The following are recommended for the decision makers in the higher and tertiary institutions:

- Strengthening knowledge and awareness on HIV transmission, life cycle stages, and HIV/AIDS characteristics through workshops.
- Constantly conducting institution-level knowledge and awareness of HIV/AIDS assessments to better understand and appreciate the knowledge gaps of HIV/AIDS in a particular context.
- Advocate for social media groups to share more information on HIV/AIDS, as well as adding participatory educational programs to strengthen the knowledge and awareness of HIV/AIDS in the curriculum.

6.3.3 Sexual behavior practices, attitudes, perceptions on condom use

The executors in the higher and tertiary institutions should consider these key elements: current sexual practices, the perceived most feared risk and learning about HIV/AIDS when designing effective HIV/AIDS prevention interventions. These key elements should form the basis for promotion of behavior modification via segment-targeted campaigns in line with the current HIV/AIDS prevention interventions best practice for this target population.

6.3.4 Preferred HIV and AIDS prevention interventions by students and employees in universities.

The effective implementation of the desired HIV/AIDS interventions is contingent upon the structures, resources, knowledge and awareness of HIV/AIDS, sexual behavioural practices and available HIV/AIDS prevention interventions. Therefore, this study recommends the following actions:

- The responsible authorities i.e. the government, ministry of higher and tertiary education formulate a well-structured HIV/AIDS policy framework to guide program formulation, implementation and review for the higher and tertiary institutions based on current informed knowledge.
- Recognize and enhance the preferred HIV/AIDS interventions of abstinence, being

faithful, consistent use of condoms, voluntary testing and counseling. This could be done through awareness-raising and capacity building on integrating HIV/AIDS activities in development planning and by creating an HIV/AIDS Virtual Centre for sharing information

- HIV/AIDS workshops are participatory and fully youth-driven to promote maximum willingness to support, appreciation of and benefit from the desired HIV/AIDS interventions in the universities

6.3.5 Suggestions for further research

Further research should be undertaken on the impact of the implemented effective desired HIV/AIDS intervention programmes at individual, social and economic levels. These intervention programmes may not only be affecting the individuals' knowledge, attitude, and behaviour, but they can affect the individual's family, economic, and social situations.

The gaps in HIV/AIDS knowledge and attitudes among age groups can also be further investigated, so that future HIV/AIDS intervention strategies focus on the causes of the differences among the population.

The behaviour of the variables of structures and resources, knowledge and awareness, sexual behavioural practices, attitudes and perceptions on condom use, facilitate in identifying the preferred activities of abstinence from the sexual act, being faithful and consistent condom usage which need to be explored in relation to the contributory factors of the identified HIV/AIDS interventions for the higher tertiary institutions to establish sustainability.

The research did not include factor component analysis among the variables knowledge, awareness, sexual behavioural practice, attitude, perception and condom use which contribute to the effective implementation of effective HIV/AIDS interventions among students and employees in the universities. This area needs to be investigated to establish the variables that contribute most to the effect of HIV/AIDS interventions. The other area for further study is the understanding of Antiretroviral treatment (ART) variables, the implications of the acceptance of ART and the variables that are related to mother to child transmission (PMTCT) areas not covered in this study and which affects students and employees. There is a need to research

more on ART and PMTCT activities in the higher and tertiary institutions population. The study emphasizes the efficiency of targeted over non-targeted interventions for higher tertiary institutions indicating a gap in non-targeted interventions that needs to be researched.

The framework of TPB partially explained the behaviour of adults in this study but not all areas were covered. Further research on the applicability of TPB on the higher and tertiary institutions will help fill an existing gap in the literature for this particular population. There are no previous studies on attitude, SN and perceived behavioural control, relative to targeted HIV/AIDS prevention among students in higher tertiary institutions.

6.4 Limitations of the study

Purposive sampling was selected as the most cost effective and time effective sampling method available to the researcher. It is vulnerable to judgemental errors, a low reliability level, bias and the limited generalization of findings. This study was limited to adults in the higher and tertiary institutions who met the requirements of respondents. The inclusion of the surrounding communities could have enriched the study findings since they interact with the students. The knowledge, awareness and behaviour surveys related to HIV and AIDS are based on self-reporting by respondents, especially in the focus group discussions. Self-reporting may be biased by the participants' ability to recall details and to provide socially desirable answers to sexual or addictive behaviours. The data on the participants' attitudes, social norms, perceived behavioural control, intentions, and sexual behaviours of adolescents need to be collected over a long period to get a better reflection of these variables. This study was founded on cross sectional data that could not be collected and gave a good reflection on the relations of variables. The study of behavioural theories on effective implementation of the HIV/AIDS interventions could not be primed due to lack of applicable data. This could have helped to understand the behavioural variables that contribute to selection of desired HIV/AIDS intervention among students and employees in universities. The results of the study are general to the study population in the higher tertiary institutions population in Zimbabwe.

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Appendix 1

UNIVERSITY OF LUSAKA

Plot No. 37413, off Alick Nkhata Road, Mass Media, P.O. Box 36711, Lusaka
Phone: +260 211 233407, 258409, Fax: +260 211 233409, E-mail: ictar@zamnet.zm, unilus@zamnet.zm

All correspondence should be addressed to the rector

15 October 2015

WHO IT MAY CONCERN

Dear Sir/Madam,

REF: CLEARANCE FROM UNILUS RESEARCH ETHICS BOARD

This letter serves to affirm that **Florence Shumba** has fully undergone the research ethics and legal process evaluation of the University of Lusaka for her research topic **"Cost effectiveness of implementing HIV and AIDS prevention programs in the higher tertiary institutions in Zimbabwe".** Amongst other issues, the student's proposed research and research protocols have been approved to satisfy, amongst other things, the following:

- Research is conducted with respect for individuals and their right to informed consent;
- Research has scientific value, which means protocols are rigorously designed to ensure the development of new knowledge and understanding;
- Research contributes to society and the universal "common good";
- Research maximises benefit while minimising all potential harm;
- Research will not cause harm to humans and animal subjects.

Your assistance will be appreciated.

Yours faithfully,

Dr Kapambwe Misheck C
EXECUTIVE DEAN – SCHOOL OF POSTGRADUATE STUDIES

APPENDICES

Appendix 1

INFORMED CONSENT FORM FOR STUDENT AND FOCUS GROUP PARTICIPANT

PROJECT TITLE

EFFECTIVENESS OF IMPLEMENTING TARGETED HIV AND AIDS PROGRAMMES IN HIGHER AND TERTIARY EDUCATION INSTITUTIONS IN ZIMBABWE.

Principal Investigator FLORENCE SHUMBA (PhD student)_____, [*M.D.(OR Ph.D., etc.)*]

Phone number(s)+263772395145 or 09255231_____

Introduction:

I am Florence Shumba studying for a Ph.D. with the University of Lusaka Zambia, I am researching the effectiveness of implementing targeted HIV and AIDS programs in higher and tertiary education institutions which is common in Zimbabwe. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.)

Purpose of the research

HIV/ AIDS infection has no cure, affecting many young people and is making many young adults die early due to various sicknesses. We want to find ways to stop this from happening. We believe that you can help us by telling us what you know about HIV/AIDS in general. We want to learn what people who live or work here know about the causes of HIV/AIDS and why some people get it. We want to learn about the different ways that people try to stop HIV/AIDS before someone gets it or before it comes to the community, and how people know when someone has it. We also want to know more about HIV/AIDS prevention practices because this knowledge might help us to learn how to better control HIV infection in this community.

Type of Research Intervention

This research will involve your participation in a group discussion that will take about one and a half hour, and a one-hour questionnaire survey.

Participant Selection

You are being invited to take part in this research because we feel that your experience as a student or worker at the university can contribute much to our understanding and knowledge of HIV/AIDS prevention interventions in the institution. *Do you know why we are asking you to take part in this study?*

Do you know what the study is about?

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not.
. You may change your mind later and stop participating even if you agreed earlier.

If you decide not to take part in this research study, do you know what your options are?

Do you know that you do not have to take part in this research study if you do not wish to?

Do you have any questions?

Procedures

A. We are asking you to help us learn more about HIV/AIDS prevention methods in your institution. We are inviting you to take part in this research project. If you accept, for focus group discussions you will be asked to take part in a discussion with 10-15 other persons with similar experiences and you do not complete a questionnaire survey. Only those who did not participate in focus group discussions are to complete a questionnaire survey.

B. Focus group discussions)

. This discussion will be guided by HIV/AIDS coordinator from the institution or myself.
The group discussion will start with me, or HIV/AIDS coordinator, and the focus group guide, making sure that you are comfortable. We can also answer questions about the research that you might have. Then we will ask you questions about HIV/AIDS and give you time to share your knowledge. The questions will be about HIV/AIDS in your community, how is it recognized, what people do to stop it from spreading to other people, who people go to for help, and what happens when people become sick with it.

We will also talk about community practices more generally because this will give us a chance to understand more about HIV/AIDS but in a different way. These are the types of questions we will ask. We will not ask you to share personal beliefs, practices, or stories and you do not have to share any knowledge that you are not comfortable sharing.

The discussion will take place in the classrooms at campuses and no one else but the people who take part in the discussion and research assistants, HIV/AIDS coordinators or me will be present during this discussion. The entire discussion will be transcribed no one will be identified by name in the notes. The notes transcribed will be kept in a safe at the office. The information recorded is confidential, and no one else except myself Florence Shumba will have access to the tapes. The notes will be destroyed after a year.

C. For questionnaire surveys:

Fill out a survey which will be provided by research assistants and collected by research assistants and myself F. Shumba. OR you may answer the questionnaire yourself, or it can be read to you and you can say out loud the answer you want me to write down.

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. The survey will be distributed in classrooms during a break and collected within twenty our hours. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except myself Florence Shumba.

Duration

The research takes place over twelve months. During that time, we will visit you three times for interviewing some of you at three-month intervals and each interview will last for about one hour each. The group discussion will be held once and will take about one and a half hours at a venue in the campus. If you decide to take part in the study, do you know how much time will the interview

take? Where will it take place? Do you know that we will be sending you transport to pick you up from your home? Do you know how much time will the discussion with other people take? If you agree to take part, do you know if you can stop participating? Do you know that you may not respond to the questions that you do not wish to respond to? Do you have any more questions?

Risks

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the discussion/interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Benefits

There will be no direct benefit to you, but your participation is likely to help us find out more about how to prevent and treat HIV and AIDS in the university community.

You will not be provided any incentive to take part in the research. *Can you tell me if you have understood correctly there are no benefits that you will have if you take part in the study? Do you have any other questions?*

Confidentiality

The research being done in the university community may draw attention and if you participate you may be asked questions by other people in the community. We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of you name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone.

We will ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know, however, that we cannot stop or prevent participants who were in the group from sharing things that should be confidential. Did you understand the procedures that we will be using to make sure that *any information that we as researchers collect about you will remain confidential? Do you understand that we cannot guarantee complete confidentiality of information that you share with us in a group discussion Do you have any more questions?*

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with university management before it is made widely available to the public. There will also be small meetings in the community and these will be announced.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your job or job-related evaluations in any way. You may stop participating in the discussion at any time that you wish without your job being affected. I will give you an opportunity at the end of the /discussion to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact any of the following: Florence Shumba, Cell +263772395145, e-mail florance.shumba@nust.ac.zw

This proposal has been reviewed and approved by [name of the local IRB], which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find out more about the MRCZ, contact _Research/Compliance Officer on 002632791792. **This proposal has been reviewed and approved by Medical Research Council of Zimbabwe whose task it is to make sure that research participants are protected from harm.** You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in research about malaria and local health practices.
(This section is mandatory)

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Signature of Participant _____

Date _____

Day/month/year

Appendix 2

UNIVERSITY OF LUSAKA

QUESTIONNAIRE FOR STUDENTS

My name is Florence Shumba, a DBA student at the University of Lusaka, Zambia. I am carrying out a research titled: Effectiveness of implementing desired HIV and AIDS prevention programmes in higher tertiary institutions in Zimbabwe in partial fulfilment of the Doctor of Business Administration (DBA) in Accounting. I am excited about the opportunity to carry out research on this topic and to contribute to the growing body of knowledge on HIV and AIDS prevention programmes applicable to the population in higher tertiary institutions Zimbabwe and developing countries as a whole. I am kindly requesting you to answer questions in the attached questionnaire that are an essential part of my research project. All the information provided will be used for academic purposes only and will be treated in the strictest confidence.

I express my sincere appreciation for taking your precious time to read this letter and to complete the questionnaire.

Your support and cooperation will be greatly appreciated.

Regards

Mrs Florence Shumba

Email: florancewshumbachidzonga@gmail.com

Cell: +263772395145 or 263717931030

Section A: Socio- Demographic information of respondent (Tick where appropriate)

1. Province……

2. Gender:

Male		Female	

3. Type of Institution

Public		Private	

4: Age		**5. Year of study at the institution**		**6.Marital Status**		**7. Age at first sexual encounter**		**8. Partner age at first sexual encounter**		**9.Your last sexual encounter**	
17-20 years		1st year		Single		Younger than 16		Same age		Within 24hrs	
21-28 Years		2nd year		Married		16 – 19		Slightly Younger		2- 7days	
29-40 Years		3rd year		Co-habitation		20 - 23		Slightly Older		8 -14 days	
41-50 Years		4th year		Separated		24 - 27		More than 3 years younger		15 – 28 days	
Over 50 years		5th year		Divorced		Older than 27		More than 3 years Older		1 to 3 months	
				Widowed		Never		Do not Know		3 to 6 months	
				In a relationship						7 to 12 months	
				Casual relationship						Over 1 year	

SECTION B: KNOWLEDGE AND AWARENESS OF HIV AND AIDS

10.Please indicate the extent to which you agree with the following statements by ticking the appropriate box

	Strongly Disagree	**Disagree**	**Somewhat disagree**	**Neutral**	**Somewhat agree**	**Agree**	**Strongly agree**
A person diagnosed with HIV has AIDS							
HIV destroys the body's immune system causing illness to occur							
HIV exists in high concentration in bodily fluids							
A person living with HIV who is healthy can still transmit the virus to other people							
A healthy person with a strong immune system can get HIV							

A child born of an HIV positive mother will automatically be born HIV positive							
You can identify HIV positive individuals based on their appearance							
HIV can live in the body for years before symptoms appear							
There is a cure for AIDS							
HIV can be transmitted via mosquito bites							
HIV can be spread by sharing of towels and utensils(cups and spoons, etc) used by an HIV positive person							
An HIV positive lecturer should be allowed to continue teaching at my institution							
I would have a partner that I know is HIV positive							
I would have a sexual relationship with someone I know is HIV positive							
I would marry someone I know is HIV positive							
I would have a child with someone I know is HIV positive							
If I found out my partner is HIV positive I would leave him or her							
If I found out that my partner is HIV positive I would go for an HIV test							
I would feel embarrassed if one of my family members was HIV positive							
I would feel embarrassed if I was diagnosed with HIV							
I would disclose my HIV status to my partner before sex							
I would insist on couples HIV testing in every new relationship (both casual and committed)							
Do you personally know someone who has died from AIDS?							
I know anyone who is suspected to have HIV or who has HIV							
I know someone who has been denied health services in the last 12 months because he or she is suspected to have HIV or has HIV							

I know someone who has been denied involvement in social events, religious services or community events in the last 12 months because he or she is suspected to have HIV or has HIV							
I know someone who has been verbally abused or teased in the last 12 months because he or she is suspected to have HIV or has HIV							
Concerns							
I do not know my status but not worried							
I do not know my status but I am worried							
I do not know my status but not worried							
I know my status am HIV positive							
I prefer not to answer							
I know my status I am HIV negative							
HIV and AIDS							
Crime							
My financial security							
Health problems other than HIV							
The environment (global warming etc)							
Unemployment							
Road safety							

11. Please indicate the extent to which you agree with the following statements by ticking the appropriate box

Would you do the following with activities some who you know is HIV positive?	**Strongly disagree**	**Disagree**	**Somewhat disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
Work in the same office							
Share the same bed							
Use the same toilet							
Eat at the same table							
Touch him or her							
Share an apple							
Drink from the same cup							
Socialise outside of work or school							

12. Please indicate the extent to which you agree with the prevention methods mentioned by ticking the appropriate box

Prevention methods	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
Traditional medicine (Muti)							
Church (deliverance and prayer)							
Abstinence							
Being faithful							
Consistent condom use							
Bathing after sex							
Sex with a virgin							
Reasons For Not Being Sexually Active							
Religion							
Afraid of catching HIV or STI							
Waiting for marriage							
Religion							
Afraid of catching HIV or STI							
Waiting for marriage							
Fear of unwanted pregnancy							
Lack of opportunity							
Not interested							

Other (specify).....

SECTION C: BEHAVIOUR AND ATTITUDES ABOUT HIV/AIDS

9. Have you ever had sex? Please select the appropriate box (√)

Yes (Proceed to Q 10)		**No (Skip to Q15)**	

10. How old were you when you first had sex?Please select the appropriate box (√)

Age at first sexual encounter	
Younger than 16	
16 – 19	
20 - 23	
24 – 27	
Older than 27	
Don't remember	

11. How old was your partner when you first had sex? Please select the appropriate box (√)

Partner age at first sexual encounter	
Same age	
Slightly Younger	
Slightly Older	
More than 3 years younger	
More than 3 years Older	
Don't Know	

12. When was your last sexual encounter? Please select the appropriate box (√)

Within 24hrs	
2- 7days	
8 -14 days	
15 – 28 days	
1 to 3 months	
3 to 6 months	
7 to 12 months	
Over 1 year	

13. For the following statements, please indicate to what extent you agree by selecting the appropriate box (√)

Prevention methods		**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I.	It does not feel good to use condoms during sexual intercourse							
II.	I would insist on using condoms even if my partner doesn't want to							
III.	I am embarrassed to buy condoms							
IV.	I am embarrassed getting the free condoms available at the institution							
V.	People who carry condoms have sex with a lot of people							
VI.	If I didn't have a condom I would have sexual intercourse anyway							

13 B. Please indicate which statement most applies to you (√)

		Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I.	I have always been faithful to my partner in my current relationship							
II.	I have never had sexual intercourse with another person while in a relationship							
III.	I have always been absolutely faithful to my previous partners							

14. If your partner insists on condom usage that would mean…? (Please indicate to what extent do you agree by selecting the appropriate box (√))

		Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I.	That this person cares about me							
II.	This person doesn't care about me							

III.	That this person doesn't trust me							
IV.	That I can't trust this person – he or she probably has other partners							

15. Please indicate the which one the following applies to your reasons for not being sexually active by selecting the appropriate box (√)

I.	Religion	
II.	Afraid of catching HIV or STI	
III.	Taking HIV and AIDS treatment (ARV)	
IV.	Don't Know my HIV status	
V.	Other health problems	
VI.	Waiting for marriage	
VII.	Fear of unwanted pregnancy	
VIII.	Lack of opportunity	
IX.	Not interested	

16. For the following statements, please indicate to what extent do you agree by selecting the appropriate box (√)

		Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I.	If I found out my partner is HIV positive I would leave him or her							
II.	If I found out that my partner is HIV positive I would go for an HIV counseling and testing							
III.	I would feel embarrassed if one of my family members was HIV positive							
IV.	I would feel embarrassed if I was diagnosed with HIV							
V.	I would disclose my HIV status to my partner before sex							
VI.	I would insist on couples HIV testing in every new relationship (both casual and committed)							

17. For the following statements, please indicate to what extent do you agree by selecting the appropriate box (√)

		Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I.	I would have a partner that I know is HIV positive							
II.	I would have a sexual relationship with someone I know is HIV positive							
III.	I would marry someone I know is HIV positive							
IV.	I would have a child with someone I know is HIV positive							

18. Do you personally know anyone who has died from AIDS related complications? (√)

Yes		**No**	

19. For the following statements please indicate (√) which is applicable to you. Do you

	Yes	No	N/A

I.	Know anyone who is suspected to have HIV or who has HIV?			
II.	Know someone who has been denied health services in the last 12 months because he or she is suspected to have HIV or has HIV?			
III.	Know someone who has been denied involvement in social events, religious services or community events in the last 12 months because he or she is suspected to have HIV or has HIV			
IV.	Know someone who has been verbally abused or teased in the last 12 months because he or she is suspected to have HIV or has HIV			

20. Do you think your partner has other sexual partners?

Yes		**No**		**Not in a relationship**	

21. For the following statements, please indicate which is most relevant to you (√)

I.	I don't know my status but not worried	
II.	I don't know my status but I'm worried	
III.	I know my status but not worried	
IV.	I know my status without going for HIV testing	
V.	I prefer not to answer	
VI.	I know my status I am HIV negative	

22. For the following statements please indicate (√) which is applicable to you.

I.	I always use condoms	
II.	I never use condoms	
III.	I have engaged in sex without a condom	
IV.	I have never had sexual intercourse	

23. For the following statements, please indicate to what extent do you agree by selecting the appropriate box (√)

		Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I.	It is the man who decides whether or not a condom should be used							
II.	Most of the time I want to use a condom but I often end up not using one							
III.	I am tired of learning about HIV							
IV.	Current messages about HIV in Zimbabwe have no relevance or meaning for my sexual behavior							

24. Pleaseselect three prevention methods you agree with rank the following in order of importance to you, 1 being most important and 3 being least.

I.	Traditional Medicine (Muti)		II.	Bathing after sex	
III.	Church (Deliverance and Prayer)		IV.	Sex with a virgin	
V.	Abstinence				
VI.	Being Faithful				
VII.	Consistent condom use				

25. In your opinion, regarding the risk of becoming infected with HIV/AIDS in the future, which of these applies to you. (√)

I.	No Risk	
II.	Low Risk	
III.	Medium Risk	
IV.	High Risk	
V.	I'm already living with HIV	

26. Please rank the following statements in order of importance to you, 1 being most important and 7 being least.

I.	HIV and AIDS	
II.	Crime	
III.	My Financial Security	
IV.	Health problems other than HIV	
V.	The environment (global warming etc)	
VI.	Unemployment	
VII.	Road Safety	

SECTION D: STRUCTURES AND INPUTS THAT SUPPORT INTERVENTIONS
HIV/AIDS COMMUNICATION AND POLICY

27. Please indicate the acceptability to communication modes where you obtain information on HIV/AIDS (√)

Sources of information	**Daily**	**Once a week**	**Twice a week**	**Monthly**	**Twice a month**	**Once a month**	**Not at all**
I. Television							
II. Radio							
III. My School							
IV. Magazines							
V. Parents							
VI. Other Relatives							
VII. Friends							
VIII. Peer Educator							
IX. Clinic or Hospital							
X. Internet							

28. For the following statements, please indicate to what extent do you agree with the following on structures and inputs supporting HIV/AIDS interventions by selecting the appropriate box (√)

Statement/item	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I. The government is doing enough to prevent the spread of HIV							
II. Government is doing enough to support people with HIV							
III. Donor and community organizations doing enough to prevent the spread of HIV							
IV. Community organizations are doing enough to support people living with HIV							
V. My institution is doing enough to support people living with HIV							
VI. My institution is doing enough to prevent the spread of HIV							
VII. Members of affected persons' families are doing enough to support people with HIV							

29. Please indicate (√) to what extent do you agree with the following statements

Statement/item	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I. We have made many changes in our sexual behaviour to avoid HIV							

II.	We have counselling services available at the institution							
III.	We are satisfied with the counselling services offered at your institution							
IV.	We would like this service to be offered at the institution							
V.	We are satisfied with the HIV services, programs and activities offered at our institution							
VI.	Condoms available at your institution							
VII.	Student and lecturers engage in sexual relationships at our institution							

Any other comments:

Thank you for your time!

Thank you very much for your time!!

Any other comments

.....

.....

.....

.....

.....

THANK YOU FOR YOUR TIME

Appendix 3

Focus group guide questionnaire:

The following questionnaire is designed to help the researcher establish the effectiveness and benefits of HIV/AIDS prevention intervention programmes targeting young people in the institutes of higher tertiary education in Zimbabwe.

All information provided will remain private and confidential and no names are used anywhere in the questionnaire.You do not have to answer any question you do not want to, but please be as honest and open as possible in your answers, as this will help to improve our efforts in making HIV/AIDS programmes better for young people in various institutes of higher tertiary education the Zimbabwe.

Many thanks for your participation.

1. Discussion around participants' knowledge of HIV, AIDS & how they are contracted.
2. Sex and relationships: protection and/or precautions used by sexually active teens, condom negotiation skills, embarrassment or fear surrounding the purchase of condoms, availability of condoms to youth, getting tested, when is it safe to stop using condoms?
3. Abstinence: Why abstain, what the campaigns say about abstinence, views on abstinence.
4. Having more than one sexual partner. Views and opinions on this.
5. Self-esteem and its impact on sexual choices, habits and practices.
6. Confidentiality issues: avenues for youth to talk (guidance counsellors), confidentiality in getting tested and in purchasing condoms.
7. Stigma and discrimination including willingness to be around and attend school with HIV+ people.
8. Fear of HIV. Why do so many youth fear pregnancies more than HIV/AIDS.
9. Peer dynamics: How peer groups and peer pressure impact sexual choices.
10. Teens with older partners: The dynamics of such relationships and why.
11. Talking to peers and parents or guardians about HIV, AIDS and sex.
12. Awareness and knowledge of HIV/AIDS campaigns, their content, what they mean, reaction to campaigns, how campaigns affected or altered sexual behaviour (if at all) and how they can be improved to more effectively reach teens.

Appendix 4

TABLES FOR DATAPRESENTATION AND ANALYSIS

Descriptive statistics tables

Table 1Knowledge and awareness of HIV/AIDS by gender

Item/statement	Male		Female		All		*p*-value
	n	%	n	%	N	%	
A person diagnosed with HIV has AIDS	88	62	105	70	193	66	0.766
HIV destroys the body's immune system causing illness to occur	136	95	140	93	276	94	0.347
HIV exists in high concentration in bodily fluids	129	90	126	84	255	87	0.019
A person living with HIV who is healthy can still transmit the virus to other people	140	98	142	95	282	96	0.089
A healthy person with a strong immune system can get HIV	117	81	135	90	252	86	0.005
A child born of an HIV positive mother will automatically be born HIV positive	96	67	120	80	216	74	0.005
You can identify HIV positive individuals based on their appearance	66	46	96	64	152	55	0.002
HIV can live in the body for years before symptoms appear	83	58	118	79	201	69	0.002
There is a cure for AIDS	118	83	133	89	251	86	0.001
HIV can be transmitted via mosquito bites	124	87	141	94	265	90	0.099
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person (Disagree)	130	91	132	88	262	89	0.003
An HIV positive lecturer should be allowed to continue teaching at my institution (Agree)	116	81	127	85	243	83	0.366

Table 2: Knowledge and awareness of HIV/AIDS by year of study

Item/statement	1st		2nd		3rd		4th/5th		All		*p*-value
	N	%	N	%	N	%	n	%	N	%	
A person diagnosed with HIV has AIDS	25	52	60	63	42	81	59	61	186	63	0.010
HIV destroys the body's immune system causing illness to occur	42	88	94	98	47	90	91	94	274	94	0.104
HIV exists in high concentration in bodily fluids	42	88	84	88	43	83	84	87	253	86	0.054
A person living with HIV who is healthy can still transmit the virus to other people	43	90	92	96	51	98	94	97	280	96	0.636
A healthy person with a strong immune system can get HIV	41	85	84	88	44	85	81	84	250	85	0.257
A child born of an HIV positive mother will automatically be born HIV positive	37	77	67	70	39	75	71	73	214	73	0.000
You can identify HIV positive individuals based on their appearance	29	60	64	67	27	52	40	41	160	55	0.000
HIV can live in the body for years before symptoms appear	26	54	70	73	41	79	62	64	199	68	0.003
There is a cure for AIDS	45	94	77	80	48	92	79	81	249	85	0.186
HIV can be transmitted via mosquito bites	43	90	93	97	47	90	80	82	263	90	0.000
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person	44	92	82	85	48	92	86	89	260	89	0.000
An HIV positive lecturer should be allowed to continue teaching at my institution	40	83	86	90	40	77	75	77	241	82	0.000

Table 3: Knowledge and awareness of HIV/AIDS by marital status

Item/statement	Single		Married/Co-habitation		Separated/Divorced/Widowed		In a relationship/Casual		All		*p*-value
	N	%	N	%	N	%	N	%	N	%	
A person diagnosed with HIV has AIDS	92	59	22	59	7	58	69	78	190	65	0.000
HIV destroys the body's immune system causing illness to occur	144	93	36	97	11	92	82	92	273	93	0.127
HIV exists in high concentration in bodily fluids	129	83	35	95	12	100	76	85	252	86	0.416
A person living with HIV who is healthy can still transmit the virus to other people	147	95	36	97	12	100	84	94	279	95	0.226
A healthy person with a strong immune system can get HIV	124	80	34	92	12	100	84	94	254	87	0.741
A child born of an HIV positive mother will automatically be born HIV positive	107	69	22	59	6	50	78	88	213	73	0.000
You can identify HIV positive individuals based on their appearance	85	55	19	51	4	33	51	57	159	54	0.028
HIV can live in the body for years before symptoms appear	105	68	29	78	11	92	56	63	201	69	0.000
There is a cure for AIDS	117	75	36	97	11	92	84	94	248	85	0.654
HIV can be transmitted via mosquito bites	127	82	36	97	12	100	87	98	262	89	0.801
HIV can be spread by sharing of towels and utensils(cups and spoons, etc.) used by an HIV positive person	135	87	35	95	11	92	77	87	258	88	0.870
An HIV positive lecturer should be allowed to continue teaching at my institution	135	87	27	73	7	58	71	80	240	82	0.000

Table 4: Activities with someone who is HIV positive by age

Item/statement (positive responses)	17-20		21-28		28+		All		*p*-value
	N	%	N	%	N	%	N	%	
Work in the same office	66	99	180	95	30	94	276	96	0.000
Share the same bed	62	93	145	76	28	88	235	81	0.000
Use the same toilet	63	94	164	86	28	88	255	88	0.000
Eat the same apple	66	99	181	95	30	94	277	96	0.000
Touch him or her	53	79	158	83	28	88	239	83	0.000
Share an apple	32	47	99	52	16	50	147	51	0.000
Drink from the same cup	52	78	122	64	28	88	202	70	0.000
Socialise outside of work or school	63	94	184	97	28	88	275	95	0.000

Table 5: Activities with someone who is HIV positive by marital status

Item/ statement (positive responses)	Single		Married/Co-habitation		Separated/Divorced/Widowed		In a relationshi-p/Casual		All		*p*-value
	N	%	N	%	N	%	N	%	N	%	
Work in the same office	142	92	35	95	11	92	86	97	274	94	0.000
Share the same bed	112	72	32	86	11	92	78	88	233	80	0.000
Use the same toilet	125	81	34	92	11	92	83	93	253	86	0.494
Eat the same apple	142	92	37	100	11	92	85	96	275	94	0.311
Touch him or her	112	72	37	100	7	58	78	88	234	80	0.000
Share an apple	65	42	22	59	7	58	51	57	145	49	0.000
Drink from the same cup	101	65	30	81	11	92	59	66	201	69	0.026
Socialise outside of work or school	146	94	33	89	11	92	86	97	276	94	0.042

Table 6: Sexual behaviour and practices

Item/statement	Male		Female		All	
	N	%	N	%	N	%
Ever had sex	82	57	74	49	156	53
First had sex, younger than 16 years	11	13	3	4	14	9
First had sex, 16-19 years	23	28	30	41	53	34
First had sex, 20-23 years	36	44	27	36	63	40
First had sex, 24-27 years	10	12	8	11	18	12
First had sex, older than 27 years	2	2	4	5	6	4
Partner same age at first sex	35	43	13	18	53	34
Partner slightly younger at first sex	20	24	4	5	24	15
Partner slightly older at first sex	11	13	34	46	45	29
Partner more than 3 years younger at first sex	5	6	3	4	8	5
Partner more than 3 years older at first sex	4	5	9	12	13	8
Last sexual encounter within 24 hours	8	10	6	8	14	9
Last sexual encounter 2-7 days ago	21	26	13	18	34	22
Last sexual encounter 8-14 days ago	5	6	13	18	18	12
Last sexual encounter 15-28 days ago	4	5	13	18	17	11
Last sexual encounter 1-3 months ago	16	20	13	18	29	19
Last sexual encounter 3-6 months ago	7	9	7	9	14	9
Last sexual encounter 7-12 months	5	6	4	5	9	6
Last sexual encounter over a year ago	20	24	7	9	27	17

Table 7: Activities with someone who is HIV positive by gender

Item/statement (positive responses)	Male		Female		All		*p*-value
	N	%	N	%	n	%	
Work in the same office	139	97	138	92	277	95	0.215
Share the same bed	115	80	121	81	236	81	0.167
Use the same toilet	134	94	122	81	256	87	0.001
Eat the same apple	138	97	140	93	278	95	0.032
Touch him or her	111	78	129	86	240	82	0.001
Share an apple	81	57	67	45	148	51	0.117
Drink from the same cup	107	75	97	65	204	70	0.271
Socialise outside of work or school	138	97	141	94	279	95	0.193

Table 6 Knowledge and awareness: Correlation Matrix

		A person diagonised with HIV has AIDS	HIV destroys the body's immune system causing illness	HIV exists in high concentration in body fluids	A person living with HIV who is healthy can transmit the virus to other people	A healthy person with a strong immune system can get HIV	A child born of an HIV positive mother will automatically be born HIV positive
Correlation	A person diagonised with HIV has AIDS	1.000	.178	.139	.121	-.048	.502
	HIV destroys the body's immune system causing illness	.178	1.000	.458	.715	.270	.166
	HIV exists in high concentration in body fluids	.139	.458	1.000	.483	.093	.030
	A person living with HIV who is healthy can transmit the virus to other people	.121	.715	.483	1.000	.357	.029
	A healthy person with a strong immune system can get HIV	-.048	.270	.093	.357	1.000	-.333
	A child born of an HIV positive mother will automatically be born HIV positive	.502	.166	.030	.029	-.333	1.000
Sig. (1-tailed)	Apersondiagonised with HIV has AIDS		.028	.068	.097	.303	.000
	HIV destroys the body's immune system causing illness	.028		.000	.000	.002	.037
	HIV exists in high concentration in body fluids	.068	.000		.000	.160	.376
	A person living with HIV who is healthy can transmit the virus to other people	.097	.000	.000		.000	.377
	A healthy person with a strong immune system can get HIV	.303	.002	.160	.000		.000
	A child born of an HIV positive mother will automatically be born HIV positive	.000	.037	.376	.377	.000	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.614
Bartlett's test of Sphericity	Approx. Chi-Square	190.475
	Df	15
	Sig.	.000

Sample adequacy is above 0.5 which is in the slightly acceptable range

Bartlett Test of sphericitywas used to Test hypothesis of matrix. The significance Test score was 0.000 which is below the 5% significance level showing that the hypothesis on awareness of HIV and AIDS is acceptable at 95% confidence level

Communalities

	Initial	Extraction
A person diagonised with HIV has AIDS	1.000	.605
HIV destroys the body's immune system causing illness	1.000	.758
HIV exists in high concentration in body fluids	1.000	.482
A person living with HIV who is healthy can transmit the virus to other people	1.000	.791
A healthy person with a strong immune system can get HIV	1.000	.524
A child born of an HIV positive mother will automatically be born HIV positive	1.000	.783

Extraction Method: Principal Component Analysis

Principal component analysis: Knowledge, Awareness of HIV/AIDS -Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.310	38.508	38.508	2.310	38.508	38.508
2	1.633	27.214	65.723	1.633	27.214	65.723
3	.823	13.709	79.431			
4	.600	10.006	89.437			
5	.364	6.059	95.496			
6	.270	4.504	100.000			

Factor Analysis Knowledge, Awareness: Correlation Matrix

		You can identify HIV positive individuals based on their appearance	HIV can live in the body before symptoms appear	There is no cure for AIDS	HIV can be transmitted via mosquito bites	HIV can be spread by sharing of towels and utensils used by an HIV positive person	An HIV positive lecturer should be allowed to continue teaching at my institution
Correlation	You can identify HIV positive individuals based on their appearance	1.000	.133	.047	.178	.271	-.045
	HIV can live in the body before symptoms appear	.133	1.000	-.049	-.153	-.271	.161
	There is no cure for AIDS	.047	-.049	1.000	.492	.239	.019
	HIV can be transmitted via mosquito bites	.178	-.153	.492	1.000	.214	-.008
	HIV can be spread by sharing of towels and utensils used by an HIV positive person	.271	-.271	.239	.214	1.000	.067
	An HIV positive lecturer should be allowed to continue teaching at my institution	-.045	.161	.019	-.008	.067	1.000
Sig. (1-tailed)	You can identify HIV positive individuals based on their appearance		.077	.310	.028	.002	.314
	HIV can live in the body before symptoms appear	.077		.302	.051	.002	.042
	There is no cure for AIDS	.310	.302		.000	.005	.420
	HIV can be transmitted via mosquito bites	.028	.051	.000		.011	.467
	HIV can be spread by sharing of towels and utensils used by an HIV positive person	.002	.002	.005	.011		.238
	An HIV positive lecturer should be allowed to continue teaching at my institution	.314	.042	.420	.467	.238	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.459
Bartlett's Test of Sphericity	Approx. Chi-Square	73.820
	Df	15
	Sig.	.000

Knowledge, Awareness of HIV/AIDS -Communalities

	Initial	Extraction
You can identify HIV positive individuals based on their appearance	1.000	.886
HIV can live in the body before symptoms appear	1.000	.746
There is no cure for AIDS	1.000	.703
HIV can be transimitted via mosquito bites	1.000	.650
HIV can be spread by sharing of towels and utensils used by an HIV positive person	1.000	.532
An HIV positive lecturer should be allowed to continue teaching at my institution	1.000	.521

Extraction Method: Principal Component Analysis

Knowledge, awareness of HIV/AIDS -Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.801	30.021	30.021	1.801	30.021	30.021
2	1.186	19.763	49.785	1.186	19.763	49.785
3	1.050	17.500	67.285	1.050	17.500	67.285
4	.972	16.194	83.479			
5	.585	9.753	93.233			
6	.406	6.767	100.000			

Extraction Method: Principal Component Analysis.

Knowledge, awareness of HIV/AIDS -Component Matrix[a]

	Component		
	1	2	3
You can identify HIV positive individuals based on their appearance	.377	.483	-.714
HIV can live in the body before symptoms appear	-.356	.786	.026
There is no cure for AIDS	.711	.113	.430
HIV can be transmitted via mosquito bites	.766	.064	.244
HIV can be spread by sharing of towels and utensils used by an HIV positive person	.663	-.023	-.303
An HIV positive lecturer should be allowed to continue teaching at my institution	-.028	.563	.450

Extraction Method: Principal Component Analysis

a. 3 components extracted.

These are You can identify HIV positive individual based on their appearance with Eigenvalue 1.801

HIV can live in the body before symptoms appear with Eigenvalue 1.186

HIV can be transmitted via mosquito bites with Eigenvalue 1.050

Factor Analysis: Knowledge, Awareness Correlation Matrix

		I would work in the same office with someone I know is HIV positive	I would share a bed with an HIV positive person	I would use the same toilet with an HIV positive person	I would eat with an HIV infected person	I would touch an HIV positive person	I would share an apple with an HIV positive person	I would drink from the same cup with an HIV positive person	I would socialise with an HIV infected person
Correlation	I would work in the same office with someone I know is HIV positive	1.000	.515	.569	.828	.435	.119	.421	.647
	I would share a bed with an HIV positive person	.515	1.000	.737	.501	.555	.495	.693	.291
	I would use the same toilet with an HIV positive person	.569	.737	1.000	.477	.493	.438	.689	.395
	I would eat with an HIV infected person	.828	.501	.477	1.000	.475	.162	.419	.691
	I would touch an HIV positive person	.435	.555	.493	.475	1.000	.540	.446	.413
	I would share an apple with an HIV positive person	.119	.495	.438	.162	.540	1.000	.561	.020
	I would drink from the same cup with an HIV positive person	.421	.693	.689	.419	.446	.561	1.000	.277

Factor Analysis: Knowledge, Awareness Correlation Matrix **Table continued next page 243**

Statements			I would work in the same office with someone I know is HIV positive	I would share a bed with an HIV positive person	I would use the same toilet with an HIV positive person	I would eat with an HIV infected person	I would touch an HIV positive person	I would share an apple with an HIV positive person	I would drink from the same cup with an HIV positive person	I would socialise with an HIV infected person
		I would socialise with an HIV infected person	.647	.291	.395	.691	.413	.020	.277	1.000
Sig. (1-tailed)		I would work in the same office with someone I know is HIV positive		.000	.000	.000	.000	.102	.000	.000
		I would share a bed with an HIV positive person	.000		.000	.000	.000	.000	.000	.001
		I would use the same toilet with an HIV positive person	.000	.000		.000	.000	.000	.000	.000
		I would eat with an HIV infected person	.000	.000	.000		.000	.041	.000	.000
		I would touch an HIV positive person	.000	.000	.000	.000		.000	.000	.000
		I would share an apple with an HIV positive person	.102	.000	.000	.041	.000		.000	.414
		I would drink from the same cup with an HIV positive person	.000	.000	.000	.000	.000	.000		.001
		I would socialise with an HIV infected person	.000	.001	.000	.000	.000	.414	.001	

KMO and Bartlett's Test

	Kaiser-Meyer-Olkin MSA.		.815
	Bartlett's Test of Sphericity	Approx. Chi-Square	573.067
		Df	28
		Sig.	.000

Communalities

		Initial	Extraction
	I would work in the same office with someone I know is HIV positive	1.000	.834
	I would share a bed with an HIV positive person	1.000	.751
	I would use the same toilet with an HIV positive person	1.000	.711
	I would eat with an HIV infected person	1.000	.839
	I would touch an HIV positive person	1.000	.555
	I would share an apple with an HIV positive person	1.000	.744
	I would drink from the same cup with an HIV positive person	1.000	.719
	I would socialise with an HIV infected person	1.000	.754

Extraction Method: Principal Component Analysis.

Knowledge and awareness of HIV/AIDS - Total Variance Explained

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1		4.388	54.845	54.845	4.388	54.845	54.845
2		1.521	19.012	73.858	1.521	19.012	73.858
3		.686	8.579	82.437			
4		.391	4.886	87.323			
5		.373	4.664	91.986			
6		.272	3.398	95.384			
7		.227	2.841	98.225			
8		.142	1.775	100.000			

Extraction Method: Principal Component Analysis.

Work in the same office with someone I know is HIV positive with Eigenvalue 4.388

Would share a bed with an HIV positive person with eigenvalue 1.521 while scored KMO 0.815; Bartlett Test 0.573; Significance 0.00

Component Matrix[a]

	Component	
	1	2
I would work in the same office with someone I know is HIV positive	.783	-.471
I would share a bed with an HIV positive person	.823	.271
I would use the same toilet with an HIV positive person	.825	.172
I would eat with an HIV infected person	.780	-.480
I would touch an HIV positive person	.729	.156
I would share an apple with an HIV positive person	.539	.674
I would drink from the same cup with an HIV positive person	.767	.362
I would socialise with an HIV infected person	.631	-.597

Extraction Method: Principal Component Analysis

a. 2 components extracted.

OBJECTIVE: ASSESS SEXUAL BEHAVIOUR, ATTITUDE, PERCEPTION TOWARDS CONDOM USE CONTRIBUTION TOWARDS HIV/AIDS INTERVENTIONS CHOICES
FACTOR

Factor Analysis

Sexual behaviour Correlation Matrix

		Age at first sexual encounter	Partner age at first encounter	Last sexual encounter
Correlation	Age at first sexual encounter	1.000	.564	.427
	Partner age at first encounter	.564	1.000	.198
	Last sexual encounter	.427	.198	1.000
Sig. (1-tailed)	Age at first sexual encounter		.000	.000
	Partner age at first encounter	.000		.016
	Last sexual encounter	.000	.016	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.547
Bartlett's Test of Sphericity	Approx. Chi-Square	66.453
	Df	3
	Sig.	.000

Communalities

	Initial	Extraction
Age at first sexual encounter	1.000	.781
Partner age at first encounter	1.000	.601
Last sexual encounter	1.000	.429

Extraction Method: Principal Component Analysis.

Sexual behaviour Correlation Matrix

		Age at first sexual encounter	Partner age at first encounter	Last sexual encounter
Correlation	Age at first sexual encounter	1.000	.564	.427
	Partner age at first encounter	.564	1.000	.198
	Last sexual encounter	.427	.198	1.000
Sig. (1-tailed)	Age at first sexual encounter		.000	.000
	Partner age at first encounter	.000		.016
	Last sexual encounter	.000	.016	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.547
Bartlett's Test of Sphericity	Approx. Chi-Square	66.453
	Df	3
	Sig.	.000

Communalities

	Initial	Extraction
Age at first sexual encounter	1.000	.781
Partner age at first encounter	1.000	.601
Last sexual encounter	1.000	.429

Extracted one component Age at first sexual encounter with Eigenvalue 1.811and KMO 0,547; Bartlett's Test 66.45; significance 0.000

Sexual behaviour Correlation Matrix

		Age at first sexual encounter	Partner age at first encounter	Last sexual encounter
Correlation	Age at first sexual encounter	1.000	.564	.427
	Partner age at first encounter	.564	1.000	.198
	Last sexual encounter	.427	.198	1.000
Sig. (1-tailed)	Age at first sexual encounter		.000	.000
	Partner age at first encounter	.000		.016
	Last sexual encounter	.000	.016	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.547
Bartlett's Test of Sphericity	Approx. Chi-Square	66.453
	Df	3
	Sig.	.000

Communalities

	Initial	Extraction
Age at first sexual encounter	1.000	.781
Partner age at first encounter	1.000	.601
Last sexual encounter	1.000	.429

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.811	60.356	60.356	1.811	60.356	60.356
2	.811	27.019	87.375			
3	.379	12.625	100.000			

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	170.437
	Df	6
	Sig.	.000

Attitudes, perception, condom use -Communalities

	Initial	Extraction
If my partner insists on condom usage it means that this person cares about me	1.000	.554
If my partner insists on condom usage it means that this person does not care about me	1.000	.508
If my partner insists on condom usage it means that this person does not trust me	1.000	.789
If my partner insists on condom usage it means that I can not trust this person as he/she has probably other partners	1.000	.725

Extraction Method: Principal Component Analysis

Attitudes, perception-Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.575	64.387	64.387	2.575	64.387	64.387
2	.662	16.541	80.928			
3	.508	12.691	93.619			
4	.255	6.381	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
If my partner insists on condom usage it means that this person cares about me	.744
If my partner insists on condom usage it means that this person does not care about me	.713
If my partner insists on condom usage it means that this person does not trust me	.888
If my partner insists on condom usage it means that I can not trust this person as he/she has probably other partners	.851

Extraction Method: Principal Component Analysis.

a. 1 components extracted - If my partner insists on condom usage it means that this person cares about me significant p-value 0.00, eigenvalue above one at 2.575

Factor Analysis

Table 8 Attitudes, Perception Correlation Matrix

		It is the man who decides whether or not to use a condom	Most of the time I want to use a condom but I often end up not using one	I am tired of learning about HIV	Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour
Correlation	It is the man who decides whether or not to use a condom	1.000	.097	-.063	-.169
	Most of the time I want to use a condom but I often end up not using one	.097	1.000	.217	.046
	I am tired of learning about HIV	-.063	.217	1.000	.414
	Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour	-.169	.046	.414	1.000
Sig. (1-tailed)	It is the man who decides whether or not to use a condom		.150	.252	.035
	Most of the time I want to use a condom but I often end up not using one	.150		.010	.313
	I am tired of learning about HIV	.252	.010		.000
	Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour	.035	.313	.000	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.513
Bartlett's Test of Sphericity	Approx. Chi-Square	31.537
	Df	6
	Sig.	.000

Communalities

	Initial	Extraction
It is the man who decides whether or not to use a condom	1.000	.628
Most of the time I want to use a condom but I often end up not using one	1.000	.649
I am tired of learning about HIV	1.000	.700
Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour	1.000	.670

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.515	37.874	37.874	1.515	37.874	37.874
2	1.132	28.289	66.163	1.132	28.289	66.163
3	.807	20.166	86.329			
4	.547	13.671	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component	
	1	2
It is the man who decides whether or not to use a condom	-.290	.737
Most of the time I want to use a condom but I often end up not using one	.362	.719
I am tired of learning about HIV	.823	.152
Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour	.789	-.218

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin MSA.		.513
Bartlett's Test of Sphericity	Approx. Chi-Square	31.537
	Df	6
	Sig.	.000

Communalities

	Initial	Extraction
It is the man who decides whether or not to use a condom	1.000	.628
Most of the time I want to use a condom but I often end up not using one	1.000	.649
I am tired of learning about HIV	1.000	.700
Current message about HIV in Zimbabwe have no meaning or relevance for my sexual behaviour	1.000	.670

a. 2 components extracted.

Attitudes, perceptions, condom use Component Matrix

It does not feel good to use condoms during sexual intercourse	.604	.655	-.118
I would insist on using condoms even if my partner does not want to	.811	-.086	.123
I am embarrassed to buy condoms	.722	-.127	.589
I am embarrassed to get free condoms available at the institution	.659	-.062	.596
People who carry condoms have sex with a lot of people	.690	.348	.141
If I did not have a condom I would have sexual intercourse anyway	.555	.674	-.242
I have always been faithful to my partner in my current relationship	.818	-.386	-.229
I have never had sexual intercourse with another person while in a relationship	.841	-.361	-.266
I have always been absolutely faithful to my previous partners	.761	-.249	-.521

Extraction Method: Principal Component Analysis