Determinants of HIV and AIDS Voluntary Counselling Testing among Women of Reproductive Age in South Africa

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DECLARATION

I, **TJODWAPI TSHEPHE** hereby declare that the dissertation on the **Determinants of HIV and AIDS Testing among Women of Reproductive Age in South Africa** is entirely my own and original (except where acknowledgements indicate otherwise). I also declare that neither the whole work nor any part of it has been, is being or is to be submitted for another degree at this or any other university.

Signature:  Date: 14 July 2022

DEDICATION

I dedicate this study to the Almighty God who knew me before my formation, to him be the Glory. He enabled me to complete this chapter of my life.

To my late grandmother Mrs. Babi Ndwapi who had encouraged me and contributed a lot since my childhood. I will always remember what she used to say in Sekalaka “u zwi dhiye ngwanangu" meaning always study/work hard.

To my late grandfather former Botswana Member of parliament, Honourable Richard Ndwapi who was always my inspiration to study hard and aim high in life.

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ABSTRACT

HIV and AIDS have become the second most devastating global epidemic, after COVID-19, that the world has ever faced and highly affecting the young and economically active segment of the population. This epidemic is also a challenge in South Africa as new Infections of HIV increase among women more than in men. Effective behavioural change communication (BCC) strategies need to be designed to rescue the future development force of the nation. Thus, VCT for HIV is included as one of the strategies for HIV/AIDS prevention in HIV/AIDS policy, yet very little is known about what determines VCT services. Therefore, the study aims to identify Determinants of HIV and AIDS Testing among Women of Reproductive Age in South Africa.

This study uses secondary data sourced from the 2016 South African Demographic and Health Survey (SADHS). The data were summarized, analysed using Univariate, bivariate and Multivariate analysis to show the association between variables, and a binary logistic regression model was used to show the impact of different determinants of VCT by controlling different confounders. The results from the analysis indicate that there is a significant relationship between the following variables; age, region, education, household quintile, a total lifetime number of sex partners, recent sexual activity and knowledge and use of HIV test kits, and the HIV VCT services.

The results indicated that a significant number (90.1%) of women in the reproductive age group had ever tested for HIV and AIDS. Evidently, the analysis exhibits that the women who were aged between 30 to 34, 35 to 39, and 40 to 44 in South Africa were more likely to be tested than those in the younger group. Regarding marital status, the study found out that women who never married were likely to use VCT as compared to married women, living together and divorced or separated. According to the results, women in provinces such as Northern Cape, North West, Gauteng and Limpopo were found more likely to be tested for HIV as compared to other provinces. Educational level is another variable that was found significant in this study and participants with higher education were less likely to test as compared to those with no education level. In addition, women with working status were less likely to test for HIV. Finally, the

results found that women engaging in unwarranted sexual risk behaviours by having sex with more than one partner were more likely to view the VCT services more favourably.

The study, therefore, recommended that there must be a concerted effort to educate and increase awareness of HIV VCT services and sexual health knowledge. There should also be a comprehensive mobile application that will assist with HIV counselling for women who have HIV-positive and negative statuses. Stakeholders and Policy Makers should design and develop programmes that enhance positive sexual behaviour among the community members to promote better interpersonal relationship skills and psychological functioning. The study concluded by proposing further studies in the areas such as the influences of risky sexual behaviours and the causes of early sexual engagement amongst women.

Key words: VCT, HIV and AIDS, Risky Sexual behaviour, Women

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

AIDS	Acquires Immune Deficiency Syndrome
ARV	Antiretrovirals
AZT	Azidothymidine
BCC	Behavioural Change Communication
DHS	Demographic Health Survey
DoH	Department of Health
DUs	Dwelling Units
EAs	Enumeration Areas
HIV	Human Immunodeficiency Virus
HIV-1	Human Immunodeficiency Virus Type 1
MSF	Master Sample Frame
PITC	Provider Initiated Testing and Counselling
PrEP	Pre-exposure prophylaxis
SADHS	South Africa Demographic Health Survey
SAMRAC	South Africa Medical Research Council
SANC	South African Nursing Council
SSA	Sub-Sahara Africa
STATS SA	Statistics South Africa
STIs	Sexual Transmitted Infections
UNAIDS	United Nations Programme on HIV/AIDS
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation

LIST OF TABLES **PAGE**

LIST OF FIGURES **PAGE**

CHAPTER ONE
ORIENTATION OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Although some authors refer to the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) as a global epidemic, the World Health Organisation (WHO) promulgated it as an epidemic (WHO, 2019a). This study will; therefore, refer to HIV and AIDS as an epidemic. The HIV and AIDS epidemic has become a global challenge. The statistics depict that since the discovery of the epidemic in 2018, 75 million people were infected with the virus (WHO, 2019 b). WHO (2019b) further purports that in 2018 only, 37 million people lived with HIV and AIDS worldwide and there that were 770 000 fatalities of HIV and AIDS-related diseases reported. The epidemic did not only affect the infected but also those who are indirectly affected by the epidemic, such as members of the family, relatives and the community at large. Stinson (2015) emphasises that this overwhelming impact of the HIV and AIDS epidemic on families, communities and societies is most evident in countries with limited resources, such as the Sub-Saharan Africa (SSA) region, and this becomes a colossal burden.

1.1.1 HIV and AIDS amongst Women in Sub-Saharan Countries

In congruence with UNAIDS (2019) in the preceding section, Hacker (2002) states that the SSA region is the most affected in the world regarding the HIV and AIDS epidemic. Attesting to the argument, Ramjee and Daniels (2013) promulgate that Sub-Saharan Africa remains the region most affected by the HIV epidemic. According to UNAIDS (2013) sixty-six per cent (66%) of the world's HIV-infected population, lives in SSA. The primary driver for the fast spread of the HIV epidemic in SSA could be the community practices by different groups of people. These practices may include (Caraël, 1995 and Singh et. al, 2000) the common culture to marry female children and adolescent girls in Africa, especially, in SSA countries. Even though these young women are forced into arranged marriages, they are not given counselling regarding sexual matters. In these marriages, sexual activities happen inside of marriages by

their companions who most of the time are more seasoned than them and had encountered sexual relations before (Caraël, 1995 & Singh et. al, 2000).

Forced marriages of the young women and their lack of knowledge in sexual matters are not the only contributing factors to the infection of HIV and AIDS in the SSA. For instance, Ramjee and Daniels (2013) aver that numerous factors are responsible for this challenge. These include the overall HIV and STI prevalence, and cultural norms which include, among others, factors beyond an individual's control, such as the scale and rate of the epidemic which form the societal context of the individual. The dominant patriarchal culture in the SSA region has also proven to be one of the key contributors to the infection. For instance, women's desires are not recognised as significant; these consequently lead to women playing no part in sexual decision-making (Ramjee & Daniels, 2013). In the same breath, Caraël (1995), Singh et al. (2000), UNAIDS (2008) and UNAIDS (2019) concur that in the SSA region, the aftermath of the HIV and AIDS infections are mostly felt by women, including young women who bear the weight of the effect of the epidemic. UNAIDS (2019) further asserts that in every five new infections, four are in women.

1.1.1.1 HIV and AIDS amongst Women in South Africa

South Africa as a country that is the 25th biggest nation experiencing challenges in entertainment and leisure resources, has an estimated population of 57, 73 million people (Statistics SA: 2018). The country is multi-racial, due to migrant labourers and foreign nationals seeking refuge. The majority of the population, contributing 80% of the population is Black, isolated among a variety of ethnic gatherings speaking diverse Bantu dialects. This country is positioned as an upper-middle-income economy by the World Bank, has the biggest economy in Africa, and is ranked the 28th biggest, globally (Statistics SA: 2018). However, the larger part of the population is unemployed (South Africa in Contemporary Times, 2008).

South Africa remains the epicentre of HIV and AIDS in the SSA region. Stats SA (2018) in agreement with Ramjee and Daniels (2013) promulgate that the number of infections has grown from 2002 to 2018. In these SSA countries, the prevalence estimated for the period 2002 to 2018 is shown in *Figures 1 and 2*. The overall number of individuals living with the virus in the country increased from an estimated 4.25

million in 2002 to over 6 million in 2013 and 7.52 million in 2018. These figures depict that by 2018, an estimated 13.1% of the total population in South Africa was infected. As is the case in the entire SSA region, South Africa, being part of the region, also registered a high prevalence of HIV and AIDS cases among women. Stats SA (2018) approximated a fifth of South African women in their reproductive ages (15–49 years) to have tested positive.

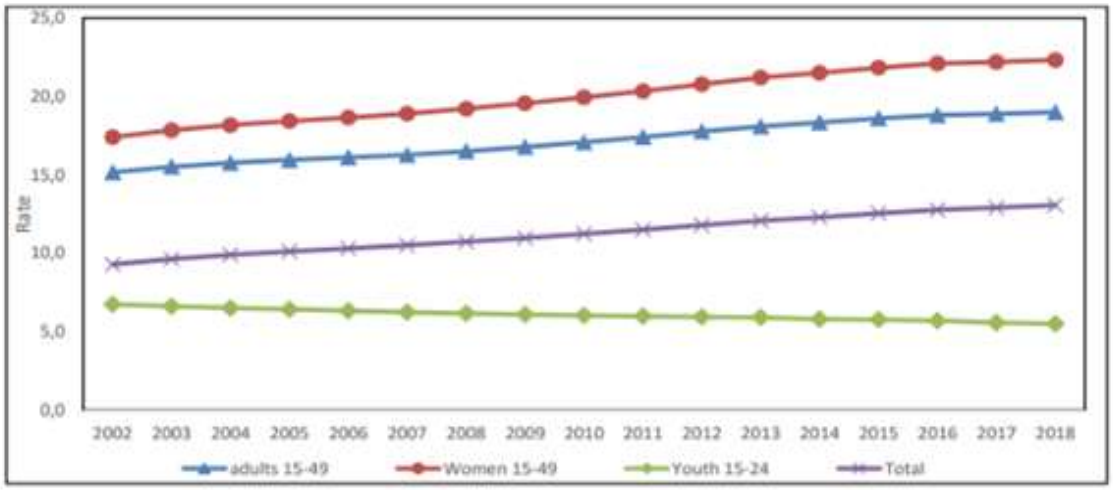

Figure 2.1: HIV prevalence by selected age groups, 2002–2018 (*Source: Statistics South Africa, 2018)*

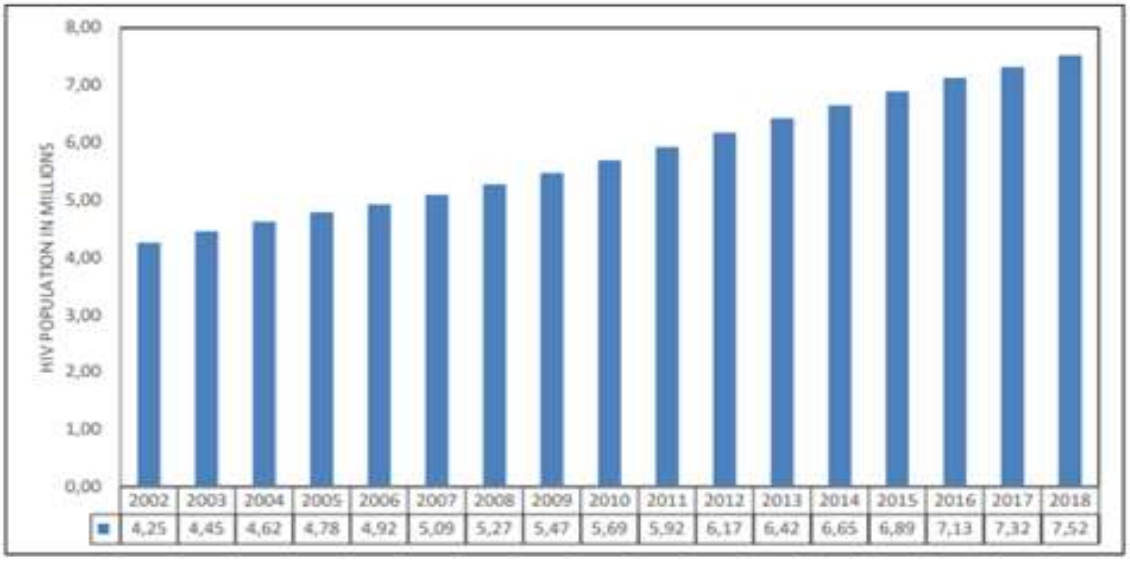

Figure 2.2: HIV Population over time, 2002–2018 (*Source: Statistics South Africa, 2018)*

1.1.2 Voluntary Counselling and Testing

HIV counselling and testing (VCT) is a procedure by which an individual undergoes counselling with the object to make an informed choice. It is recognised as the sine qua *non* of all HIV prevention interventions. VCT makes it possible to timeously identify infected individuals, and thereby facilitate interventions proactively. All in all, VCT is essential to enable both infected and affected people to cope with the impact of this epidemic. It does, not only, allow people to know their status and obtain personalised risk-reduction counselling but also provides care that is appropriate to their status and further assists communities to respond to stigma and discrimination associated with the epidemic (UNAIDS, 2001; Boswell & Baggaley, 2002; Ramjee & Daniels, 2013).

In the first place, VCT services would help to link infected individuals with the medical services for HIV treatment. These include inter alia, access to anti-retroviral therapy (ART) whose goal is to attack the virus as well as, medications whose clinical value is to avoid and treat the many opportunistic infections that can occur when HIV compromises the immune system. In light of recent studies, WHO released a guideline in 2015, which recommends beginning treatment earlier in the course of illness (UNAIDS: Get fast track; 2016) by accessing the anti-retroviral therapy

Secondly, early beginning with treatment can heighten psycho-social acceptance of the HIV and AIDS epidemic, as it reduces both stigma and discrimination among the infected and affected. (Boswell & Baggaley, 2002; Global AIDS, 2017). In addition, it motivates the infected individuals to adopt a healthier HIV and AIDS lifestyle, with the consequence that the health status gets improved while simultaneously the progressive impact of symptomatic disease is slowed (UNAIDS, 2001; Meursing & Sibindi, 2000). In addition, knowing one's status can serve as an in-number-rousing element to diminish different sexual danger practices. It is contended that including the community in VCT and related projects can help to build support in the system and group responsibility for administrations (program). This empowers individuals living with HIV and AIDS to be acknowledged inside groups, thereby decreasing stigma and denial (UNAIDS, 2001).

Coates (1998) debates that VCT programs in building nations have adequately achieved critical behavioural change among adults. Such behavioural change incorporates increment in more secure sexual conduct and use of care and support services. All in all, confirmation shows that VCT is a powerful method to bring behavioural change among adults and thus a significant procedure for HIV and AIDS counteractive action and control (UNAIDS, 2007). Coates (1998) takes this idea further as he insists that the involvement of the community in VCT and related programmes have the capacity to increase programme participation and ownership by the community. VCT has demonstrated the efficacy of such programmes, particularly, in developing countries. This is substantiated by the significant behavioural change observable among adults (UNAIDS, 2007).

There is a threat that the UNAIDS resolution of 90 90 90 target which was aimed at ending the epidemic in 2030 might be delayed due to the new COVID-19 pandemics which has drawn all the attention. By way of interpretation, the resolution aimed in achieving the following: 90% of people living with HIV knowing their HIV status; 90% of people knowing their HIV-positive status on treatment; and 90% of people on treatment with suppressed viral loads. Juxtaposing, the achievements against the UNAIDS targets of 90% per variable of 2017, the following were observable 75% of people living with HIV knew their status; 79% who knew their status were accessing treatment, and 81% who were receiving treatment were virally suppressed (UNAIDS, 2017).

1.2.2.1 VCT in Sub-Saharan countries

According to Rosenberg, Hauser, Ryan, and Miller (2016), the SSA region registers millions of people who receive counselling and testing. They further state that VCT's role is to inform people about their HIV status. Determining the impact of VCT on HIV acquisition cannot be overemphasised because the health workers cannot rely on sexual behaviour as it is based on self-report. In most cases, the self-report is biased due to inaccurate recall and social desirability. However, accurate self-report may also not be able to perfectly foretell HIV acquisition (Rosenberg, Hauser, Ryan, & Miller, 2016).

Govindasamy, Ferrand, Wilmore, Ford, Ahmed, Afnan-Holmes and Kranzer, (2015) are of the view that the VCT is imperative in the SSA region because the majority, contributing ninety per cent (90%) of the world's HIV-infected children and adolescents lives in this region. Govindasamy et al. (2015) advocate for differentiated VCT strategies in the region for youth and adults. However, ibid, argues that there is a lack of evidence for VCT strategies that are targeted toward children and adolescents. The region uses the same strategies employed predominantly for adults on the youth, with little consideration of the specific barriers associated with VCT and the needs of this age group.

Apart from the high prevalence of the epidemic and their differentiated VCT from those of youth, women, especially pregnant women, in the SSA region live with HIV. Due to these SSA region challenges, Gunn, Asaolu, Centre, Gibson, Wightman, Ezeanolue and Ehiri (2016) contend the majority of the diagnosis among women are frequently administered during pregnancy. The benefit that can be derived from this is that women who know their status can be cautious about their health. That is to say, women who are pregnant and HIV positive can prevent HIV-positive women will therefore be empowered It is argued that positive women mother-to-child transmission (MTCT). Gunn et al. (2016) contest that the most common cause of paediatric HIV infection is MTCT, which normally happens during pregnancy, birth or breastfeeding.

According to UNAIDS (2018) in the SSA region, the susceptibility of female members of the society to HIV experiences implicates societal beliefs and economic and political inequalities. As indicated by Caraël (1995) and Singh et al. (2000), UNAIDS (2018) further eludes that the early marriage of teenage girls in rural areas disadvantages them. These teenage girls are taken out of school and given into marriages. These married teenage girls fall pregnant in their early years in marriage. Attesting to this argument, UNAIDS (2018) stipulates that half of women ages of 15 and 24 living in rural settlements have had a pregnancy before age of 18. The pregnancy limits their future opportunities for economic independence, decision-making and lack of adequate health services including VCT. This organisation further purports that one in two teenage girls can make decisions on their own regarding health matters. However, the case of more urban women in some SSA countries such as Ethiopia proves to attest to the contrary. An observation regarding those women shows that majority of

them received HIV VCT and the results during the antenatal visit. This is so because, in addition to women in non-urban settlements having lower levels of knowledge of HIV, they also have limited, if any, access to HIV testing and modern contraceptives UNAIDS (2018).

1.1.2.2 VCT in South Africa

Unlike in the rest of the SSA region, the South African (SA) government has prioritised the VCT in the fight against the spread of HIV. VCT is key to the South African government's strategy in its endeavour to contain the epidemic. The SA government has focused their energies towards the promotion and increase of access to VCT for its citizens. In an effort to ensure the above, the government has also developed a policy framework, which will facilitate the uptake of VCT services (Strauss, Rhodes & George, 2015). Although the SA government has prioritised the VCT and exhibited the benefits of VCT to the South Africans, Risenga, Davhana-Maselesele and Obi, (2013) declare that the VCT is believed to be hamstrung by factors such as lack of resources and standardisation. Further to that, these authors also report that the counsellors eventually got frustration and emotional exhaustion as the above-mentioned contextual factors.

Despite VCT awareness campaigns on HIV risk behaviours and the effort to direct HIV-positive individuals toward, care and treatment Luseno and Wechsberg (2009) reveal that the testing rate of HIV antibodies in the South African population remains unsatisfactory. However, the irony is people are extremely knowledgeable about places and services for HIV testing. These authors further state that VCT correlates with testing behaviour, which is meant to improve HIV testing campaigns. This is done by refining messages that are directed at individuals categorised at the highest risk of infection.

Notwithstanding the high prevalence of HIV among pregnant women in South Africa compared to their male counterparts, Luseno and Wechsberg (2009) argue that there is minimal information in unknown on the population at the high risk of HIV and AIDS. This refers, particularly, to poor women with no jobs, and limited education. Most of the women found in that status, are individuals who abuse alcohol and drugs, and

unprotected sex with multiple partners. This is due to the pressure to engage in sex work to support themselves and their families (Luseno & Wechsberg 2009). It is unfortunate that, few women in this high-risk group are likely to utilise the HIV VCT services.

1.2 PROBLEM STATEMENT

HIV and AIDS remain an ever-increasing public health problem in the world, particularly among women of reproductive age in South Africa (Motshegwa and Palamuleni, 2020). UNAIDS 2020 report, depicts a significant percentage (24.7%) of childbearing age women living with HIV and AIDS. Seemingly, from some years back South Africa (SA) has been a home for people living with HIV and AIDS (Simelela and Venter, 2014).

However, while women are twice as likely to be infected as men (Adimora et.al, 2013), there is relatively low utilisation of VCT services among females of childbearing age *(*Bibiana, 2018). This poses a problem because, to arrest the progression of the HIV infection to the AIDS stage, one would need to use anti-retroviral medicine at an early stage of the infection. However, this can be only when the disease has been detected through the VCT.

In addition, few recent studies of HIV testing in South Africa identify the determinants of VCT uptake among the women of the reproductive age population. For example, a study by Motshegwa and Palamuleni (2000) is based on youth, while another study is based on the total population (Shisana et.al, 2014). For this reason, this study embarks on an effort to fill the existing gap in the determinants of HIV and AIDS testing among women of reproductive age in South Africa.

1.3 SIGNIFICANCE OF THE STUDY

This study is to contribute and find the knowledge that influences the uptake of HIV testing in South Africa. Thus, generally, VCT is said to be a public health intervention where government and donors need to subsume some of the associated costs to ensure the widest possible access (Lancet, 2000). Knowing determinants of the

woman towards utilisation of VCT services contributes significantly towards the prevention. It, eventually, contributes much to the prevention and control of the HIV epidemic. In addition, it is hoped that the recommendations will find operational application in modelling strategies that will aid the improvement of access to increase and utilization of VCT services for women in South Africa.

1.4 AIM AND OBJECTIVES OF THE STUDY

1.4.1 Aim of the study

The study aims to identify the determinants of VCT uptake among the women of the reproductive age population in South Africa.

1.4.2 Specific objectives of the study

To achieve the main aim of the study, the following specific objectives were formulated:

- To determine the level to which participants use the VCT services according to different socio-economic factors.
- To identify the socio-economic and demographic factors that are associated with HIV VCT.
- To establish the impact of sexual behaviour and perceptions of HIV risk on uptake of testing for HIV.

1.4.3 Research Hypothesis

This research aimed to test the following hypotheses:

- there is a positive relationship between women's knowledge and utilization of VCT services;
- Socio-economic and demographic factors influence HIV voluntary counselling and testing, and
- Women who perceive themselves to be at risk of contracting HIV will exhibit a more favourable view of VCT services.

1.5 LIMITATION OF THE STUDY

Like human endeavour, this study has quite a few limitations that are worth mentioning here. Firstly, because the sampling strategy targeted women who are a high risk, the study findings may not necessarily be representative of all South African women of all races and persuasions. Further limitations of this study arise from factors such as the use of self-report measures to elicit sensitive and personal information such as substance use and abuse, sexual risk and HIV testing behaviour. This account for the limited current literature on VCT in South Africa, especially among women. The dearth of scholarship on the phenomenon, and that literature should form the bedrock of analysis may give the researcher a limited space in terms of interpreting the data.

1.6 DEFINITION OF CONCEPTS OF CONCEPTS

1.6.1 Determinants

A determinant is defined as a factor which …influences to determine the nature or outcome of something (Webster's Comprehensive Dictionary of the English Language 1996:349). Collins Cobuild Advanced Learner's English Dictionary (2001:416), on the other hand, defines a determinant of something as 'causing it to be of a particular kind or happen in a particular way'. In this study, it follows then that determinants are raised as elements or factors that influence or determine whether an individual will voluntarily go or not for HIV counselling and testing.

1.6.2 HIV

HIV (Human Immunodeficiency Virus) is a virus that spreads through certain body fluids and invades the body's immune system, specifically the CD4 cells, often called T cells (CDC, 2019). According to WHO (2019), HIV is perceived HIV as a human immunodeficiency virus that impairs the immune system and weakens immune systems against infections. Borrowing from the definitions in the study above the researcher has elected to describe study HIV as a virus, which enters the body through body fluids and subsequently weakens the immune system.

1.6.3 AIDS

WHO (2019) defines acquired immunodeficiency syndrome (AIDS) as the most advanced stage of HIV infection, which can take from 2 to 15 years to develop if not treated, depending on the individual. On the same note, CDC (2019) sees AIDS as the most severe phase of HIV infection. People with AIDS have such badly damaged immune systems that they get an increasing number of severe illnesses, called opportunistic illnesses. In this study, AIDS refers to multiple opportunistic illnesses that attack the body.

1.6.4 Voluntary Counselling and Testing (VCT)

According to Matovu and Makumbi (2007), HIV voluntary counselling and testing is the process whereby individuals or couples undergo: pre-test counselling, risk assessment, a same-day rapid HIV test, and post-test HIV prevention counselling (often not given in traditional testing). In a traditional sense, VCT is one approach to ethical HIV testing and counselling procedures that should be expanded and radically scaled up to meet the urgent requirements for greater access to ARV treatment and prevention. WHO (2019) adds that health facilities represent a key point of contact with people with HIV who are unaware of their status and who would benefit from HIV-specific services. Therefore, one can surmise that VCT implies someone presenting for advice at a designated centre of their free will for testing and counselling, and then using this advice, without any compulsion, to find some information about themselves.

1.6.4 Teenage girls

According to Costello (2000), globally a teenager refers to a person between the ages of 13 and 19. The South African statistics (2001) define a teenager as a young person between the ages of 10 and 19 years. Summarising the global and South African context, in this study, a teenage girl refers to a young woman who is aged between the ages of 12 and 19.

1.7 LAYOUT OF THE STUDY

Chapter 1: Orientation

This chapter introduces the study area, the problem, the purpose, and the objectives of the study. It also outlines the research design and methodology of the study and provides definitions of key terms.

Chapter 2: Literature Review

Chapter 2 discusses the conceptual framework; it presents the literature relevant to HIV and AIDS, which discusses the global problem, African, and South African women's situation, the response to the situation in each case, potential benefits of voluntary HIV counselling and testing. The studies on the effectiveness of voluntary HIV counselling and testing in preventing and controlling HIV transmission and the determinants of VCT uptake, both from the demand and the supply side.

Chapter 3: Research Design and Methodology

Chapter 3 discusses the empirical research approach used for the study. The chapter focuses on the procedural models that are implemented by the researcher as part of the strategy to obtain results. It describes the research design, including methodologies to answer the main research questions on which the study is based.

Chapter 4: Analysis and interpretation of data

In chapter 4, a detailed presentation, analysis and interpretation of research findings from the collected data are done.

Chapter 5: Summary, conclusion and recommendations

This chapter outlines the overview of the study; the conclusion, the deficiencies of the research, the recommendations and the summary of the study. The summary, recommendations and conclusion of the study are based on the outcomes of the study.

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a survey of the literature pertinent to HIV and AIDS research and discusses the worldwide, continental and South African women's situation. The subtopics to be discussed include response to the situation in each case, potential benefits of voluntary HIV counselling and testing, research on the effectiveness of voluntary HIV counselling and testing in preventing and controlling HIV transmission and the determinants of VCT uptake, both from the demand and the supply side. The study will also discuss an overview of HIV and AIDS and the theoretical framework.

2.2 OVERVIEW OF HIV and AIDS

A short history and description of the main aspects of HIV and AIDS are provided with the view to orientate the reader on the topic.

2.2.1 Historical background

Acquired Immune Deficiency Syndrome (AIDS) was discovered in 1981 when expanding quantities of youthful gay men yielded to unusual infections and uncommon sexual exercises (Greene, 2007). The retrovirus was named human immunodeficiency virus type 1 (HIV-1). Subsequently, HIV-1 was identified as a contributory virus, which spreads by sexual, percutaneous and perinatal routes (Hladik & McElrath, 2008 and Cohen et al., 2011). Cohen et al. (2011) concur with Hladik and McElrath (2008) stipulating that AIDS is a sexually transmitted disease. Even though antiretroviral treatment has minimised the increase of AIDS-related mortalities, Barouch (2008) and Richman et al (2009) state that the availability of treatment is uneven, and the possibilities of corrective treatments and an effective vaccine cannot be guaranteed. In this manner, AIDS will continue to show itself formidable threat to public health for ages to come.

2.2.2 The progress of HIV and AIDS

According to WHO (2016), the international community has committed to ending the AIDS epidemic as a public health threat by 2030. This was an ambitious target of the 2030 Agenda for Sustainable Development, which was adopted by the United Nations General Assembly in September 2015 where interim targets were established for 2020. The plan described the health sector's contribution toward the accomplishment of these targets. It outlined both what member states need to do and the role of WHO. If implemented, these are expected to fast-track actions by members and WHO to accelerate and intensify the HIV response for the "end of AIDS" to be realised

On World AIDS Day in 2014, UNAIDS set the "90-90-90" targets for 2020 aimed at ending the epidemic by 2030 (UNAIDS: 2018). Their targets included achieving the following: "90% of people living with HIV knowing their HIV status; 90% of people who know their HIV-positive status on treatment, and 90% of people on treatment with suppressed viral loads." These goals and targets were restated in the UNAIDS 2016-2021 strategy, which is also in agreement with the SDGs (UNAIDS: 2015). Beginning 2017, globally, 75% of the infected individual knew their status; among them, 79% were receiving treatment, and 81% have reached the virus suppression state (UNAIDS: 2018)

2.2.3 Epidemiology of global HIV and AIDS in women

According to UNAIDS (2019), some commitments were made for women in the 2016 United Nations Political Declaration toward ending this scourge. However, the world is currently far from reaching those commitments. These commitments include the three major ones. Firstly, the reduction of the newly discovered infections among adolescent girls and young women by 90%; that is to say, from 390 000 in 2015 to below 100 000 in 2020. Secondly, to ensure that 90% of women have the skills, knowledge and capacity to protect themselves against this pandemic. Thirdly, 90% of women be having access to sexual and reproductive health services as well as, a combination of HIV prevention options. This commitment is commonly known as a 90-90-90 commitment.

According to UNAIDS (2019), one of the factors which contribute exponentially to the increase of gender discrimination and gender-based violence (GBV) is the HIV

epidemic. Cultural orientation with its taboos about sexuality is perceived to have an enormous impact on the ability of female members of society to protect their health and avoid HIV infection. This organisation further indicates that a significant number, globally, three in every five new HIV infections are among youth aged between 15 and 24, particularly young women. This shows a great threat to reaching the commitment targets declaration. This is evident in the fact that in countries such as Malawi, Zambia, Zimbabwe, and Western and Central Africa revels that out of every five new infections three are young women aged (15-24).

2.2.4 HIV and AIDS in African Women

The Sub-Saharan region of Africa is reportedly the epicentre of this epidemic, with 67% of the global burden and 75% of the estimated 2.2 million related fatalities in 2007 (UNAIDS 2008:30). UNAIDS (2008) reports that in this region, approximately 1.9 million individuals were infected by the virus in 2007, and in addition to the 22 million living with HIV in the continent.

In sub-Saharan Africa, UNAIDS (2008) further reports that around 23 million adults aged between 15 and 49 are infected, with 57%, that is 13.1 million of them being women. The same organisation reports that, since 1985, there has been an inexorably unbalanced effect on women. In the same year, a large proportion of women were living with HIV and AIDS in sub-Saharan Africa. From that point forward, the quantity of women living with the virus in respect to men has increased; especially, affecting young women aged 15 to 24, who are three times more inclined to be infected compared to young men. HIV is spreading overwhelmingly through heterosexual contact, thus expanding; more of its impact on women. This was largely observable in Southern Africa, where more than 20% of pregnant women tested positive. were infected with HIV in many nations in the region, with prevalence rates among pregnant women in Botswana and Swaziland of very nearly 40%. An Analysis of information from antenatal centres in eight nations demonstrates that HIV prevalence might now be receding, even though the numbers stay high (UNAIDS: 2004). In sub-Saharan Africa, about 23 million adults aged 15 to 49 are infected, with 57% that is13.1 million of them being women.

The latest in UNAIDS (2019) indicates that in the sub-Saharan Africa region adolescent girls and young women (aged 15–24 years) accounted for one in five new HIV infections, despite being just 10% of the population. UNAIDS reports that in the hardest-hit countries, adolescent girls accounted for more than 80% of new HIV infections in their age group. The organisation reveals that, for every three new HIV infections among young men (aged 15–24 years) in eastern and southern Africa, there were seven new infections among young women. The very report by UNAIDS divulges that in Malawi, Zambia and Zimbabwe, less than 50% of young people living with HIV were aware of their HIV status, as compared to between 74% and 80% of adults aged 35–49 years who were living with HIV in the same countries. Furthermore, the report states that is western and central Africa, for every five, three new HIV infections were found among young men (aged 15–24) there were five new infections among young women.

2.2.5 HIV and AIDS in Women of South Africa

SANAC (2017) purports that the prevalence of HIV among women is nearly four times greater than that of men their age in South Africa. SANAC (2017) further suggests that females who are considered at high risk of HIV infection to reduce this high rate of infection should be offered pre-exposure prophylaxis (PrEP). Poverty, as well as GBV, are considered reasons for the disparity in HIV prevalence in women. GBV is attributable to new HIV infections, especially in young women (Van Damme, Goff, Katsura, Mitchell, Johnson, Stephens & Guatelli, 2008). Intergenerational relationships between older men and younger women who might have acquired HIV from women of a similar age are the key factors driving transmission (The TenoRes study group, 2016).

2.2.6 Voluntary HIV Counselling and testing

The VCT as a process whereby people confidentially go for counselling allows individuals or couples to undertake pre-test counselling, risk assessment, a same-day rapid HIV test, post-test HIV prevention counselling and referral for medical and support services by trained counselors (Irungu, Varkey, Cha, & Patterson, 2008). This process is a cost-effective intervention for reducing HIV-related risk behaviour (Fonner et al., 2012 and Denison & O'Reilly, 2008). It plays a pivotal role in the primary prevention of mother-to-child transmission, antiretroviral therapy and management of

HIV-related illnesses (Grinstead & Gregorich, 2001). VCT also plays a crucial role in reducing the stigma and discrimination concerning people living with HIV and is key in the prevention of mother-to-child transmission (UNAIDS. Fast facts about HIV testing and Counselling, 2008).

The main goal of VCT is to acquaint people with their HIV status and empower them to cope with either outcome of the results. For those who test positive, VCT is helpful to reduce their risky sexual behaviours and provides access to care and support services. For individuals whose test result is negative, VCT strengthens the resolve and motivation to remain negative. Previous impact assessment studies on the efficacy of VCT in bringing behavioural change could not lead to any conclusive results (UNAIDS, 2001; VCT adequacy study amass, 2000). The studies uncovered that subjects demonstrated a decrease in unprotected sex with steady and casual partners, and in addition, a consistent reliable condom usage after a VCT intervention program. On the other hand, in these studies, it was particularly HIV-positive participants and HIV zero-conflicting couples who decreased their risk behaviour as a result of VCT intervention. This implies that VCT has not brought any critical conduct change among participants who tested negative (WHO, 2007).

2.3 THEORETICAL FRAMEWORK

Owing to the fact that this study aimed to explore the Determinants of HIV and AIDS VCT among women of reproductive age in South Africa, the Health Belief Model is considered a useful framework look at this study. This model was constructed by social psychologists Irwin Rosenstock, Godfrey Hochbaum, Stephen Kegeles, and Howard Leventhal, who were attached to the United States Public Health Services, and was developed in the 1950s.

Champion et.al (2008) contend that this model was developed to explain the widespread failure of people to participate in programs to prevent and detect disease. In other words, according to the seminal work of Rosenstock (1966), this model studies how people use health services and explains why they use those health services. In summarising the purpose of this model, Champion et.al (2008) further state that the model intends to explain the change and maintenance of health-related behaviours

and also serves as a guiding framework for health behaviour intervention. Seemingly, this model evolved gradually in response to very practical public health concerns and the model progressed to explain the widespread failure of people to participate in programmes that prevent and detect disease.

This model was later extended to determine people's responses to symptoms. (Rosenstock, 1960; Rosenstock, 1974 and Glanz, Rimer, & Viswanath, 2008;). Glanz et al (2008) and Champion et.al (2008) promulgate HBM to be one of the most widely used model in health behaviour research since the early 1950s. In the light of this evolution of the HBM, the researcher considered the model for its original purpose as according to Rosenstock (1966) to be an appropriate model to understand this study. The study sought to understand the determinants of VCT among women of reproductive age in South Africa. The model was also used to help readers to understand the rationale for the concepts and their relationships. Figure 2.3 depicts the HBM.

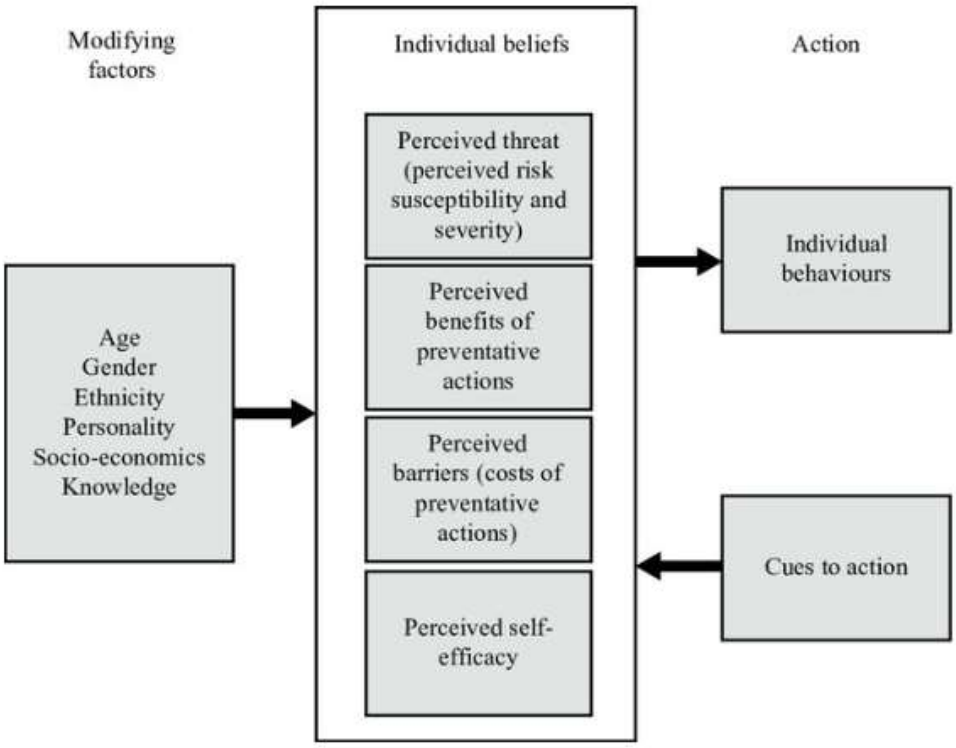

Figure 2.3 Diagram of Health Belief Model *(Source Glanz et al., 2015)*

The researcher used all the six concepts of the HBM to understand this study. These key constructs are; Percived Susceptibility, Perceived Severity, Perceived Benefits, Perceived Barriers Cues to Action and Self Efficacy. Figure 2.4 represent these concepts with their definition and application.

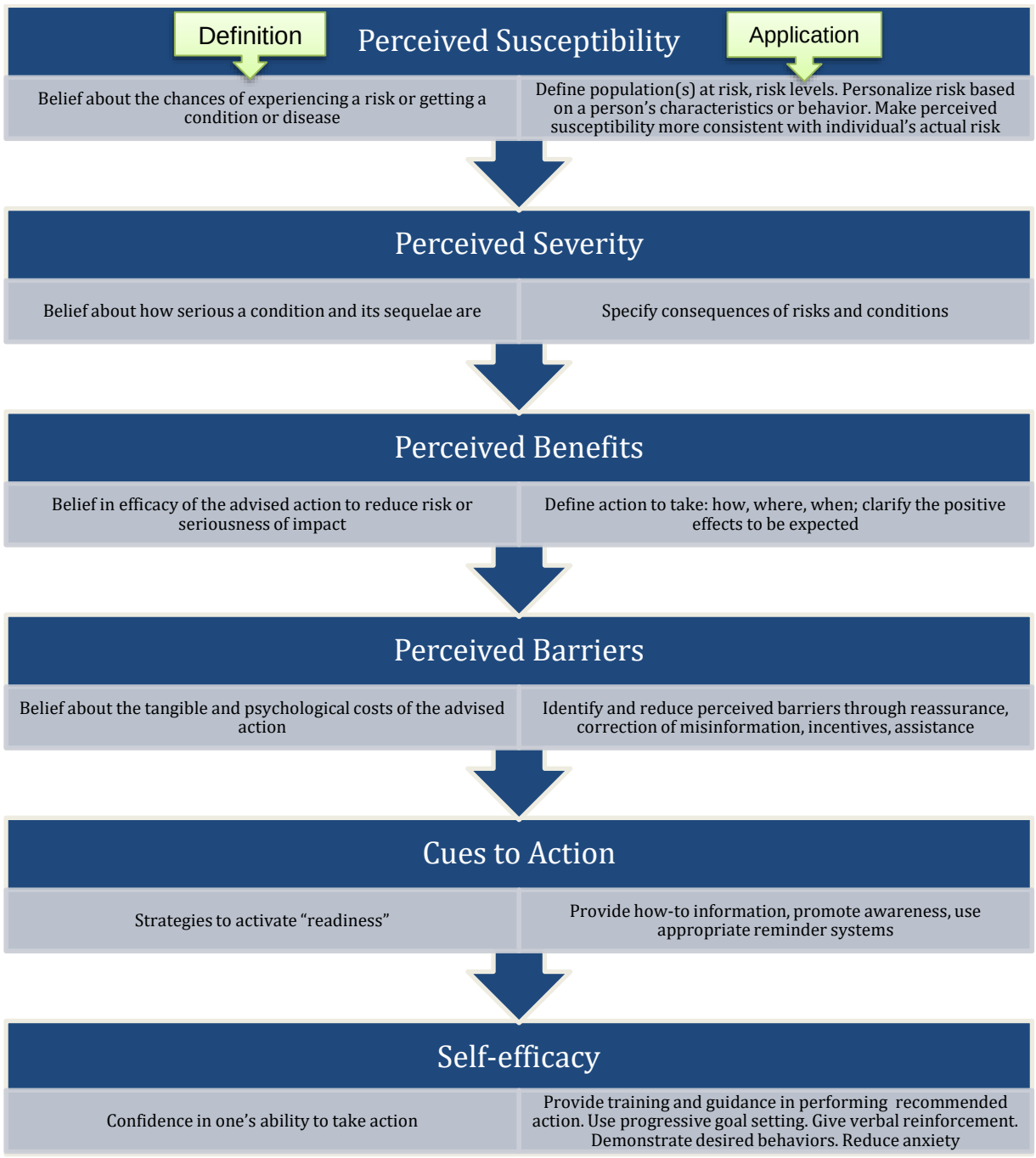

Figure: 2.4 Health Belief Model Concepts *(Adapted from Champion et.al, 2008)*

The Health Belief Model by Glanz et al. (2015), Figure 2.3 is grouped into three categories which are the modifying factors, individual beliefs and cues to the action of individuals. Some of the modifying factors identified in this model are identified in this study as variables. Four of the variables matching these modifying factors are identified, which are age, gender, socioeconomic and knowledge. With regards to knowledge, the study sought to discover a positive relationship between women's knowledge and the utilisation of VCT services. This knowledge variable anticipates finding a positive relationship between women's knowledge and utilization of VCT In the same breath; the study wanted to point out that socio-economic and demographic factors can influence HIV VCT.

The HBM (figure 2.3) further indicates that of the six concepts, the first two, perceived susceptibility and perceived severity represent the perceived threat, which in this case refers to the perceived threat of HIV and AIDS infection among women of childbearing age. The perceived threat or risk perception may set the stage for contemplating risk reduction strategies and for enhancing the urgency or motivation to avert the threat (Nareswara, Murad and Afriandi, 2016).

The perceived benefits of these women need to believe that taking a certain action will help them to avoid or prevent a problem from occurring. It is this belief that gives a person confidence to take the action because of the expected outcomes (Tarkang and Zotor, 2015). This further proposes that the belief about the effectiveness of preventative measures on HIV and AIDS should correlate positively with their consistent use (Tarkang and Zotor, 2015). Perceived benefits are beliefs about the effectiveness of recommended preventive health actions for example, consistent and correct condom usage during sexual intercourse to prevent HIV and AIDS.

The perceived barriers in the model affect people's decision to take particular actions. These barriers to health actions include phobic reactions, physical as well as psychological barriers, accessibility factors, personal characteristics, and possible hindrances to engaging in preventive behaviours. In such factors, there are costs, inconveniences and unpleasantness (Jones and Bartlett, 2010). Perceived barriers also include costs, duration, the complexity of the deserved behaviours and access to services that would support taking and maintaining the required actions. It is only when

people realise that they can deal with these barriers, that they would be able to take the necessary actions (Tarkang and Zotor, 2015).In the current study, the perceived benefits and barriers are thought to account for people's readiness to act.

The concept of cues to action refers to the events or experiences that fuel a person's direct need to take action. This will benefit one by knowing how to deal with the expected barriers. It requires motivation on the part of the person to have the desire to comply with the prescribed action or treatment, to have concerns about health matters, to be willing to seek and accept health care and to employ optimistic health activities (Moges & Amberbir, 2011).

Self-efficacy is the strong point of an individual's belief in one's own ability to respond to different or difficult situations and deal with any associated problems or hindrances. (Tarkang and Zotor, 2015). One should feel that one is capable of taking the necessary action appropriately to ignite self-confidence that would motivate one to initiate and sustain the action. In this literature, self-efficacy refers to confidence in one's ability to use VCT (Moges & Amberbir, 2011).

2.4 CONCEPTUAL FRAMEWORK

In this chapter, we discuss the conceptual framework of this study as it relates to HIV and AIDS voluntary counselling and testing (VCT).

2.4.1 The HIV and AIDS testing and counselling

Becker et al. (2009) report that in 2007, the World Health Organization (WHO) issued guidelines recommending that countries and organizations adopt PITC to increase HIV testing rates. These guidelines were developed because HIV testing rates and knowledge of HIV status remained low, globally, despite increased access to HIV treatment, care, support, and prevention services. The introduction of provider-initiated counselling and testing (PITC) in addition to client-initiated counselling and testing known as VCT was proved to be an effective public health intervention that could increase access to HIV counselling and testing (HCT) and maximise opportunities for testing (Becker et al. 2009).

The PITC allowed the health care provider to habitually offer and recommend an HIV test to all clients, regardless of the medical diagnosis. The main objective is to integrate HIV testing into the routine of medical care by facilitating early diagnosis. With the implementation of PITC, family practitioners professionally clinically benefit from the client's HIV status by allowing appropriate clinical decisions to be made and also enabling all clients to know their status. Early diagnosis improves the health outcomes of HIV-positive patients and ensures that they are provided with information to reduce transmission (Makhunga-Ramfolo, Nondumiso et al., 2011)

Provider-initiated HIV testing and counselling is recommended by healthcare providers to test and counsel individuals attending healthcare facilities as a standard component of medical care. The main purpose of testing and counselling is to enable precise clinical decisions to be made and/or exact medical services to be offered that would not be possible without knowledge of the person's HIV status (WHO and UNAIDS;2007).

Therefore, the health facilities need to ensure that women who have been identified as HIV-negative obtain any necessary immediate support. This will help to prevent becoming infected during pregnancy and breastfeeding period, which is an opportune time at which the risk of mother-to-child transmission is high if women seroconvert. HIV-positive women should be encouraged to engage and propose HIV testing and counselling to their male partners.

Another aim of Provider-initiated HIV testing and counselling is to identify unrecognized or unsuspected HIV-infected persons so that they start to attend health facilities. The Health care providers may recommend patients in some settings even if they do not have obvious HIV-related symptoms or signs. These may benefit from knowing their HIV-positive status to receive specific preventive and therapeutic services. Therefore, HIV testing and counselling has been recommended as a package of service to be provided to all patients during all clinical interactions in the health facility (WHO & UNAIDS, 2007).

Voluntary Counselling and Testing (VCT) for HIV, as a rule, includes two counselling sessions: one preceding taking the test known as "pre-test counselling" and the other after the HIV test when the outcomes are given, frequently alluded to as "post-test counselling". Counselling concentrates on the infection (HIV), the disease (AIDS), the test, and positive conduct change (UNAIDS, 2000).

An observation by UNAIDS (2002) has revealed the advantage of participation in VCT. According to them, learning of zero-status through VCT can be an inspiring exercise for HIV-positive and - negative individuals alike to embrace more secure sexual conduct, which empowers seropositive individuals to keep their sexual spouses from being infected and the individuals who test zero-negative to stay negative. This involvement, likewise, encourages access to prevention services for zero-negative people and is a key access point to care and support services for HIV-infected individuals. This incorporates access to interventions to lessen mother-to-child transmission (MTCT) of HIV, involvement to prevent opportunistic infections(e.g. tuberculosis preventive treatment and prophylaxis for different infections) and other medical and strong administrations that can help HIV-positive individuals to live more years and healthier lives (UNAIDS, 2002).

2.4.2 Benefits of HIV counselling and testing

Voluntary HIV Counselling and testing advantages women who need to end up pregnant (UNAIDS 2000). For women who test positive, counselling sessions can help to choose whether to proceed with their desire to have children and explore family planning choices. For women who have already conceived and who test zero-positive, counselling can help them settle on choices about ending their pregnancy. During such sessions that the health practitioners will discuss the use of interventions such as azidothymidine (AZT) to reduce the risk of transmitting HIV to the unborn child. Infant feeding choices can also be discussed where possible (Becker et al. 2013).

UNAIDS and USAID 2000 advise that there are advantages to participating in VC. Their argument is that can help the infected to arrange for their future and the fate of their independents. Cash support and in-kind can be obtained for the individual whose financial position renders them incapable of affording needs pertinent to their condition. (UNAIDS, 2000; USAID, 2000).

The two organisations above, have established yet another advantage of VCT. They claimed that although immediate concomitant emotional needs post-testing may be met by the counselling service a few patients may never less; require longer treatment and the attention of individuals following testing may be met by the counselling service. With the view to complement the above, other auxiliary and yet crucial services such as spiritual traditional medicines and or care groups can be orchestrated all services accessible for individuals who test positive such as spiritual services, traditional medicines or care groups can be orchestrated (UNAIDS, 2000; USAID, 2000).

Other than its part in the prevention and management of HIV transmission and in addition as a gateway to care for those infected, VCT might likewise assume a part in advancing a more noteworthy social acknowledgement of the epidemic. It is contended by UNAIDS that far-reaching uptake of VCT within communities can help to standardize HIV/AIDS, decrease AIDS-related stigma and raise awareness of the epidemic (UNAIDS, 2001).

There are three beneficiaries of PITC immerging from the client's knowledge of the HIV status. Among beneficiaries of the above are the individual concerned, the provider and the community to the client's awareness of their HIV status of PITC in knowing the client’s HIV status can have benefits. This is so because knowing one's status, empowers individuals to undertake precautionary measures against being infected with HIV. It informs them regarding maintaining their negative status with more focus on behaviours or lifestyle choices. For HIV-positive people, knowing their status ensures that they can be provided with the appropriate treatment, care and support services, which assists them to live with the virus positively.

Couples who know their HIV status are empowered to make safer choices concerning sexual behaviour for example condom use in discordant couples, implementation of positive living strategies, and accessing treatment for the prevention of mother-to-child transmission (PMTCT) of HIV. PITC enables medical practitioners to treat their clients appropriately by identifying those who need treatment and/or wellness programmes early. This assists health care providers to improve the quality of medical care rendered to their clients and reduce morbidity and mortality. PITC assists in reducing

stigma among the community members by making HIV testing the norm. It leads to the expansion of care and support services that deal with the demand for services.

2.4.3 The Effectiveness of HIV counselling and testing in preventing and controlling transmission

2.4.3.1 VCT

The main goal of voluntary counselling and testing for HIV is to provide people with the opportunity to learn their HIV status and cope with the results given. For those who test positive, VCT helps to reduce their risky sexual behaviours and access care as well as support services. For clients whose test result is negative, VCT serves as a strong motivating factor to remain negative and clinically cautious take care of.

Efficacy studies hitherto conducted on the impact of VCT in bringing behavioural change have not yielded conclusive results. Most importantly, some of these studies in developing countries have demonstrated that VCT is fruitful in helping clients diminish risk behaviours (UNAIDS, 2001; VCT adequacy study amass, 2000). The studies uncovered that subjects demonstrated a decrease in unprotected sex with steady and casual partners in addition to that, there was evidence of consistent reliable condom usage after a VCT intervention program. On the other hand, in these studies, it was particularly HIV-positive participants and HIV zero-conflicting couples who decreased their risk behaviour post VCT intervention. This implies that VCT has not brought any critical conduct change among participants who tested negative.

A study conducted in Uganda, on the other hand, showed that individuals who underwent voluntary counselling and testing reported safer sexual practices (behaviours) as compared to those who didn't regardless of their zero status (Muller et al., cited in Solomon et al., 2004). A similar result was also reported by researchers who addressed the youth as their research subjects. Among the 235 youth who have experienced VCT, the majority expected to embrace more secure sexual practices, after the test. These incorporate abstaining from sexual practices, rehearsing monogamy, utilizing a condom or diminishing the number of partners with whom they have sexual intercourse (Horizons, 2001).

Some research findings failed to support that VCT facilitates behaviour change. In zero-negative individuals in most cases are much of the time puzzled by the supposition that expanded condom use which is frequently used to measure behaviour change may not be a suitable result measure for zero-negative people. As indicated by the research team who studied the youth in Kenya and Uganda, many individuals; especially, adolescents use VCT (or repeat HIV test) to set up a new monogamous relationship with the definite goal to stop condom utilization (Solomon et al., 2004).

Muller et al., cited in Solomon et al., 2004 The study conducted in Uganda, for instance, uncovered that 27 per cent of the participants were taking an HIV test in light of an arranged marriage or another new relationship. This was common in the case of couples coming for VCT where 84 per cent were planning a new marriage relationship (Muller et al., cited in Solomon et al., 2004). At the point when the research participants were engaged, there were asked about the change in response to a negative test result. The responses elicited from them demonstrated that the majority 81% mentioned marriage as the goal; this was followed by monogamy at 17% widely recognized The utilization of condoms was upheld just by 2% of the respondents (Solomon et al., 2004).

Critics argue that investigations that were unable to demonstrate the preventive efficacy of VCT were in general questioned for their methodological limitations (Solomon et al., 2004). One of the methodological limitations reported by critics is that most studies that attempted to investigate the preventive goal of VCT did not constitute randomized controlled trials. This resulted in the efficacy becoming extremely difficult. The second methodological constraint with VCT viability studies is that adequacy is normally measured as far as two behavioural outcomes reported condom use and rate of zero-conversion (Girma, S., & Enquselassie, F. 2009).

However, with the view to build up the adequacy of VCT, researchers have tended to disregard that result measures based on sexual behaviour are both unreliable and inappropriate (Solomon et al., 2004). This is because VCT may not likely be powerful to rearrange human sexual behaviour. Besides, self-reported behaviour change may not be reliable. A third methodological limitation of previous research investigations on the efficacy of VCT is that VCT is not well defined by the researchers with the result

that there can be important differences in terms of the key aspects of VCT (for example, length and/ or the number of counselling sessions) (Solomon et al., 2004).

2.4.3.2 Provider Initiated Testing and Counselling (PITC)

According to WHO (2007), Provider-initiated HIV testing and counselling presents an opportunity to ensure that HIV is more systematically diagnosed in health care facilities to facilitate patient access to needed HIV prevention, treatment, care and support services.

Another study conducted on the phenomenon was conducted by Kennedy et al (2013). This was a systematic review aimed at evaluating the impact of PITC in low- and middle-income countries on HIV risk behaviours and treatment-seeking behaviours of participants before and after the intervention and/or as compared to those who were not exposed to the intervention. In this review, the researchers defined PITC by 2007 WHO guidelines. The procedure for the study has to be as follows, HIV testing had to be initiated by a provider using either an opt-in or opt-out approach and conducted in a healthcare setting where individuals were seeking healthcare services other than HIV testing. Individuals, couples or groups taking, part in the study, had to receive pre- and post-test counselling about HIV, and an HIV test, and have the opportunity to learn their HIV infection status (Girma, S., & Enquselassie, F. (2009).

The Kennedy et al. systematic review is consistent with past findings that HIV testing uptake increases with the PITC approach. Since HIV testing is a precursor to caring and treatment-seeking for those who test positive and has proved itself requisite decision making about HIV prevention, this is an encouraging finding. However, the effect of HIV testing on other outcomes showed mixed results (Girma, S., & Enquselassie, F. 2009). Topographical view evidence suggests that the use of provider-initiated testing and counselling may result in improved condom use. Studies measuring nevirapine initiation in HIV-positive pregnant women, communication among partners, and various other outcomes had less decisive results. In general, there are few negative outcomes associated with PITC, and PITC appears to generally lead to at least as much behaviour change as client-initiated testing and counselling or VCT (Makhunga-Ramfolo, Nondumiso et al. 2011).

Makhunga-Ramfolo, et al.,(2011) states that PITC has increasingly proved itself is a crucial strategy towards the prevention of HIV post-test care, treatment and support services. The availability of HIV rapid tests and results given on the same day has increased access to accurate, reliable and cost-effective diagnoses. The relationship between medical practitioners and their patients places them in an ideal situation to offer patient-centred care, which allows for better decisions to be executed. For patients visiting medical practitioners, PITC is a very important and effective model that forms part of prevention strategy and serves as the gateway to accessing care, support and treatment services (Makhunga-Ramfolo, et al., 2011).

2.4.4 Determinants of Provider-Initiated HIV counselling Testing and CT Voluntary HIV Counselling and Testing

The similarities between PITC and VCT are voluntary and require consent from the client. In both models, testing is always performed in the best interest of the client. It is also in keeping with accepted principles of medical ethics, and in both approaches, HIV results are always reported back to the client. In both models, the client is supported to deal with the HIV test results, and counselling always precedes and follows testing (WHO, 2007, Moosa, M. Y. H., & Jeenah, F. Y. (2013).

PITC and VCT have many differences and the medical practitioner needs to be able to tease them apart. The following shows the differences:

Table 2.1 PITC and VCT

PITC	VCT
The individual is seeking medical care and HCT is recommended and performed by a medical practitioner as part of the consultation	The individual chooses to seek HCT
Services provided are confidential and documented in the medical record to ensure continuity of care	Anonymous or confidential services may be offered
The primary focus is on identifying HIV-infected people and linking them with the prevention, care and treatment services	The primary focus is on preventing HIV acquisition through risk assessment, risk reduction and testing
Verbal consent is required and should be documented in the patient record	Written consent or thumbprint for illiterate clients is required
The first user of the test result is the health care worker to make a correct diagnosis and provide appropriate treatment	The first user of the test result is the client, who uses the information to make personal life decisions

Source: Makhunga-Ramfolo, Nondumiso et al. 2011

Factors that influence acceptance or refusal of VCT could be characterized as socio-demographic, cognitive, behavioural (psychological), and organizational of the VCT service delivery (NGVCT, 2003). Women usually seek HIV tests while they are healthy. Having HIV symptoms and feeling sick are from time to time reasons that tested youth have given (Horizons, 2001). For figuring out their zero-status, the refereed reason that tested youth gave for getting HIV test was to know: their HIV status, distrust of partners, being worried, exposure to HIV risk, pregnancy, service provider referral, the decision by parent or Health workers, without their knowledge and plan to marry (Makhunga-Ramfolo, Nondumiso et al. 2011).

2.4.5 Socio-demographic determinants

2.4.5.1 Sex

Concerning sex, research indicated that there are some inconsistencies, but sex becomes one of the demographic factors for the acceptance of voluntary HIV counselling and testing. In one study conducted by McGarrigle (2005), 9% of men and 4.6% of women tested for HIV. In the study, gender disparity was seen as a critical component influencing the uptake of VCT in women. Further to the above the study also revealed that trepidation of an accomplice's response and negative attitude of

mind towards testing always acts to restrain the number of women who decide to be tested (Maman et al. 2005). Another study done by Mengesha (2006) in Gondar yielded some encouraging findings in a situation where more women than men are affected by HIV and AIDS in a social context where there is gender inequality (Mengesha, 2006).

2.4.5.2 Age

Age is also one of the demographic factors for the acceptance of voluntary HIV counselling and testing. Research indicated that age is an important VCT acceptance, and in particular, this refers to the age at first sex as an important determinant of HIV infection. According to Shrestha (2015) the first sexual intercourse at or before age of 16, is a strong marker for future poor sexual health and risk behaviours patterns (Shrestha, 2015). Further to that, there is a growing body of literature that reports that sexual initiation at a younger age has been associated with unintended adolescent pregnancy, and the risk of acquiring sexually transmitted infections (STIs). This may include HIV and AIDS and subsequent risk behaviours later in life which include having multiple sexual partners, higher sexual risk-taking behaviours and more-negative attitudes towards condom use. Shrestha (2015) observes that significant declines in the median age at first sex, in some countries globally, have raised alarm concerns regarding associated negative health outcomes and the overall effectiveness of ongoing STIs/ HIV prevention efforts on girls and women.

2.4.5.4 Marital Status

Marital status is also one of the demographic factors for the acceptance of voluntary HIV counselling and testing. Some researchers such as Shishana (2004), reported that marital status will be considered a determinant of voluntary HIV counselling and testing. HIV prevalence and risk of infection were higher in unmarried women than in others on the sociodemographic. The risk of HIV infection is still significantly higher in unmarried persons compared with married persons (Shishana, 2004). In support of the above Johnson and his colleagues, aver that VCT acceptance is associated with older age, marriage and living with a partner.

2.4.5.5 Age at First Sex

Age at first sexual intercourse is an important determinant of HIV infection. First sexual intercourse at or before age of 16, is a strong predictor of future poor sexual health

and risk behaviours patterns indicated by Shrestha R, Karki P, et al. (2015). Literature abounds with arguments which insist that sexual experience at a younger age has been associated with, among others, susceptibility to sexually transmitted infections such as HIV and AIDS. This personality deficit may lead to risk behaviours later in life. This may result in multiple sexual partners and higher risky behaviour which may manifest in the form of a negative attitude toward condom use and subsequent indulgence in risky behaviour. The continued declines in the median age at first intercourse in numerous countries globally have raised alarm regarding the association between negative health outcomes and the overall efficacy of ongoing STIs and HIV prevention efforts on girls and women (Shrestha, 2015).

2.4.6 Cognitive Determinants

2.4.6.1 Attitude towards Voluntary HIV counselling and testing

A significant number of people in high HIV prevalence countries such as South Africa are aware that VCT services are available at different sites such as hospitals and freestanding VCT centres. In any case, a little proportion of the population thinks about the accessibility of VCT tests for HIV. Among the reasons why numerous people may not avail themselves of HIV testing can be the negative impression of testing administrations. Such an attitude demonstrated a leading barrier for high-risk individuals in the United States. In a study of gay men and adults accepting sexually transmitted public centre services, people who saw more constructive and less unfriendly results from HIV testing were more inclined to have been tested when contrasted with the individuals who did not (Kalichman & Simbayi, 2003).

2.4.6.2 HIV knowledge, perception and practice as determinants of VCT uptake

HIV knowledge is a significant predictor of a positive attitude toward VCT (Sherr, et al. 2007; Mmbaga et al. 2009; Weiser et al. 2006; Adewole & Lawoyin 2004; Iliyasu, et al. 2006; Gaje & Ali 2005). In Blantyre, Malawi, the chief rationale for yielding to an HIV test was the participant's recent knowledge about HIV, followed by ill health as the second most important (Jereni & Muula, 2008). Weiser et al. (2006) established that more frequent healthcare visits predicted an increased likelihood to use VCT services. On the other hand, Weiser et al. (2006) observed that people with a stigmatising attitude to people living with HIV/AIDS are less likely to use VCT. Another

predictor of HIV testing is, reportedly, the awareness of antiretroviral therapy (Mmbaga et al., 2009).

Weiser et al.(2006), as well as Gaje and Ali (2005), concur that a history of sexual risk behaviour, including paying for sex and inconsistent condom use increases testing uptake. This idea is expanded by Mmbaga et al. (2009). Their study which was based in Tanzania argued that recent sexual risk-taking behaviour was implicated in the non-completion of HIV testing. An additional variable to the above is discovered by (Jiraphongsa et al. 2000) in Thailand. These researchers established that previous encounters with sexually transmitted disease, being previously married, and having participated in AIDS-related activities were factors associated with the acceptability of HIV testing. Vulnerability to HIV, and not having thought about it, are the most common reason for not testing among women. Several other variables are implicated this authors. These include: prior HIV testing, spousal communication about HIV prevention, self-perceived risk of being HIV infected and knowledge of a neighbourhood test site.

2.4.6.3 Family and community support for testing

The positive attitude of family members and friends to VCT is implicated in the shaping of VCT uptake by young people (Denison et al. 2008). Young people seem to have the propensity to disclose their HIV status, predominantly, to family and friends, and infrequently to sex partners (Denison et al., 2008). (MacPhail et al 2008) further, reinforce this as they self that these youth felt that they would disclose their HIV status to family members who they felt would be most supportive.

2.4.6.4 HIV stigma and impact on testing

Stigma has also been identified as one of the potent determinants of HIV testing and counselling uptake. Bwambale et al., (2008); Zhou et al., (2009); Jereni and Muula (2008); Iyaniwura (2008) Oloyede (2006); Mmbaga et al., (2009) and Liyasu et al. (2005) all conquered that the fear of isolation and the need to maintain marriage security in the community were key reasons for not accessing VCT in northern Nigeria. In the context of PMTCT, Maedot et al. (2007) confirm similar trends in Ethiopia. It states that the fear of a husband's negative reaction, stigma and discrimination and denied access to medical care, were key determinants of VCT uptake. Raising the

effect of stigma further in Nigeria, Ekanem and Gbadegesin (2004) state that, even in the context of PMTCT, many women still prefer to breastfeed despite the knowledge of their own HIV status. This is because of fear of being perceived as different in the community and being stigmatized.

2.4.6.5 Stigma and Discrimination

Stigmatizing attitudes among society toward persons living with HIV and AIDS is one of the obstacles to people not getting access to voluntary counselling and testing. In a national survey of adults in the United States, for example, Herek and his associates (2009), found that 38 % of the respondents expressed their concern about stigma, if they tested HIV positive, and 44 % of the clients who expressed this concern indicated that stigma influences their decisions to undergo HIV testing (Kalichman & Simbayi, 2003). Similarly, a study conducted in the same nation by Stall (2015) and his colleagues on homosexuals revealed that two out of the three homosexuals who were unaware of their HIV status were worried about AIDS-related stigma. This was a decisive factor in their decisions not to undergo voluntary HIV counselling and testing (Solomon, Chakraborty, Yepthomi, & Detels 2004).

Besides the western research reports on the role of stigma and discrimination as an important factor for people's reluctance to learn their HIV status through VCT, studies conducted in the African context have also disclosed that this barrier is a determinant for people not to get access to VCT. In a sample study of South African mineworkers, just 1/3 of whom had experienced VCT, fear of testing positive for HIV and potential outcomes, for example, stigmatization, disease, and death were recognized by the respondents as the primary barriers to testing (Day, Miyamura, Grant, Leeuw, Munsamy, Baggaley, & Churchyard, 2003). In the analysis of calls to the National AIDS Helpline in South Africa, Birdsall (2004) and his colleagues also noted that fear of stigma and discrimination emerge to be one of the most important concerns for callers. This worry was confirmed from counsellors discussions as outlined as "a great deal of guests telephone in, they need to get tested; they need to know their status, yet they fear how their families, companions or (community) may respond, and also fear the possibility of being positive itself. (Birdsall, Hajiyiannis, Nkosi, & Parker, 2004).

2.4.6.6 Fear of Mental anguish and depression

Knowing one's HIV-positive status in connection with a stigmatizing society and with no subsequent support service or treatment can be unfavourable to a man's mental and physical wellbeing (Vandyk & Vandyk, 2003). A study by Macintyre, et al.(2003) for example, showed that mental sentiment anguish and depression are reported by clients who trusted that there is nothing they could do about being HIV positive (Macintyre, et al., cited in Vandyk & Vandyk, 2003).

In their examination of the outcomes of reporting HIV zero-energy to women in African settings, Gaillard and his partners found that 15 % of the HIV-positive respondents felt that it would have been exceptional not to know their status. This was so because they were discouraged as an after effect of finding their positive HIV status since there is no cure for the infection, and thus nothing they could do about it. A comparative result was likewise reported in a study where the larger part of sex workers in South Africa, who were willing to be tested on monthly basis for HIV, did not need a positive result revealed to them. They trusted that Knowledge of a positive result would bring about mental anguish that would threaten their relationships with steady partners and that they would lose their clients and income (Morar & Ramjee, cited in Vandyk & Vandyk, 2003). Vandyk and Vandyk's national survey in South Africa, similarly confirmed that fear of mental anguish and depression was an important barrier for people not to decide to get access to VCT. 86 % of their research participants felt that it is not prudent for somebody to know his or her HIV status or to go for VCT in the absence of any possibility of follow-up care and support as it causes depression, despair and death.

2.4.6.7 Concern about the confidentiality of VCT

Confidentiality is one of the issues that worry individuals when they consider knowing their HIV zero-status. A few researchers reported that clients on a basic level are not against VCT, but rather they have genuine questions and are nervous about the secrecy of HIV test results. Fear of lack of confidentiality is in this manner an essential hindrance that keeps numerous people from taking an interest in VCT programs (Vandyk & Vandyk, 2003).

In an investigation of individuals not tested before, and who did not plan to be tested, Phillips and his partners (cited in Vandyk and Vandyk, 2003) found that: women in steady relationships, black people, youngsters and those with a lower salary were just ready to be tested if nobody else could have entry to their results. Thus, among sexually active American young people, it was found that 35% of the respondents did not trust or did not realize that the HIV test outcomes were kept in confidence, and 19% thought that counsellors or health personnel would disclose their zero-status to others if the result turned out to be positive (Peltzer, Nzewi & Mohan, 2004).

2.4.5 Prevention of HIV transmission

One of the essential steps in the control of the HIV epidemic is the recognizable proof of the individuals infected with the disease combined with endeavours to intrude on the transmission. Studies in developed countries exhibited that voluntary counselling and testing have prompted self-reported changes in high-hazard sexual behaviour between both HIV-positive and negative clients (Solomon et al., 2004). The current body of evidence is particularly strong for VCT as a device to help HIV-positive persons to diminish their high-risk behaviours to abstain from spreading the sickness to uninfected ones. In addition to its part in the prevention of HIV transmission, HIV counselling and testing is a crucial step to recognising the individuals who are HIV positive to adequately interface them with HIV treatment, care and support service. These services incorporate the prevention of HIV-related diseases, mental, social, legal and family support (USAID; 2000).

2.5 CONCLUSION

Chapter 2 has discussed the importance of VCT, being the heart of the intervention; the chapter has also looked at the benefits relating to both HIV prevention and improved treatment outcomes for AIDS. The researcher paid attention to variables such as demographics, HIV knowledge and perception on the one hand, and the design of VCT services and family and community support on the other, which seem to shape VCT uptake in various contexts. Programmes to promote VCT interventions need to be based on an understanding of the operation of these variables in specific contexts if they are to be successful. This study sought to test some of these arguments in the context of South African women. A conceptual framework serves as

an establishment on which a study is based and enables the researcher to find what is known or unknown about a topic of interest to conduct research that adds to the body of knowledge already existing on the phenomenon.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the methodology adopted to achieve the study objectives. It includes a description of the study design, data source, study population, study sample, data collection procedures, and data analysis. Ethical considerations and expected study limitations are included as part of the chapter.

3.2 RESEARCH DESIGN AND METHODS

Every study, as well as this study, needs to answer the what, the where, the why, and the how of the research. These four questions should be answered in the research methods and design section. It is; therefore, the intention of this section to answer the four questions referred to in this paragraph. The study will also start by defining what methods and designs are. Regarding research methods, Leavy (2017) stipulates that the selection of the research method should be based on their ability to best address the study in question. The author further postulates that the methods should also address the research purpose and help to test the researcher's hypothesis. Interestingly, Cohen, Manion and Morrison (2018:175) purport research design to be

> ...a logical rather than a logistical matter, i.e. concerned with the overall blueprint – the architecture – rather than the 'nuts and bolts of how to carry out that plan (the implementation of the plan and the building materials to be used).

The preceding paragraphs will unpack the research design and research methods of the study.

3.2.1 Research Design

In congruence with Cohen et.al (2018), it is pivotal to have a rigorous research design in the research process. The rigorous research design will assist in making the study meaningful. Well-planned research starts with the overall purposes of the research

and is then followed by the research design. This process helps to sequence and connect the empirical data to the research questions and their conclusions (Cohen et.al, 2018). Given the plethora of research designs, this study adopted the survey research design as per the original study conducted by the South African Demographic Health Survey (SADHS). This social science study uses secondary data, hence the study adopts the same design as the source.

Leavy (2017) and Neuman (2014) emphasize that survey research is most widely used in quantitative social science research, such as this study. Although the survey requires serious effort and thought, Neuman (2014) exclaims that it can provide us with accurate, reliable and valid data. Fowler (2014) cited by Leavy (2017) outlines common uses of survey research, which include the census that is a responsibility of Statistics South Africa, in SA; polling on political issues or public opinions; and market research. In terms of South Africa, SADHS would be included. Most importantly, Leavy (2017) highlighted that surveys rely on asking people standardized questions that can be analyzed statistically. These standardized questions according to Neuman (2014) are based on six categories, which are behaviour, attitudes (beliefs and opinions), characteristics, expectations, self-classification and knowledge.

Leavy (2017) identified two primary methodological designs in survey research, which are cross-sectional and longitudinal. This study uses a Cross-sectional methodology because this methodology seeks information from a sample at one point in time.

3.2.2 Research Approach

Chetty (2016: [online]) sees a research approach as a plan and procedure that consists of the steps of broad assumptions to detailed methods of data collection, analysis and interpretation. It is, therefore, based on the nature of the research problem being addressed.

Due to the nature of the design selected, the study dictates the adoption of a quantitative and cross-sectional design to gain an understanding of how variables shape the phenomenon of Voluntary HIV and AIDS Counselling and testing participation among the women population of South Africa.

This study uses a quantitative research plan to address the problem. In defining the quantitative approach, Stockemer (2019) declares that quantitative methods not only allow us to numerically describe phenomena, but it is also a primary tool to establish empirical relationships between two or more variables. Attesting to the argument, Chetty (2016) stipulates that in quantitative research, the researcher needs to understand the relationships among variables by either descriptive or inferential statistics.

This study sought to understand the determinants of HIV and AIDS VCT among South African Women. With descriptive statistics, this study can draw inferences about populations and estimates the parameters. Not only that, but it also translates into the use of statistical analysis to make the connection between what is known and what can be learned by research. Overall, Leavy (2017) perceives a quantitative approach to value breadth, statistical descriptions and generalisability.

Notwithstanding the disadvantages of a cross-sectional study, the researcher has placed this study as a cross-sectional survey because it gathers information about individuals at a single point in time. This type of survey is conducted once and not repeated Stockemer (2019). Analysing Health Knowledge (2020) the study fits well as a cross-sectional survey because it is purely descriptive and used to assess the frequency and impact of VCT amongst South African women. Stockemer (2019) adds to the debate by highlighting that a cross-sectional survey allows researchers to draw inferences about relationships between independent and dependent variables.

3.3 DATA COLLECTION

This study uses a survey-based secondary data source. It uses one of the subtypes of a survey-based secondary data source known as census, which according to Park's (2006) sampling rate is 100%. Park (2006) highlighted the disadvantage of the census as becoming out of date quickly and can be valid for only ten years. To curb the mentioned challenge, the study used the 2016 Demographic and Health Survey (DHS) data that was conducted by Statistics South Africa (Stats SA) in partnership with the South African Medical Research Council (SAMRC). The researcher used the 2016 SADHS data because it is the latest data that provide information on VCT services in

the country. Although the data collected was focused on general health care issues of women in South Africa, variables that suit this study, such as; socio-economic demographics, knowledge of HIV and AIDS, attitude towards HIV and AIDS on VCT and sexual practices and risk perceptions were available in the data.

3.3.1 Data Collection Instrument

The instrument used as the individual woman's questionnaire was derived from the SADHS 2016. The questionnaire is based on The DHS Program's standard Demographic and Health Survey questionnaires and adapted to reflect the population and health issues relevant to South Africa. The questionnaire was prepared in English and then translated into South Africa's 10 other official languages. The Woman's Questionnaire was eligible for women aged 15 and older. In all households, eligible women aged 15-49 were asked questions that related to the study.

3.4 POPULATION

Although this study uses secondary data, already collected from a specified population, the researcher chose to draw her population from a pool of women in their reproductive age group from the ages 15 to 49. These women were sexually active at the time of data collection. The population generally can be defined to mean a group or set of elements that you want to know more information about. The study intended to draw data from women aged 15 to 49 only and not the entire population targeted by the original study. Stockermer (2019) states that a population is a group of subjects, which can be referred to as the elements from the time that the researcher would gather information.

3.6 SAMPLING

In line with Leavy (2017), once the researcher identifies the element she is interested in and the population, she has to determine the sampling frame. This sample frame is referred to by Stockemer (2019) as a subset of the population the researcher examines to gather data. In a nutshell, a sample is the number of individual cases that the researcher draws and generates data from (Leavy, 2017).

The original study by SADHS (2016) used the Statistics South Africa Master Sample Frame (MSF), which was generated using Census 2011 enumeration areas (EAs). The MSF and EAs are treated as primary sampling units. The small neighbouring EAs were grouped to form new primary sample units, and large EAs were split into concrete primary sample units. The SADHS (2016) followed a stratified two-stage sample design with a probability proportional to size sampling of PSUs at the first stage and systematic sampling of Dwelling Units (DUs) at the second stage. In the second stage of selection, a fixed number of 20 DUs per cluster were selected with a systematic selection from the created listing. All households in a selected DU were eligible for interviews (SADHS: 2016).

Since this study focuses on the determinants of HIV and AIDS VCT among South African Women, the study only sampled women in their reproduction ages between 15 to 49 years. However, the study uses data of all women of the said age regardless of their race and settlement. The study employed three sampling techniques to frame this study. The first technique is convenience sampling, which a non-probability is sampling because the sample of the study is drawn from the available population that is close to hand. Secondly, the study used a purposive sampling technique. The rationale for this choice is that the population selected amongst the data available is that the study focuses on women who are sexually and aged between the ages of 15 to 49. The last suited sampling technique is stratified sampling. With this technique, the study organized the population into strata according to tables 3.1, 3.2, 3.3, 3.4, and 3.5.

3.7 VALIDITY AND RELIABILITY

The validity and reliability of the data were measured after data collection. The SADHS 2016 files were transferred via the IFSS to the Stats SA head office in Pretoria, where they were stored on a password-protected computer. The data processing operation included secondary editing, which required the resolution of computer-identified inconsistencies and coding of open-ended questions (NDoH, Stats SA, SAMRC, and ICF. 2019).

3.8 DATA ANALYSIS

Statistical Package for Social Sciences (SPSS) version 25 statistical packages (IBM SPSS Statistical for Windows, Version 25.0. Armonk, NY: IBM Corp) was used.

Univariate analysis was used to describe the distribution of the variable in the study, followed by bivariate analysis to identify which variables were statistically significant at the 5% level. The chi-square test was utilized to assess the relationship of a few categorical independent and dependent variables. Variables that were significant at the bivariate level were then used at the multivariate level. Multivariate examinations were performed to clarify the net impact of some of the independent variables on the dependent variable, controlling for possible confounding. The binary logistic regression model was employed given that the dependent variable under investigation was dichotomous. The logistic regression predicts the log of the chances of the dependent variable as a linear capacity of the independent variables. The logistic regression model, as a rule, is appropriate; especially, when there exists a nonlinear relationship between the dependent and independent variables, also when the measured variables are categorical (Lethonen & Pohkinen, 1995). The logistic regression model predicts the log of odds of the dependent variable as a linear function of the independent variables.

To fit with the concept of odds ratio, the logistic regression model can be expressed as:

$$Log\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k + e_{i)}$$

Where Pi = Chance of the i[th] respondent being accepted VCT.

$1 - Pi$ = Chance of the i[th] not attending VCT.

$Pi/1 - Pi$ = the risk or odds of the i[th] attending VCT.

$X1, X2 \ldots Xk$ = Represents predictor variables.

e = the base of natural logarithms.

β_k= Regression Coefficients of the corresponding variable X_k.

e_i = a residual term.

3.8.1 Description of Variables

3.8.1.1 Dependent Variables

The primary variable of interest that this study presents is *"Have you ever tested for HIV"* this variable of interest is known as the dependent variable because it depends on other variables. In quantitative studies such as this study, the dependent variable has the notation 'y' (Stockemer, 2019). In this study, the dependent variable which fitted in the model was based on; the VCT practices: The practice of HIV testing was determined based on the question that "*Have you ever tested for HIV"* and this question was responded as "yes" coded 1 and "no" code 0. Those who responded positively were considered as having made use of VCT services and otherwise not.

3.8.1.2 Independent Variables

The independent variables are hypothesised to explain variation in the dependent variable. These variables are also known as explanatory variables that explain variation or changes in the dependent variable. In quantitative studies such as this one, the independent variable has the notation x (Stockemer, 2019).

The independent variables included in the analysis:

- Age at first sex
- Racial group, Black/African, coloured white, Asian/ Indian, and Other
- Residence
- Provinces
- Marital Status
- Highest Education
- Household Wealth Quintile
- Age at First intercourse
- Number of Unions
- Total lifetime number of sex partners
- Knowledge related to transmission and prevention
- Attitude towards VCT
- Sexual Practices
- Recent sexual activity
- Relationship with last sex partners

Table 3.1 Socio-Economic and Demographic Variables

SOCIO-ECONOMIC AND DEMOGRAPHIC VARIABLES	
Age	V013
Marital status	V501
Ethnicity	V131
Province	V101
Type of Residence	V102
Education level	V106
Respondents Currently working	V714
Household Quintile	V190

Table 3.2: Knowledge of HIV and AIDS

KNOWLEDGE OF HIV AND AIDS	
Ever heard of HIV and AIDS	V751

The above variables were added together in a single variable, which is namely knowledge of HIV and AIDS. The item knowledge indicator test on HIV/AIDS transmission and prevention was used to assess the women's level of knowledge. A binary response ('Yes' and 'No') was used for the questions. For positively worded statements those who choose 'Yes' were considered as knowing, whereas those who chose 'No' were categorized as not knowing.

Table 3.3: Risky Sexual Behaviour HIV and AIDS on VCT

RISKY SEXUAL BEHAVIOUR HIV AND AIDS ON VCT	
Condom use during last sex with most recent partner	V761

The items on the indicator for VCT test were used to assess risky sexual behaviour on VCT. The attitude was measured as a dichotomous variable, with either 'Yes' or 'No' as the answer.

Table 3.4: Practices and Risk Perception

Sexual Practices and Risk Perception	
Recent sexual activity	V536
Had any STIs in the last 12 months	V763A
Total lifetime number of sex partners	V836
Age at first sexual intercourse	V525

Apart from the number of unions, age at first sex, recent sexual activity and total lifetime number of sex partners, the rest of the questions were all dichotomously either 'Yes' or 'No' as an answer.

3.9 WEIGHTING OF THE CASES

According to Croft et al. (2018), sampling weights are regarded as adjustments of factors applied to each case in tabulations for the adjustments for differences in the probability of selection and interview between cases in a sample, due to either design or happenstance. In most DHS survey cases, the sample is selected with unequal probability to expand the number of cases available. Therefore, according to SADHS, the variables used in this study were weighted. In this study, weights are needed to be applied when tabulations are made of statistics to produce the proper representation.

3.10 ETHICAL CONSIDERATIONS

This study made use of existing datasets. No individual credentials or names of the respondents were available in the dataset. Subsequently, the anonymity and confidentiality of the study respondents were guaranteed. Ethical permission for the utilization of the 2016 SA Demographic and Health Surveys was acquired from ICF Macro Inc., USA.

3.11 CONCLUSION

This chapter has discussed, in detail, the methodological dimension of the study. The chapter has considered the employment of the quantitative approach, and how it was analysed. The study used survey-based secondary data, in particular the census sub-type. The next chapter, Chapter 4, discusses the data analysis and presents an in-depth interpretation of data compiled from the study.

CHAPTER FOUR
ANALYSIS AND INTERPRETATION OF DATA

4.1 INTRODUCTION

This chapter presents an analysis of the data Determinants of HIV and AIDS Testing among Women of Reproductive Age in South Africa. The study used secondary data requested from the DHSA 2016. The analysis starts with the distribution of the variables in the study, followed by bivariate analysis and multivariate analysis. The analysis is largely descriptive, using tables to present the frequencies of independent variables previously agreed on. These variables are statistically tested against the dependent variable of VCT uptake (defined in this study as accessing VCT and receiving the test result), using the Chi-square test at a 5% level of significance to determine whether the differences in the responses were statistically significant or not.

4.2 RESULTS OF DISTRIBUTION OF VARIABLES

The results in Table 4.1 show the distribution of participants according to the different socio-economic variables in the study. The study targeted 7223 women aged between 15 and 49 who were sexually active at the time of data collection. The results show that 6546 (90.6%) of respondents tested for HIV and 677 (9.4%) have never been tested.

Of the respondents, 512 (7%) of the women were less than 14 years of age when they had their first sexual intercourse. Most women reported to have had their first sexual experience between the ages of 15 and 19 5421(75.1%), compared to 1157 (16.1%) who had their experience between 20-24, and 133 (1.8%) were women older than 25. The majority of women that participated in this study were in the early age group of 20 to 29 years. A further breakdown revealed that 1261 (17.5%) of these women were 20-24 years and 1330 (18.4%) in the age group 25-29 years. The early age group is followed by a late youth group aged 30 to 39 years. The late youth group is distributed as follows: 1246 (17.3%) in the group 30-34 and 987 (13.7%) in the age group 35-39. The table further reveals that the young adults aged 40 and above tested less than 40-44 [919 (12.7%)] and 45 and above [835 (11.6%)].

The majority of the respondents 1070; (14.8%) were from Kwa-Zulu Natal, whereas 940 (13%) were from the Eastern Cape, 930 (12.9%) Mpumalanga, 887 (12.3%) Limpopo, North West 763 (10.6%), Gauteng 772 (10.7%), Free State 714 (9.9%), Northern Cape 601 (8.3%), and Western Cape 546 (7.6%). Most of these women who responded to the survey were Africans contributing 6271; (86.8%), followed by Whites, Asians and Indians 696 (9.6%) and Coloureds 256 (3.5%).

Marital status distribution of the respondents shows that the majority of the respondents, 3990 (55.2%) never in a union, while, 1749 (24.2%) were currently married, those were living with a partner (cohabitating) were 968 (13.4%), 194 (2.7%) were widowed, and 322 (4.5 %) were divorced and separated. Regarding the settlement, most of the respondents 4091 (56.6%) are from urban areas while the rest 3132 (43.4%) in rural areas.

Table 4.1 Distribution of Variables

Variable		Frequency	Percentage %
HIV Testing Experience			
Ever been tested for HIV	Yes	6546	90.6
	No	677	9.4
	Total	**7223**	**100**
Age at first sexual intercourse			
Age at first intercourse	<14	512	7.1
	15-19	5421	75.1
	20-24	1157	16.1
	25+	133	1.8
	Total	**7223**	**100**
Socio-Economic and Demographic Characteristics of the respondents			
Age	15-19	645	8.9
	20-24	1261	17.5
	25-29	1330	18.4
	30-34	1246	17.3

	35-39	987	13.7
	40-44	919	12.7
	45>	835	11.6
	Total	**7223**	**100**
Racial	Black/African	6271	86.8
	Coloured	256	3.5
	White/ Asian/ Indian and other	696	9.6
	Total	**7223**	**100**
Residence	Urban	4091	56.6
	Rural	3132	43.4
	Total	**7223**	**100**
Province	Western Cape	546	7.6
	Eastern Cape	940	13.0
	Northern Cape	601	8.3
	Free State	714	9.9
	Kwazulu-Natal	1070	14.8
	North West	763	10.6
	Gauteng	772	10.7
	Mpumalanga	930	12.9
	Limpopo	887	12.3
	Total	**7223**	**100**
Current Marital Status	Never in union	3990	55.2
	Married	1749	24.2
	Living with partner	968	13.4
	Widowed	194	2.7
	Divorced/Separated	322	4.5
	Total	**7223**	**100**
Highest Education Level	No education	168	2.3
	Primary	734	10.2
	Secondary	5506	76.2

	Higher	815	11.3
	Total	**7223**	**100**
Responded Currently working	Yes	2581	35.7
	No	4642	64.3
	Total	**7223**	**100**
Household Wealth quintile	Poorest	1470	20.4
	Poorer	1616	22.4
	Middle	1706	23.6
	Richer	1453	20.1
	Richest	978	13.5
	Total	**7223**	**100**
Knowledge related to Voluntary Counselling and Testing			
Ever heard of HIV and AIDS	Yes	6986	96.7
	No	237	3.3
	Total	**7223**	**100**
Condom used during last sex with most recent partner	Yes	2821	39.1
	No	3485	78.2
	Total	**6306**	**87.3**
Sexual Practices and Risk perception of the Respondents			
Recent sexual activity	Active in the last 4 weeks	3836	53.1
	Not active in last 4 weeks - postpartum abstinence	536	7.4
	Not active in last 4 weeks - not postpartum abstinence	2851	39.5
	Total	**7223**	**100**
Had any STDs in the last 12 months	Yes	402	5.6
	No	6821	94.4
	Total	**7223**	**100**
Total lifetime number of sex partners	1	1881	26
	2	1500	20.8
	3	1411	19.5

	4	863	11.9
	5+	1568	21.7
	Total	**7223**	**100**

The results in table 4.1 show that most of the women during their last sexual intercourse 3485(78.2%) did not use condoms, whereas 2821(39.1%) of the respondents did. This indicates that most women are still at high risk of contracting HIV and AIDS due to unsafe sexual practices.

Having sex with multiple partners without using condoms is a risk factor for HIV and AIDS transmission. Evidently, table 4.1 depicts that the majority of women contributing to 74% are having sex with multiple partners and only 26 % have sex with one partner.

4.3 RESULTS OF BIVARIATE ANALYSIS

The section identified the most important variables that determine voluntary HIV counselling and testing among the participants. Bivariate analysis is to see the distribution and existence of an association between dependent variables and each of the selected background characteristics of the respondents.

The bivariate analysis, based on Pearson's chi-square statistic, provides a preliminary insight into the association or relationship between all selected independent variables and dependent variables. For all independent variables taking one-at-a-time, a test of association was carried out using the Pearson chi-square. High values of Pearson's chi-square test for some given independent variables indicate that there is a strong association between each of the given independent variables and the dependent variable keeping the effect of the other factors constant.

Table 4.2 Bivariate Results for Ever tested for HIV and AIDS

Variables		Ever tested for HIV and AIDS		Total	Chi-Squares Value
		No (%)	Yes (%)		
Age	15-19	25.1	74.9	645	248.447***
	20-24	9.5	90.5	1261	
	25-29	5.5	94.5	1330	
	30-34	6.7	93.3	1246	
	35-39	5.8	94.2	987	
	40-44	8.3	91.7	919	
	45>	12.6	87.4	835	
	Total			**7223**	
Current marital status	Never in union	11.3	88.7	3990	46.285***
	Married	7.1	92.9	1749	
	Living with partner	6.7	93.3	968	
	Widowed	11.9	88.1	194	
	Divorced/Separated	4.3	95.7	322	
	Total			**7223**	
Racial	Black/African	9.2	90.8	6271	21.483***
	White/Asian/other	16.8	83.2	256	
	Coloured	8.0	92.0	696	
	Total			7223	
Place of residence	Urban	8.7	91.3	4091	5.753*
	Rural	10.3	89.7	3132	
	Total			**7223**	
Province	Western Cape	7.9	92.1	546	60.593***
	Eastern Cape	8.3	91.7	940	
	Northern Cape	10.5	89.5	601	
	Free State	7.3	92.7	714	
	Kwazulu-Natal	10.3	89.7	1070	
	North West	6.8	93.2	763	
	Gauteng	13.6	86.4	772	
	Mpumalanga	5.9	94.1	930	
	Limpopo	13.4	86.6	887	
	Total			**7223**	
Highest Education Level	No Education	19.6	80.4	168	43.159***
	Primary	13.2	86.8	734	
	Secondary	9.0	91.0	5506	
	Higher	6.4	93.6	815	
	Total			**7223**	
Respondents currently working	No	11.3	88.7	4642	58.661***
	Yes	5.9	94.1	2581	
	Total			**7223**	
Household Wealth quintile	Poorest	12.9	87.1	1470	34.952***
	Poorer	9.5	90.5	1616	
	Middle	7.9	92.1	1706	
	Richer	7.1	92.9	1453	
	Richest	9.9	90.1	978	

	Total			**7223**	
Total lifetime number of sex partners	1	15.4	84.6	1881	114.498***
	2	8.7	91.3	1500	
	3	6.7	93.3	1411	
	4	6.4	93.6	863	
	5	6.8	93.2	1568	
	Total			**7223**	
Condom used during last sex with most recent partner	No	8.8	91.2	3485	0.005
	Yes	8.9	91.1	2821	
	Total			**6306**	
Age at first sexual intercourse	<14	12.1	87.9	512	6.658
	15-19	9.4	90.6	5421	
	20-24	8.1	91.9	1157	
	25+	9.0	91.0	133	
	Total			**7223**	
Recent Sexual Activity	Active in last weeks	7.9	92.1	3836	46.301***
	Not active in last weeks- postpartum abstinence	5.2	94.8	536	
	Not active in last weeks – not postpartum abstinence	12.1	87.9	2851	
	Total			**7223**	

Significant at: ***P<0.001 **P(0.002-0.01) *P(0.02-0.05)

Table 4.2 presents the results of the association between HIV and AIDS testing and different socio-economic variables. It shows that testing was lowest among the youngest group, increases with subsequent age groups and decreases again after age 35-39.age of the respondents has a significant association with their HIV testing at ($\chi 2 = 248.447, P < 0.001$). 74.9% of respondents having tested for HIV belonged in the age group of 15-19years. While 90.5% of the respondents have tested for HIV in the age group of 20-24 years, 93.3%% of the respondents have tested for HIV in the age group of 30-34 years, 91.7% are for 40-44 age, and 87.4% for ages 45 and above and <19 years is 8.9%.

HIV testing varied substantially with the marital status of the respondents. Marital status has a significant association with HIV testing at ($\chi 2 = 46.285, P < 0.001$). The pattern of the relationship showed that the widowed followed by the currently never in union respondents were a higher rate of testing than other groups. That is, higher proportions 88.7% of currently never in union respondents tested for HIV, 92.9% of

married respondents, widowed 88.1%, divorced /separated 95.7 have tested for HIV and those who are living with a partner were 93.3%

As shown in the table above, there is an association between HIV testing and race ($\chi 2 = 21.483, P < 0.001$). The proportion of Blacks/Africans tested for HIV was 90.8%. Whereas, 92.0% of Coloureds and 83.2% of Whites, Asians, Indians and others.

HIV testing varied substantially from the place of residence of the respondents. More respondents 91.3% came from urban residences tested compared to 89.7% from rural areas. The association between these variables were significant ($x^2 = 5.753, P < 0.001$).

HIV testing was significantly associated with the province of residence ($x^2 = 60.593, P < 0.001$). The prevalence of HIV testing by province, was 92.1% in Western Cape, 91.7% in Eastern Cape, in Northern Cape 89.5%, 92.7% in Free State, 89.7% in Kwazulu-Natal, 93.2% in North West, 86.4% in Gauteng, in Mpumalanga 94.1% and 86.6% in Limpopo.

As shown in Table 4.2, there is an association between HIV testing and the level of education ($x^2 = 43.159, P < 0.001$). The results showed that testing increased with every level of education. The proportions of the respondents testing were 80.4% for those with no education, increasing to 86.8%, 91%for those with primary and secondary levels of education and 93.6% for those with a higher level of education. The respondents currently working had a higher percentage of people testing with HIV have a significant association ($x^2 = 58.661; P < 0.0001$) respondents not working were 88.7% and those working 94.1%. On the other hand, the results indicate that women coming from a household with the lowest income index had a lower percentage among those who took a test. The respondents who indicated to be of the poorest income had a proportion of 87.1%, the poorer 90.5%, middle income 92.1%, the richer 92.9% and the richest 90.1%. These results were statistically significant($x^2 = 34.952, P < 0.001$).

The proportion of the number of lifetime partners has an increasing pattern where women with more partners were testing more. A significant association ($x^2 = 114.498, P < 0.001$) has also existed between the number of lifetime sexual partners and HIV testing. Relatively lower proportions 11.9% of respondents who have 4 sexual partners had tested for HIV, 1 partner 24.4%, 2 partners 20.8%, 3 partners 19.5% and 5> partners 21.7%.

The practice of VCT has also varied in the sexual activity of the respondents. Table 4.2 shows that the proportion of women who were sexually active in the last weeks during data collection was higher at 92.1%. Those who were not sexually active in the last weeks of postpartum abstinence was 56.1% and for those who were not sexually active neither in the postpartum, the proportion was 87.9%. The sexual active experience has a significant association with HIV testing at ($x^2 = 46.301, P < 0.001$).

4.4 MULTIVARIATE ANALYSIS OF RESULTS

In his section, multivariate analysis was employed to see the net effect of each independent variable on the outcome behaviour to identify the most important predictor. In the preceding section, bivariate analysis was used to assess the association of each independent variable and dependent variable by using a chi-square test. However, this sample cross-tabulated chi-square results may not show the independent variables' exact influence on the dependence of other variables that were not controlled. Further, to assess the net effect of each predictor variable on the dependent variable multivariate Logistic regression was carried out by controlling for the effects of all other interventions.

The most important covariates identified in the multiple logistic regressions are age, province, race, current marital status, highest education, respondents currently working, household wealth quintile, total life partners and recent sexual activity. The variables came to be important predictors of the likelihood of HIV testing among the study.

The results of the binary logistic regression model presented in table 4.3 use Ever tested for HIV and AIDS was assigned a value of “1” if the respondents have tested

for HIV and AIDS and “0” if not. The reference category of each dichotomously measured independent variable has a value of one and values for each category are compared to that of the reference category. A value of less than one implies that individuals in that category have a lower probability of being tested for HIV and AIDS than individuals in the reference category.

Table 4.3
Logistic Regression Model Parameters Estimates for the Likelihood of HIV testing among South African Women

Independent Variables	Selected background characteristics				
	B	SE	Exp (B)	95% C.I for the Exp (B)	
				Lower	Upper
Age					
15-19[RC]			1.00		
20-24	-0.577	0.178	0.562***	0.396	0.796
25-29	0.158	0.165	1.171	0.847	1.619
30-34	0.596	0.171	1.815***	1.299	2.537
35-39	0.322	0.163	1.379*	1.001	1.900
40-44	0.666	0.179	1.946***	1.371	2.763
45>	0.014	0.160	1.014	0.741	1.388
Current Marital Status					
Never Married [RC]			1.00		
Married	-1.321	0.374	0.267***	0.128	0.556
Living Together	-0.998	0.381	0.368**	0.175	0.778
Widowed	-0.854	0.390	0.447	0.168	0.915
Divorced/Separated	-1.553	0.428	0.212	0.091	0.490
Population group					
Black/African [RC]			1.00		
White/Asian	-0.102	0.224	0.903	0.583	1.399
Coloured	-1.301	0.266	0.272***	0.162	0.458
Province					
Western Cape [RC]			1.00		
Eastern Cape	0.281	0.222	1.325	0.858	2.047
Northern Cape	0.724	0.185	2.062***	0.858	2.962
Free State	0.015	0.314	1.015	0.548	1.879
Kwa Zulu Natal	0.453	0.251	1.573	0.961	2.574
North West	0.637	0.164	1.890**	1.370	2.606
Gauteng	0.565	0.216	1.760**	1.153	2.688
Mpumalanga	-0.328	0.170	0.720	0.516	1.005
Limpopo	0.882	0.217	2.415***	1.557	3.698
Type of Place of Residence					
Urban			1.00		
Rural	0.047	0.126	1.048	0.820	1.340
Highest Education Level					
No Education [RC]			1.00		
Primary	-1.355	0.276	0.288***	0.150	0.443
Secondary	-1.000	0.202	0.368***	0.248	0.546
Higher	-0.399	0.161	0.671**	0.489	0.920

Household Wealth Quintile					
Poorest [RC]			1.00		
Poorer	-0.277	0.166	0.758	0.547	1.050
Middle	-0.181	0.165	0.835	0.605	1.152
Richer	-0.063	0.158	0.939	0.689	1.279
Richest	0.275	0.156	1.317	0.969	1.790
Respondents Currently Working					
No			1.00		
Yes	-0.515	0.101	0.597***	0.490	0.728
Recent sexual activity					
Active in last 4 weeks [RC]			1.00		
Not active in last 4 weeks- postpartum abstinence	0.195	0.093	1.215*	1.013	1.457
Not active in last 4 weeks- not postpartum abstinence	0.901	0.220	2.462***	1.598	3.793
Total Sexual Life Partners					
1[RC]			1.00		
2	-0.184	0.125	0.832	0.651	1.063
3	0.252	0.134	1.286	0.990	1.671
4	0.366	0.140	1.443**	1.097	1.898
5+	0.076	0.152	1.079	0.800	1.454
Constant	3.753	0.485	42.642		

Significant at: ***P<0.001 **P(0.002-0.01) *P(0.02-0.05)

The probability of testing was significantly associated with the age of the respondent. As shown in table 4.3, the likelihood of testing decreased by 44% among the age group 20-24 (P<0.001, CI [0.0.396-0.0.796]). The odds of being tested for respondents who were 30-34 years were 81% more compared to those who are less than 15-19 years (P<0.001, CI [1.299-2.537]). For those 35-39 years, the odds increased by 37% P<0.01, CI [1.001-1.900]) compared to those who were 15-19 years. Lastly, the respondents who are 40-44 years were almost two times (1.95) more likely to be tested compared to those who were 15-19 years (P<0.001, CI [1.586-4.040]). On the other hand, the results showed that those who ever married were less likely to have tested compared to those who have never married. The results were significant for all marital statuses with an exception of those who were widowed and divorced or separated.

Concerning the province of residence, the provinces of Northern Cape, North-West, Gauteng and Limpopo were significantly more likely to have been tested. The log odds of women from Northern Cape Province increased by 2.062 as compared to those who come from Western Cape (P<0.001, CI [0.858-2.962]). The likelihood of testing increased by 89% among the respondents in North West (P<0.01[1.370-2.606], increased by 76% in Gauteng (P<0.01[1.153-2.688]), and increased by 2.415 times in

Limpopo Province (P, 0.001[1.557-3.698]). On the other hand, place of residence was not significantly associated with HIV testing.

Education level showed a statistically significant effect on the practice of HIV and AIDS testing with the women who had higher educational levels less likely to test for HIV than those with no education. The odds ratio of testing decreased by 28% for respondents who had a primary level of education (P<0.001[0.150-0.443]), and decreased by 36% for those who has secondary education (P<0.001[0.248-0.546]), and decreased by 67% on women who had higher education (P<0.01, [0.489-0.920]) than those who had no education. The women who were currently working were 59% less likely to test as compared to those not working (P< 0.001[0.490-0.728]). The household wealth index showed that none of the categories in this variable was significantly associated with the dependent variable.

The variable on whether the respondent had recent sexual activity was statistically and significantly associated with HIV and AIDS testing. The log odds of women who were not sexually active in the last four weeks postpartum were 1.215 more times as compared to the women who are sexually active in the last four weeks postpartum (P<0.05, CI [1.013-1.1457]). Table 4.3 further exhibits that women who were not sexually active, but not on postpartum abstinence, took HIV and AIDS testing more frequently (2.462 more times) than those who were sexually active.

According to the results shown in table 4.3, the total number of lifetime sex partners has a significant effect on women testing for HIV and AIDS. In addition, the table displays that the log odds of testing on women who have four-lifetime sex partners is higher by 44% as compared to those who had 1-lifetime sex partner (P<0.01, CI [1.097-1.898]).

4.5 CONCLUSION

This chapter analysed and interpreted the secondary data to drown from DHS 2016. The presentation of the results is categorised into three phases; namely, univariate analysis, bivariate analysis and multivariate analysis. The subsequent chapter, therefore, focuses on the summary of key findings, the conclusion, and the recommendations.

CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The main purpose of this study was to investigate the Determinants of HIV and AIDS Testing among Women of Reproductive Age in South Africa. This is in resonance with Pitpitan *et al.* (2012), purporting that the majority of women are victims of this pandemic and the authors' further state that these women who tested HIV positive have difficulties in accessing treatment and counselling. The statistically significant variables are; age, marital status, ethnicity, region, educational level, working status, recent sexual activity and total sexual life partners.

5.2 Discussions of key findings

The results indicated that a significant number (90.1%) of women in the reproductive age group had ever tested for HIV and AIDS. Although Luseno and Wechsberg (2009) argue that few South African women are regarded to be vulnerable and high-risk groups are unlikely to pursue HIV testing services, the finding negates this argument. However, the finding resonates with Gunn et al. (2016), who purports that women in SSA do test for HIV in the majority. The authors further declare that most of these women are forced to test as a routine for pregnant women as part of Provider Initiated Counselling and Testing (PICT). This significant percentage of women who tested for HIV may be due to the PICT initiated by WHO in 2007. According to Pitpitan *et al.* (2012), the high testing rate amongst women is owed to the fact that, in the last two decades, the promotion of VCT by the government as a primary prevention strategy and a point of entry to other HIV and AIDS-related services in the country, has played a drastic role for improvement. The sections below discuss the findings based on the variables, which were statistically significant.

5.2.1 Age

This theme is intended to find out age at first sex. The CDC Report (2019), the Centres for Disease Control and Prevention (CDC) in the USA advocates for everyone from the age of 13 to be tested at least once for early detection of HIV, evidently table 4.3 exhibits that the women who were aged between 30 to 34, 35 to 39, and 40 to 44 in South Africa were more likely to be tested than those in the younger group. The finding resonates with those of UNAIDS (2018), which indicates that younger women have lower levels of knowledge in testing for HIV. These younger women are less likely to test for HIV, as compared to the older ones aged between 30 to 44. Sherr *et al.* (2007) purport that HIV knowledge is a significant predictor of a positive attitude toward VCT. Significantly, older women's knowledge of HIV testing results from their life experiences, readiness to start a family and others recommended by the health professional.

5.2.2 Marital status

Regarding marital status, the study found out that women who never married were likely to use VCT as compared to married women, living together and divorced or separated. The finding seems to be common in some African countries such as Nigeria, where Lepine *et al*. (2015) further argue that married women that are married for more than 10 years were less likely to be tested as they have reached a state of settlement in life. This is not peculiar to the African continent, Lo *et al.* (2018) also found out that in the USA, the likelihood of HIV testing is higher among females, who were never married. Shisana (2004) attests to the findings and further argues that unmarried women are likely to test more than married women because unmarried women are most at risk of contracting HIV and AIDS, hence they continuously visit VCT services for testing.

5.2.3 Population Group

The findings of the study depict that African women are more likely to participate in HIV and AIDS VCT than any other race. This was also the case in the US, where Lo *et al.* (2018) averred that HIV testing is higher among women in African black ethnic groups.

5.2.4 Region

According to the results, Women in provinces such as Northern Cape, North West, Gauteng and Limpopo were found more likely to be tested for HIV as compared to other provinces. In addition, those who were coming from rural settlements were also found to be testing more than those who lived in the urban settlement. The finding corroborates Bekula *et al*. (2014) women in rural settlements do the test and this suggests that they have access to health facilities to test for HIV and AIDS. However, the findings by UNAIDS (2018) do not agree with the above argument as it purports that in some SSA countries such as Ethiopia, more urban women received HIV VCT as opposed to their rural counterparts. The same authors further qualify the finding by stating that women in rural areas are less knowledgeable about HIV and with limited access to HIV testing and modern contraceptives.

5.2.5 Educational level

Educational level is another variable that was found significant in this study. In congruence with the Census Report of 2010 on a series of Population-based surveys that were conducted in Zambia from 1992 through to 2010, which states that understanding the dynamics of HIV testing uptake in association with educational attainment is crucial. Strangely, in table 4.3 (*cf. page 61*), participants with higher education were less likely to test as compared to those with no education level. This has shown not to be the case in some African Countries such as Nigeria and Ethiopia. In contrast to South Africa, in agreement with the study conducted by Lepine *et al. (*2015), Hailey *et al.* (2016) speak in one voice extrapolating that in Ethiopia, the same as in Nigeria, the less educated women were less likely to have ever been tested. Unlike in South Africa, seemingly Lee and Schafer (2021) align themselves with other sub-Saharan African contexts, indicating that educated people are more likely to be tested for HIV and to know their HIV status. Hailey *et al.* (2016) emphasised that it is the better-educated women who are more likely to be tested for HIV.

5.2.6 Working status

Although Luseno and Wechsberg (2009) found out in an earlier study conducted in South Africa that women with limited job skills and few employment options are likely

seeking HIV testing services, this is not the case with the study. Table 4.3 suggests that women with working status in South Africa are less likely to test for HIV. This finding refutes the study by Hailey *et al*. (2016) and Erena *et al.* (2019) stating that women in Ethiopia, who are employed, are more likely to use VCT than those who are unemployed.

5.2.7 Recent sexual activity

This theme aimed to find out if the respondents used the VCT services during childbirth or after, at the time of the collection of data. This study ascertained that both the women who were not sexually active during their postpartum and those who were not sexually active during their antepartum were more likely to test for HIV and AIDS. The results are congruent with Jayleen *et al.* (2016) stipulating that most women get to know their HIV status during antenatal care (ANC) services hence HIV testing is more likely postpartum. Since it is known that provider-initiated modes of testing make testing accessible to women to promote HIV counselling and testing as an essential component of ANC service for all pregnant women hence testing for HIV is more likely postpartum and antepartum.

5.2.8 Total sexual life partners

The results found that women engaging in unwarranted sexual risk behaviours by having sex with more than one partner were more likely to view the VCT services more favourably. Likewise, Adebayo and Gonzalez-Guarda (2017) reported an increased HIV testing practice among individuals with risky sexual behaviours. This is supported by Erena et al (2019), postulating that women from several sub-Saharan African communities such as Ethiopia Congo, Kenya, Uganda, Zambia and Zimbabwe who had a history of high-risk sexual behaviour were more likely to utilize VCT. However, this is not the case in Mozambique; Agha (2012) tends to disagree with the finding. The author argues that women in Mozambique with a higher number of lifetime sexual partners are less likely to be tested for HIV because of the fear of stigmatization.

5.3 CONCLUSION OF THE STUDY

This study aimed at identifying the determinants of VCT uptake among the women of the reproductive age population in South Africa. The study has shown that HIV and AIDS Voluntary Counselling and Testing on South African women has improved in the past years to reach the UNAIDS 90-90-90 targets. UNAIDS has reported that 90% of South Africans knew their HIV status. However, the study found out risky sexual behaviours are still a challenge for South African women. Women who are aged 19-24 were resistant to going for HIV and AIDS counselling. In addition, other races such as Whites, Asians and Coloureds are also resistant to the uptake of HIV testing.

The researcher concludes that the HIV and AIDS Voluntary, Counselling and Testing (VCTs) that are established around the country (South Africa) to assist the sexually active population are fit for purpose. However, the study found that there is a higher intake of HIV testing in women aged between 30 and 44, and a low intake in women below the age of 30. The study further exhibits that the women who never married were significantly more likely to be tested for HIV than those who were married and living with partners. The woman with more sexual partners are regarded to be at high risk of contracting HIV and AIDS, therefore the study found out that the same women are more likely to test for HIV and AIDS. The greatest concern is that women with better levels of education and currently working were less likely to test for HIV and AIDS. The results of Bivariate analysis have proven that testing for HIV and AIDS is taken very seriously in South African women in all provinces despite their sexual behaviour, working status and educational level.

5.4 RECOMMENDATIONS

Various conclusions arrived at in this investigation on the voluntary counselling and testing for HIV and AIDS show that many problems still need to be addressed. This section deals with the recommendations based on the results and findings of the study.

5.4.1 Recommendation 1

According to the results, the majority of young women aged between 15 and 24, were less likely to be tested for HIV and AIDS. The researcher recommends that the

department of health together with institutions of learning, health extension workers, and community leaders should jointly develop youth programmes on sex education that will encamp HIV and VCTs. This will assist to promote a better understanding of the VCT services amongst young women.

5.4.2 Recommendation 2:

The finding depicts that unemployed women are more likely to test for HIV and AIDS. This insinuates that women who are employed do not use VCT services, as they should. Therefore, the wellness officers in different employment sectors need to work with the Department of Health (DoH) to develop wellness programmes in line with the DoH policy framework for the increased uptake of VCT services.

5.4.3 Recommendation 3:

The results in table 4.3 indicate that women who have primary to higher education levels are less likely to uptake HIV testing. These women, given their educational levels, have basic literacy; therefore, they can read and write. For this group, the DoH should develop visual and printed materials such as billboards that will be placed on highways; pamphlets and flyers, which can be distributed through post services, placed at clinics and shopping malls and other public places. These media can be used to encourage this group to use VCT services.

5.4.4 Recommendation 4

According to the results in Table 4.3, women who are married and those who are cohabiting are less likely to test for HIV and AIDS. Therefore, the Department of Health should design and develop standardised programmes for couples. These programmes should aim at educating couples on the importance of VCT uptake. Through the Health services within the communities and the community health workers, the DoH may conduct seminars and workshops post COVID-19 or Webinars in respect of COVID protocols.

5.4.5 Recommendation 5

According to literature *(cf. page 20*), VCTs operations are believed to be affected by factors such as lack of resources and standardisation. The literature further states that the VCT counsellors consequently experience frustration and emotional burnout

related to the VCT programme (Risenga, Davhana-Maselesele & Obi, 2013). The DoH should proportionally provide the VCT centres with testing kits and enough VCT counsellors. In addition, the DoH should allocate at least each cluster a clinical psychologist for VCT counsellors for debriefing.

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APPENDIX 1: NWU Ethics Approval

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6 August 2020

Dear Ms Tshephe and Dr Mhele,

ETHIC CLEARANCE GRANTED

This letter serves to inform you that ethics clearance was granted for your study by the Basic and Social Sciences Research Ethics Committee (BaSSREC)

ETHICS APPLICATION NUMBER:	NWU-02031-20-S7
PROJECT LEADER:	Dr K Mhele
APPLICANT:	Ms TJ Tshephe
PROJECT TITLE:	Determinants of voluntary HIV and AIDS counselling and testing: A case of South African women.
DURATION:	August 2020 to August 2021
ETHICS CLEARANCE DATE:	5 August 2020

Your research is of low ethical risk since it does not involve human participants and therefore a complete ethics review process was not necessary. The BaSSREC wishes you well with your project.
Yours sincerely

Prof C Van Eeden
BaSSREC Chair

Original details: (10057013) P:\Daleen\BaSSREC\Prof C van Eeden-letter.docm
10 September 2019

File reference: 9.1.5

Appendix 2:SADHS

Mar 25, 2019

Tjodwapi Tshephe
North West University
South Africa
Phone: 0748901922
Email: tjodwapi@gmail.com

Request Date: 03/25/2019

Dear Tjodwapi Tshephe:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: "Determinants of Voluntary HIV and AIDS Counselling and Testing among South African Women": **South Africa**

To access the datasets, please login at: https://www.dhsprogram.com/data/dataset_admin/login_main.cfm.

The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Please reference the complete terms of use at: https://dhsprogram.com/Data/terms-of-use.cfm.

The data must not be passed on to other researchers without the written consent of DHS. Users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: archive@dhsprogram.com.

Sincerely,

Bridgette Wellington
Data Archivist
The Demographic and Health Surveys (DHS) Program
530 Gaither Road, Suite 500, Rockville, MD 20850 USA +1.301.407.6500 +1.301.407.6501 fax icf.com