

KNOWLEDGE, ATTITUDES AND BEHAVIOUR TOWARDS HIV/AIDS

AMONG YOUTH IN NAMAKGALE TOWNSHIP IN MOPANI DISTRICT, LIMPOPO
PROVINCE, SOUTH AFRICA

BY

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ABSTRACT

Background: Young people in sub-Saharan Africa are most-at risk of HIV infection. This elevated risk in the young black population may be explained by the lack of HIV/AIDS-related knowledge, attitudes towards the epidemic and risky sexual behaviours.

Purpose: The aim of the study was to assess the level of knowledge, attitude and behaviour among youth towards HIV infection and to explore the possible aetiological factors associated with the youth's vulnerability to HIV infection.

Methods and materials: This survey adopted a descriptive, cross-sectional design and a quantitative approach. The survey population comprised of all youth aged 15-24 years visiting two Namakgale clinics. An expected sample of (n=152) youths was recruited through convenience sampling. Pretesting of the questionnaire was conducted on 15 youths at Mashishimale Clinic. Data was collected using self-completed questionnaire. The data was captured using Microsoft Excel and then analyzed using the Statistical Package for Social Sciences, version 22.

Results: Knowledge on HIV: The majority (77%) of the respondents could distinguish HIV and AIDS and had knowledge that HIV could cause AIDS. The majority of respondents (80%) had knowledge of how HIV was transmitted. The majority of the respondents, (84.9%) knew that HIV/AIDS could not be cured. However, misconceptions about HIV transmission still exist for example, 13.2 % of youth stated that mosquito bites could transmit HIV and whilst 22.4% believed that witchcraft could cause HIV. The main source of HIV information was television (89%).

Attitudes towards PLHIV: About 82.9% disagreed that all PLHIV should live away from Namakgale while 72.4% stated that if their relative had HIV they would care for them. Overall, Namakgale youth held positive attitudes towards PLHIV.

Risky sexual behaviours: About 61.8% of females, compared to their male counterparts (38.2%) ever had sex. 61.8% of females compared to 50.0% of males have had sex before their 15th birthday. 36.5% have had 3-5 lifetime sexual partners in comparison to 29.6% of their female counterparts. 44.2% of males did not use condoms at last sex compared to their female counterparts (33.3%).

Recommendations: There is an urgent need for intensifying awareness campaigns on HIV and AIDS as well as school-based interventions for youths who still harbour myths and misconceptions about HIV transmission. Policy makers and the media should focus more on late adolescents (15-19 years) risky sexual practices such as intergeneration sex (age group between sexual partners is 10 years or more), transactional sex etc.

Key words: Attitude, Behaviour, HIV/AIDS, Knowledge, Transmission, Youth.

DECLARATION

I Gudani Netshivhuyu hereby declare that this dissertation titled “**Knowledge, Attitudes and Behaviour towards HIV/AIDS among Youth in Namakgale Township in Mopani District, Limpopo Province, South Africa**” is my original work and has not been submitted elsewhere for examination, award of a degree or publication. Where other people’s work, or my own work has been used, this has properly been acknowledged and referenced accordingly. I have not allowed, and shall not allow anyone to copy my work with the intention of passing it off as his or her own work. I also understand that any false claim in respect of this work shall result in disciplinary action, in accordance with University of Venda plagiarism policy.

.....

GUDANI NETSHIVHUYU

.....

DATE SIGNED

DEFINITION OF KEY TERMS

In the current study the following terms were used:

AIDS: is a disease caused by HIV, contracted mostly through unprotected sex with an infected person and destroys the body's ability to fight off infection and disease, which can ultimately lead to death (Jackson, 2002).

Adolescent (s): for the purpose of this study, adolescents refer to young persons between the age of 15 and 19 years.

Attitudes: refers to youth opinions or feelings about HIV/AIDS.

Behaviour: refers to behaviour that increases young person/adolescent's risk of contracting sexually transmitted infections and experiencing unintended pregnancies. They include having sex at early age, having multiple sexual partners, having sex while under the influence of alcohol and/or drugs, and unprotected sex (CDC, 2010).

Condom use: refers to the non-use, use and consistent use of condoms by youth during sexual intercourse.

Concurrent sexual partnerships: refers to people who report at least two partners for which first sex was reported six months ago or longer ago.

Discrimination: is when a person is treated differently and usually unfairly, because of their HIV status.

Early coital debut: is commonly defined as having had first sexual intercourse at or before age 14 years (Wand and Ramjee, 2012).

HIV: Human Immunodeficiency virus- is the virus that weakens the immune system, ultimately leading to AIDS.

HIV-infected: showing indications of infection with HIV in blood or oral fluid test.

Infection: refers HIV/AIDS.

Intergenerational relationships: refer to relationships with a 10-year or more age gap between sexual partners.

Knowledge: refers to youth's overall facts about HIV/AIDS.

Risk: likelihood that an individual may become HIV infected.

Risky sexual behaviours: behaviours that increase the risk of a person contracting HIV.

Stigmatization: a negative social label that shows prejudice against people living with HIV.

Transactional sex: refers exchange of sex for money, goods, drugs including alcohol, or other items of value (including housing or food).

People living with HIV: persons who have tested positive for HIV.

Prevalence: number of people in a population who are living with HIV at a specific point in time.

Vulnerability: factors that make a person more susceptible to HIV infection and to developing AIDS.

Young person: someone between the age of 15 and 24 years.

Youth: in the South African context, youth is defined as persons between the age of 15 and 35 years. For the purpose of this study, youth is defined as persons between the age of 15 and 24 years. In addition, in most studies in South Africa this age group is considered high risk of HIV infection.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The human immunodeficiency virus (HIV) is a major public health challenge facing the global community. HIV is a retrovirus that attacks cells of the body's immune system, rendering the body incapable of fighting diseases and is the etiological agent of the deadly acquired immune deficiency syndrome (AIDS), (The Joint United Nations Programme on HIV/AIDS) (World Health Organization) (UNAIDS/WHO, 2010; Douek, Roederer and Koup, 2009). In 1981, the Center for Disease Control and Prevention (CDC) reported curious arrays of bacterial *Pneumocystis carinii pneumonia* and cancerous Kaposi's sarcoma in men who had sex with men in the United States of America (USA) (Morison, 2001). These were the first reported cases of HIV/AIDS. Three decades later, it has spread heterogeneously across the globe with the sub-Saharan Africa region being the hardest hit (UNAIDS/WHO, 2012). Unprotected sexual intercourse (anal or vaginal), transfusion of contaminated blood, sharing of contaminated needles, and mother-to-child transmission (MTCT) have been identified as main routes of HIV transmission (Takebe, Uerishi and Li, 2008; UNAIDS/WHO, 2012).

35.3% million people were allegedly living with HIV (PLHIV) worldwide, and 2.1 million (5.9%) of these were adolescents aged 10-19 years by the end of 2012 (UNAIDS/WHO, 2013a). Approximately 6300 new infections occurred daily worldwide in 2013 and around 2500 of these new cases were among adolescents and young people aged 15-24 years (UNAIDS/WHO, 2013a). Furthermore, UNAIDS/WHO estimated that 0.8% of the adult population aged 15-49 years worldwide was living with HIV/AIDS, although, the disease burden differed considerably between countries and regions (UNAIDS/WHO, 2013a). However, there was optimism according to the report that new infection rates had fallen by 50% in 25 countries, 13 of which are in sub-Saharan Africa (UNAIDS/WHO, 2013a). Three decades after the discovery of HIV/AIDS, sub-Saharan Africa remains the most heavily affected region in the world by HIV/AIDS epidemic, with almost 1 in every 20 adults (4.7%) living with HIV and accounting for two-thirds (70%) of the people living with HIV/AIDS worldwide . By the end of 2012, an estimated 23.5 million people in sub-Saharan Africa were living with HIV/AIDS (UNAIDS/WHO, 2013a). In the course of the past

decade, many national epidemics have changed significantly, with the adult population HIV incidence in 39 countries falling by more than 25% between 2001 and 2012 (UNAIDS/WHO, 2013a). 23 of the countries with sharp declines in HIV incidence are in sub-Saharan Africa. Nevertheless, the majority of People Living with HIV (PLHIV) in sub-Saharan Africa were women (UNAIDS/WHO, 2013a).

South Africa is one of the sub-Saharan African countries with a generalised HIV/AIDS epidemic (UNAIDS/WHO, 2013a). Results from the twenty third National Antenatal Sentinel HIV and Syphilis Prevalence Survey estimated an overall HIV/AIDS prevalence of 29.5% among antenatal care (ANC) women aged 15-49 years, a decline of 0.7% from 30.2% in 2010 (South African Department of Health, 2013). According to this survey, the provincial HIV/AIDS prevalence estimates varied between provinces, with Kwazulu-Natal leading the pack, with HIV/AIDS prevalence of 37.8%, followed by Mpumalanga (36.7%), Free State (32.5%) and North-West (30.2%); while the Northern Cape had the least prevalence (17.0%)(NDoH, 2013). However, KwaZulu-Natal's HIV/AIDS prevalence decreased by 2.1% from 39.5% in 2010 (NDoH, 2013). This is far cry figure from a 0.76% HIV prevalence rate among ANC women in South Africa (Kustner, Swanevelder and Van Middelkoop, 1994).

The lowest HIV prevalence rates were recorded in the Western Cape (16.9%), Northern Cape (17.8%) and Limpopo (22.3%) in 2012 (NDoH, 2013). These three provinces have recorded HIV/AIDS prevalence below the national estimate of 29.5% (NDoH, 2013). Similarly, a survey by Shisana et al. (2014) confirmed that the areas with the highest HIV/AIDS prevalence were Kwazulu-Natal (16.9%), Mpumalanga (14.1%) and Free State (14.0%). The third lowest HIV/AIDS prevalence was observed in Limpopo (9.2%) (Shisana *et al.*, 2014). Among young people, the survey revealed that Limpopo had the lowest HIV/AIDS prevalence by the end of 2012 (3.1%) (Shisana *et al.*, 2013).

The HIV/AIDS and Tuberculosis (TB) epidemics in South Africa have added pressure to an already ailing health-care system. HIV does not only affect the person infected by the virus, but also has a knock-on effect that goes beyond the affected family and has implications for health care and the economy (Reddy, 2009). South Africa has made the largest domestic investment in HIV/AIDS among all low-and middle-income countries. It invested US\$ 1.9 billion since 2006 from taxpayer's coffers (UNAIDS, 2012). Findings from a study about integration of HIV/AIDS

care in primary health care (PHC) services in South Africa revealed that the current administrative systems, workload and support staff shortages tended to hinder integration (Uebel, Guise, Georgeu, Colvin and Lewin, 2013).

Evidence from several sources indicated that one of the sub-populations in South Africa that engages in risky sexual behaviours such as substance abuse (Shisana et al. 2009), inconsistent or lack of condom use (Maticka-Tyndale 2012), early coital debut (Tenkorang, Rajulton and Maticka-Tyndale 2009), intergenerational sexual relationships (Wilson, Wright, Safrit and Rudy, 2010) and transactional sexual partnerships (Zembe, 2013) are adolescent females (Wilson *et al.*, 2010). In one study, 19.2% of young women maintained that they had an adolescent (12-19 years) pregnancy (Mchunu, Peltzer, Tutshana and Seutlwadi, 2012). Furthermore, 5.8% of male youths indicated that they had impregnated a girl when they were adolescents (Mchunu *et al.*, 2012). Early sexual debut is associated with higher teenage pregnancy rates, sexually transmitted infections (STIs) and poor school completion rates (Pettifor *et al.*, 2008; Diclemente *et al.*, 2002). Young people are vulnerable to risky unprotected sex and HIV Muula (2008) and developing appropriate HIV preventative programmes requires mastery of the risk factors for HIV in this sub-population (Shai, Jewkes, Nduna and Dunkle, 2012).

Several socio-demographic factors (such as age, marital status and mobility), behavioural factors (condom use, early coital debut, number and type of sexual partnerships) and biological factors such as blood transfusion, lifetime pregnancies, and other sexually transmitted infections (STIs) are also associated with HIV infection (Lemme *et al.*, 2013). Although a decline in HIV/AIDS prevalence has been reported among South African youth aged 15-24 years from 10.3% in 2005 to 8.6% in 2008, young women continue to be disproportionately affected by the HIV epidemic more than their male counterparts (Louw, Peltzer and Chirinda, 2012). According to South African National Strategic Plan on HIV, STIs and TB (NSP) : 2012-2016 (NDoH, 2011), chances of young women between the ages of 15 and 24 years of becoming HIV-infected were four times more than their male cohorts. Furthermore, on average, young women became HIV-infected about five years earlier than males (NDoH, 2011).

Notwithstanding the high risk of HIV/AIDS infections among youth in South Africa, HIV/AIDS-related knowledge, attitude and behaviour survey studies examining this phenomenon are limited. Most young people have recently become sexually active and thus have been exposed to HIV

infection (UNAIDS/WHO, 2013b). Similarly, Johnson, Dorrington, Bradshaw, Pillay-Van and Rehle (2009) noted that an estimated 36% of all heterosexual transmission occurred among young people, making young people especially in need of targeted interventions to both prevent new infections and care for HIV positive people. The high prevalence of HIV/AIDS among young people in Namakgale and in Ba-Phalaborwa may be due to lack of knowledge, negative attitudes and risky sexual behaviours associated with the epidemic. Therefore, the need for such a study becomes imperative given the high HIV/AIDS prevalence and risky sexual behaviours among Namakgale youths.

1.2 PROBLEM STATEMENT

Young people in Namakgale, South Africa are the ones who are disproportionately affected by the HIV/AIDS epidemic than other sub-populations. The high HIV/AIDS prevalence in this community may be a result of lack of HIV/AIDS-related knowledge, attitude and risky sexual behaviours which includes the following: alcohol and other recreational drug use, lack of condom use, intergenerational relationships, transactional sexual relationships, early coital debut and multiple concurrent relationships.

Although efforts have been made to increase the awareness of HIV/AIDS among youth through such programmes as Love Life and other health education programmes which are considered important means of addressing adolescent risky behaviour, risky sexual behaviours continues among young people (Harrison, Newell, Imrie and Hoddinot, 2010). In 2013, young people accounted for 26% of the new adult HIV infections in Namakgale. AIDS-related deaths among young people made up about 11% of total adult AIDS-related mortality in Namakgale in 2013 (Ba-Phalaborwa District Health Information System, 2013). In addition, 29% of newly STIs involved youth in Namakgale in 2013 (Ba-Phalaborwa DHIS, 2013). The world is within reach of providing ART to 15 million people by 2015 and it is important for young people to test for HIV and be linked to appropriate care if they are HIV-infected (UNAIDS/WHO, 2013a). It was observed that the youth formed the largest number (56%) of people who made use of HIV Counselling and Testing (HCT) services in Namakgale in 2013 and 23% of the youth population were on antiretroviral therapy (ART) in 2013 (Ba-Phalaborwa DHIS, 2013). Although much knowledge, attitude and behaviour research has been conducted in South Africa, there has been no study examining the HIV/AIDS-related knowledge, attitude and behaviour among youth in

Namakgale. The present study therefore sought to investigate these phenomena among the youth in this black rural community.

1.3 RATIONALE OF THE STUDY

Namakgale is a large township in Ba-Phalaborwa municipality, Mopani district in the eastern part of Limpopo province. Phalaborwa is a mining town bordering Mozambique to the east and because of its mineral reserves people from all walks of life in South Africa and other neighbouring countries flock to the area in search of work. Risky sexual behaviours are very common here, hence the high prevalence of HIV/AIDS.

In Mopani district and Ba-Phalaborwa municipality in particular, there is paucity of data on the HIV/AIDS-related knowledge, attitudes and risky sexual behaviours such as alcohol and other recreational drugs use, lack of and condom use, multiple concurrent relationships, early coital debut, transactional sex and intergenerational sex relationships among youth. Given the huge burden of HIV/AIDS and risky sexual behaviours among youth, the researcher sought to assess the level of knowledge about HIV and AIDS among youths in Namakgale youths and, to also explore the youths' attitudes and behaviour towards the epidemic.

1.4 SIGNIFICANCE OF THE STUDY

As the HIV/AIDS epidemic imposes an ever-larger burden on the South African economy, the result of the study might provide decision-makers with reasonable estimates of HIV/AIDS-related knowledge among this high-risk subgroup (youth) and assist policy-makers in designing focused interventions and strategies that could help the youths in Namakgale concerning their attitudes and behaviour towards HIV/AIDS. The results may also help future researchers who want to embark on related topics as they may use recommendations of the study to identify knowledge gaps and literature review in the study area.

1.5 AIM OF THE STUDY

The aim of the study was to assess the knowledge, attitudes and behaviour among the youth of Namakgale in Mopani District of Limpopo Province towards HIV/AIDS.

1.6 OBJECTIVES OF THE STUDY

Specifically, the study aimed to:

- Assess the level of knowledge of HIV/AIDS among Namakgale youth.
- Explore the attitudes of Namakgale youth towards HIV/AIDS epidemic.
- Assess the possible risky sexual behaviours for vulnerability to HIV infection among Namakgale youth.

1.7 RESEARCH QUESTIONS

This study sought to answer the following research questions:

- What is the level of HIV/AIDS-related knowledge within Namakgale youth?
- What attitudes do Namakgale youth demonstrate towards HIV/AIDS epidemic?
- What are the possible aetiological factors (risky sexual behaviours) for HIV vulnerability among Namakgale youth?

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

As the focus of the study is on HIV/AIDS-related knowledge, attitudes and behaviour (risky sexual behaviours) among the youth, the first part of this literature review describes two commonly used models, namely, the Health Belief Model (HBM) and AIDS Risk Reduction Model (ARRM). These two models have been used to examine HIV/AIDS-related knowledge, attitude and behaviour since the epidemic was discovered three decades ago. The second part of the chapter focuses on the magnitude of the epidemic. The third part of this chapter focuses on the level of HIV/AIDS-related knowledge, including sources of information among young people globally and sub-Saharan Africa, including South Africa. The fourth part explored young people's attitudes towards HIV/AIDS and People Living with HIV. The fifth and final part of the chapter explores risky sexual behaviours among the globally, (including sub-Saharan Africa) and more specifically South Africa. This chapter draws on existing studies to determine the prevalence of HIV/AIDS infections among youth in Namakgale and to determine their knowledge, attitudes and behaviour towards HIV/AIDS.

The HIV/AIDS epidemic continues to be a major health problem worldwide. By the end of 2012, 35.3 million people were living with HIV/AIDS worldwide and sub-Saharan Africa continues to bear the brunt of the epidemic, with 25 million people being reported to be living with HIV by the end of 2012 (UNAIDS/WHO, 2013a). As a result of the lower economic and socio-cultural status in many countries, women and girls continue to be disproportionately affected by HIV (UNAIDS/WHO, 2013a). In sub-Saharan Africa, 3.1% of young women aged 15-24 years were living with HIV (versus 1.3% of young men) by the end of 2011 (UNAIDS/WHO, 2012).

KwaZulu-Natal province has the highest prevalence in South Africa, although the highest HIV/AIDS prevalence falls within 30-34 year group (41.5%). The infection rate among the 20-24-year age group is relatively still high (26.6%) (NDoH, 2010). In South Africa, many 20-24 years people are likely to be at universities. This is also the time when young people are engage in explorative risky behaviours (Hancock *et al.*, 1999). Simbayi *et al.* (2005) also found that despite adequate general HIV/AIDS-related knowledge and risk sensitization South African youth

demonstrated high rates of risky sexual practices that may place them at higher risk of HIV exposure. In addition, Nqojane (2009) also found that general knowledge about HIV/AIDS was good among young people, yet they still engaged risky sexual behaviours.

2.2 THEORY OF BEHAVIOR CHANGE AS A THEORETICAL FRAME WORK

Several models have been used to examine young peoples' HIV/AIDS-related knowledge, attitude and behaviour. These include the Health Belief Model (HBM) propounded by Becker (1988) and the AIDS Risk Reduction Model (ARRM) by Catania, Kegeles and Coates (1990), (cited in Fennie, 2011). However, none of these theories were utilized as a theoretical framework in the current study. The researcher reasoned that this theory would be relevant with regard to understanding the content of this study.

2.2.1 Health Belief Model (HBM)

Boskey (2010) defines the Health Belief Model as a realistic tool that scientists use to try and change health behaviours. Originally pioneered in the 1950s, it is based on the theory that a person's willingness to change their behaviour is primarily due to the following factors:

1. **Perceived susceptibility:** People will not change their health behaviours unless they believe that they are at risk (e.g. subjective evaluation of HIV risk).
2. **Perceived severity:** The probability that a person will change his/her health behaviours to avoid a consequence depends on how serious he or she considers the consequence to be (e.g. seriousness of HIV risk; "how serious is AIDS?").
3. **Belief in effectiveness of the new behaviour:** (Condoms are effective against STIs transmission).
4. **Cues to action:** The external events that prompt a desire to make a health change. (Seeing a condom poster on a train; witnessing the death of a colleague/friend/relative due to AIDS).
5. **Self-efficacy:** If a person believes that he/she has the ability to make the health related change, (e.g. having the faith that you can do it), or as Agha (2002) believes: "one's own ability to take preventative action".
6. **Barriers to taking action:** ("I don't like using condoms")

Very few adolescents tend to perceive themselves to be at risk of contracting HIV/AIDS or any STI. Although adolescents have the necessary knowledge about the severity of the disease;

very small numbers of young adults see the need for safe sex as serious, and they downplay seeing AIDS as a personal threat. In this model, for a change to happen, benefits should outweigh costs.

2.3 KNOWLEDGE, ATTITUDES AND BEHAVIOUR (KAB) AMONG YOUTH TOWARDS HIV/AIDS

2.3.1 HIV/AIDS-RELATED KNOWLEDGE

Most HIV incidences are sexually transmitted (UNAIDS/WHO, 2012). Taking precautions to avoid the risk of STIs (including HIV/AIDS) implies a sexual freedom (autonomy) which young people rarely manage to achieve because youth sexuality is strongly influenced by peer pressure (Coniglio *et al.*, 2010). There is no existing cure for AIDS and other vaccines having failed to cure the disease. As a result, other preventive measures have been envisaged. Knowledge about HIV/AIDS is the first step in preventing infection (Rudaitis, 2010; UNAIDS/WHO, 2012). Likewise, a study by Unadike *et al.* (2012) in Nigeria agreed with other studies that all of the participants had heard about HIV/AIDS, while 83.9% could identify all known modes of transmission of HIV and 95% agreed that there is no cure for the disease. Coniglio *et al.* (2010); Jemmott *et al.* (2010) concluded that finding effective means to educate and motivate youths to avoid risky sexual behaviour is a challenge and suggested that the most common approach used to reach young people was through school-based health education.

The universally accepted ways of controlling the epidemic is prevention. Prevention of HIV/AIDS seeks to reduce the risk of infection by encouraging individuals to avoid risky sexual behaviours. Abstinence, being faithful and condom use (ABC) have been identified as effective strategies of managing of the epidemic (Appiah-Agyekum and Suapim, 2013). However, a study of adolescent girls indicated that 66.7% of respondents were aware of 'ABC' while the remaining 33.3% disagreed that 'ABC' helped reduce the risk of acquiring the virus (Appiah-Agyekum and Suapim, 2013). In contrast, however, 96.7% of respondents were aware that 'ABC' was the best means of preventing infection from the virus (Appiah-Agyekum and Suapim, 2013). A similar study by Thanavanh, Harun-Or-Rashid, Kasuya and Sakamoto (2013) found that almost all the respondents were aware that HIV/AIDS could be transmitted sexually (97.7%), that sharing needles or syringes could transmit the virus (92.0%) and from mother to child.

Research shows that young people form a significant proportion of those attending STI clinics and are at high risk of contracting HIV/AIDS. Kumar, Pore and Patil (2012) reported that young peoples' vulnerability to STIs was due to the lack of sex education. Kumar et al. (2012) found that 63.72% of students had heard about HIV/AIDS. In addition, television was the main source of information (54.9%) followed by peers (15%) (Kumar *et al.*, 2012). Similar findings were observed in a study of students in India, whereby it was found that all the students (100%) had heard of HIV/AIDS (Lal, Nath, Badhan and Ingle, 2008). Furthermore, television and radio were cited as the main sources of information about HIV/AIDS amongst the students (79.6%) (Lal *et al.*, 2008).

However, in another study in India gaps were seen in awareness of the modes of transmission with only 48.2% of the students naming sexual intercourse route while 44.4% cited sharing of needles and syringes as a mode of transmission (Lal *et al.*, 2008). Low levels of knowledge about modes of transmission of HIV were also observed in a study in Egypt. In this study, only 30.8% had adequate knowledge about HIV/AIDS (Selim and El-Shereef, 2010). However, in India it was observed that 95.1% of female students knew that HIV/AIDS is transmitted through unprotected sex (Gupta, Anjum, Bhardwaj, Srivastav and Zaidi, 2014).

Knowledge is necessary but not sufficient to produce behaviour change. Lema, Katapa and Musa (2008) found that 32.3% reported had used condoms during their first sexual encounter and 37% during their most recent sexual encounter while 21.7% of the participants admitted to have had concurrent relationships in the previous month. In addition, the majority (98.4%) had heard about HIV/AIDS. Results from this study suggest that despite adequate knowledge about modes of transmission, the majority of youth continue to engage in unprotected sex and other risky sexual behaviour (Lema *et al.*, 2008). Maponyane (2014) concluded that knowledge is not a good predictor of a positive related action since the knowledge, attitudes and behaviours of people change over time. Furthermore, young people are easily influenced by their peers when it comes to risky sexual behaviours (Maponyane, 2014).

In order to investigate sexual behaviour and knowledge about STIs, including HIV/AIDS, a study in Brazil found that the use of condoms during vaginal sex was practiced by 80.4% of males and 74.8% of females and during anal sex by 47.8% of males and 30.0% of females (Caetano *et al.*, 2010). Furthermore, knowledge of STIs modes of transmission was greater than 90% for HIV,

syphilis, genital herpes, gonorrhoea; 63-76% for HPV and genital warts; 30-34% for trichomonas and only 16% for chlamydia. Remarkably, only 25-34% knew that HIV was transmitted by breastfeeding from an infected mother; 56-60% knew that HIV was transmitted by anal sex (Caetano *et al.*, 2010). Similarly, in Malaysia, it was found that 92% of respondents knew at least one STI (syphilis, gonorrhoea, chlamydia, herpes, genital warts, yeast infection, trichomoniasis or HIV (Awang, Wong, Jani and Low, 2014). Additionally, 95% of respondents knew at least one method of STI mode of transmission (Awang *et al.*, 2014). Similarly, the data indicated that urban and tertiary-educated youths had more awareness of STIs and modes of transmission compared to their rural counterparts (Awang *et al.*, 2014).

As stated earlier, HIV/AIDS-related knowledge does not significantly improve one's risky behaviour. However, a study by Fiorillo *et al.* (2012) to evaluate behaviour change and estimated HIV seroincidence rate of returning HCT clients suggests a different view. In addition, clients who were coming for repeat HCT reported some reduction of risky sexual behaviour and improved knowledge of sexual practices and HIV serostatus of their partners (Fiorillo *et al.*, 2012). A study in Uganda also revealed that HIV-seronegative repeat testers were less likely to curb their risky sexual behaviours in the wake of repeated HCT (Matovu *et al.*, 2007). On the contrary, some studies have found that the uptake of HCT among young people tends to increase risky sexual behaviour (Sherr *et al.*, 2007).

Accurate knowledge, attitudes and practices towards HIV/AIDS can help an individual make wise decisions about healthy preventive behaviours. In order to assess comprehensive knowledge of HIV/AIDS in Mozambique, Ciampa *et al.* (2012) conducted a study which found that false beliefs about HIV transmission were very common, especially for Echuabo speaking participants, the majority of whom incorrectly reported that HIV could be spread by shaking hands, sneezing, sharing utensils or by a curse (witchcraft). Many Portuguese and Echuabo-speaking women incorrectly reported that cleaning the genitals after sexual intercourse could protect one against HIV transmission. Only half of the Portuguese speaking women and 14% of Echuabo speaking women agreed that a person with HIV/AIDS could otherwise look and feel healthy (Ciampa *et al.*, 2012). Misconceptions about HIV/AIDS were also observed in a study in Swaziland, where it was found that respondents believed that HIV/AIDS could be cured by having sex with a virgin (Nxumalo, Okeke and Mammen, 2014).

Proper knowledge about HIV/AIDS as well as misconceptions about the disease strongly influences peoples' attitude towards PLHIV. A study of students by Shweta, Mundkur and Chaitanya (2011), found that the majority of the respondents (84.51%) knew that HIV does not spread by sitting with an infected person in a swimming pool. Furthermore, 58.75% of the students were aware that sharing a glass with an HIV infected person does not transmit the disease (Shweta *et al.*, 2012). Similarly, Mulu, Abera and Yimer (2014) explored the knowledge, attitudes and behaviour of students towards HIV/AIDS. They found that the majority (98.2%) of respondents knew that HIV cannot be spread through sharing of clothes, food and toilet (Mulu *et al.*, 2014). Furthermore, 90.3% of the respondents knew that there is no current cure for AIDS (Mulu *et al.*, 2014).

In a study exploring HIV/AIDS-knowledge and behaviour of Chinese college students living in the US and China, Tung, Cook, Lu and Yang (2013a) found that Chinese students in the USA fared higher on HIV/AIDS-related knowledge items. More Chinese students in the USA received HIV/STI information from online and family members than did students in China. Traditional media and school teachers had a stronger association with participants' HIV/AIDS-related knowledge, age at first intercourse and number of sexual partners in both samples than did other sources (Tung *et al.*, 2013a). However, a similar study of Chinese college students living in the USA revealed that about 41.4% of respondents believed that HIV could be transmitted by mosquito bites, while 22.6% were unaware that condoms could prevent HIV (Tung *et al.*, 2013b).

Several sources have cited university as a common breeding ground for HIV risk behaviours. A study conducted at two South African universities (Reddy and Frantz, 2011) revealed that despite the adequate knowledge on HIV/AIDS, 77.7% of students scored the lowest in the modes of transmission of HIV. The findings suggest that having an adequate knowledge of HIV/AIDS is not sufficient enough to promote behaviour change among the students (Reddy and Frantz, 2011). Ijadunola *et al.* (2007) also found that students displayed an 'optimism bias' behaviour despite being referred to as being at 'high risk' of contracting the disease. HIV risk perception is an important determinant of behavioural change and therefore complementing HIV/STIs preventive measures. These findings are consistent with a study in Brazil and elsewhere, where it was found that students did not consider themselves vulnerable to HIV/AIDS (Do Val *et al.*, 2013; Sisay, Erku, Medhin and Woldeyohannes, 2014).

2.4 ATTITUDE OF YOUTH TOWARDS HIV/AIDS INCLUDING PEOPLE LIVING WITH HIV

Since the discovery of HIV/AIDS epidemic, words such as death, guilt, punishment, prostitution, abomination and several others have been associated with HIV/AIDS (Amo-Adjei and Darteh, 2013). These misrepresentations have somehow built stigmatization and discrimination of PLHIV (Amo-Adjei and Darteh, 2013). Stigma and discrimination undermine the ability of individuals and communities to protect themselves from HIV and to remain healthy when they are HIV positive (UNAIDS/WHO, 2013). Furthermore, HIV/AIDS related stigma may create an environment where people may avoid HIV/AIDS-related services, especially HIV test (Maughan-Brown and Nyblade, 2013) and promote silence, dismissal from work, denials, violation of confidentiality and rejection by families (Owolabi *et al.*, 2012). Additionally, it prevents millions from coming forward for HCT and ART (e.g. uptake, adherence and retention of treatment) (Sidibe and Goosby, 2013). Furthermore, a report by UNAIDS/WHO (2013) shows that 19 million of the 35 million PLHIV globally do not know their HIV-positive status. PLHIV are often stigmatized and discriminated against and this impacts negatively on efforts to prevent the epidemic.

Maswanya, Brown and Merriman (2009) found that students were reluctant to use HCT and the main barriers for testing were ‘fear of being stigmatized’ and fear of discovery of HIV positive status. Furthermore, the results showed that there was HIV/AIDS- related stigma towards PLHIV (Maswanya *et al.*, 2009). In addition, Rahnema *et al.* (2011) found that only 19.5 % of all respondents indicated that they would inform their partners or family if they were diagnosed with HIV. On the contrary, in Uganda the majority of participants (88.4%) agreed to public disclosure of their HIV status (Kitara, Amone and Okello, 2012). However, another study by Kitara and Aloyo (2012) indicated that 64% of the people who tested positive for HIV did not disclose status to their partners.

In order to examine knowledge about HIV/AIDS and their attitudes towards PLHIV, a study in Yemen showed that participants had several serious misconceptions about HIV/AIDS and held negative attitudes towards PLHIV (Badahdah and Sayem, 2010). The study noted that although female students were less knowledgeable about HIV/AIDS than their male counterparts they had more positive attitudes toward PLHIV (Badahdah and Sayem, 2010). Similarly, Al-Rabeei, Dallak and Al-Awadi (2012) found that misconceptions about modes of transmission of HIV were high among 41% of the respondents. However, the study found that the attitude of respondents towards

PLHIV indicated that 59.8% were more caring and positive. In addition, 86.8% of the respondents were willing to care for PLHIV (Al-Rabeei *et al.*, 2012).

In Iran, for example, a study reported that half of respondents (33-46%) disagreed with PLHIV being able to enter schools and said that they would not sit near PLHIV or shake hands with them (Tavoosi *et al.*, 2004). However, nearly half of the respondents also said they were eager to show compassion towards PLHIV (Tavoosi *et al.*, 2004). Negative attitudes of youth towards PLHIV were also evident in Ghana, where two out every three participants believed that PLHIV should be quarantined and that the government should not spend money to provide health care for them since they would die anyway (Sallar, 2009). Similarly, students in a study in Nigeria appeared insensitive when asked about whether an HIV-infected classmate or teacher that was not sick should be allowed to attend classes, with 41% of respondents harboring a negative attitude towards an HIV-infected classmate at the same time while 35% were not in favour of an HIV infected teacher continuing to teach his/her classes (Wodi, 2005). Findings in a Hong Kong study indicate that 42% of participants stated they would not make physical contact with PLHIV and 35% thought medical staff infected with HIV should be dismissed and 47% agreed there should be legislation barring visits to Hong Kong by PLHIV (Lau and Tsui, 2005).

However, Tan, Pan, Zhou, Wang and Xie (2007) in China found that the attitudes of respondents towards PLHIV were found to be accepting and positive. In addition, 59.8% of respondents were willing to live with PLHIV in the same community (Tan *et al.*, 2007). In their study, Mulu, Abera and Yimer (2014) found that 82.8% of participants had favourable attitude towards HIV/AIDS while 92.4% indicated that they would live in one dormitory with HIV positive students (Mulu *et al.*, 2014).

However, a study to assess HIV/AIDS-related stigma and discrimination in South Africa indicated that the level of personal stigma was significantly lower than perceived in the community (Visser *et al.*, 2009). Additionally, respondents who were more stigmatizing and discriminating were older, male, less educated and those less knowledgeable about HIV/AIDS (Visser *et al.*, 2009). Finally, they were less likely to know someone living with HIV and had more traditional cultural views (Visser *et al.*, 2009). These findings were consistent with those found in a study in Ghana where it was found that people with higher education were more likely to express positive attitudes towards PLHIV and had lower tendencies of exhibiting HIV/AIDS-related stigma and discrimination

(Amo-Adjei and Darteh, 2013). However, in a study of health professional students in Nigeria, it was found that respondents had negative attitudes towards PLHIV (Oyeyemi, Jasper, Aliyu and Oyeyemi, 2012). In addition, their negative attitudes towards PLHV impacted negatively on their willingness to care for PLHIV (Oyeyemi *et al.*, 2012).

2.5 FACTORS ASSOCIATED WITH RISKY SEXUAL BEHAVIOURS AMONG YOUTH

2.5.1 Early coital debut (also known as early sex debut)

Early sex debut has been cited as driving new HIV infections among youth (particularly women) and poses an increased risk to STIs and unplanned pregnancies. Furthermore, early coital debut is a challenge because it is associated with regular sexual intercourse, inconsistent contraceptive use especially a condom, multiple sexual partners, non-consensual sexual debut, (Patel *et al.*, 2014) and unintended pregnancies (Pettifor, O'Brien, MacPhail, Miller and Rees, 2009) as cited in (Dietrich *et al.*, 2013). A study of PLHIV in India found that 32.2 % patients had a history of sexual intercourse before the age of 19 (Taraphdar, Dasgupta and Saha, 2009). Additionally, early coital debut among females was prevalent (91.8%) (Taraphdar *et al.*, 2009). Kurapati, Vajpayee, Raina and Vishnubhatla (2012) in a study focusing on a group of Indian adolescents living with HIV (ALHIV) concluded that risky sexual behaviour, including early sex debut was associated with HIV seropositivity.

In a study of sexually active adolescents by Teixeira and Taquette (2010) in Brazil, it was found that 80% of participants had sex before the age of 13; 13% had suffered sexual abuse; 77% did not use condoms regularly; and 22% had STIs. A similar study of sexually active female adolescents indicated that the prevalence of pregnancy among participants was 31.6% (Miranda and Szwarcwald, 2007). Likewise, not living with parents, not having access to health service, early coital debut and having less than 9 years of education were identified as independently associated with pregnancy (Miranda and Szwarcwald, 2007). A study by Bassols, Boni and Pechansky (2010) revealed an overall HIV seropositivity of 7.4% among female adolescent participants, who had a history of engaging in transactional sex, higher rates of pregnancy and abortion as well as early coital debut. Similarly, early coital debut was found to be strongly associated with other factors that may increase a young person's risk for HIV infection, such as coerced sex (Richter, Mabaso, Ramjith and Norris, 2015) and intergenerational sexual partnerships (Pettifor *et al.*, 2009).

Several studies in sub-Saharan Africa have shown that early age at first sex is associated with having multiple sex partners and a heightened risk of HIV transmission. In Tanzania, young people make up to 60% of all new HIV cases and half of all HIV prevalence and one of the reasons suggested is that adolescents initiate sexual activity earlier (Mmbaga, Leonard and Leyna, 2012). Accordingly, a study of adolescents in Tanzania suggested that 48.7% of the adolescents reported to be sexually active (Mmbaga *et al.*, 2012). Moreover, about half of the respondents (57.8%) had sex before the age of 15 years (Mmbaga *et al.*, 2012). 7% of the sexually active group used alcohol as stimuli before they engaged in sex for the first time (Mmbaga *et al.*, 2012). Bastien, Kajula and Sayem (2011) in a review of studies highlighted that delay of sexual debut was an important outcome since early sex debut has been linked with other risky sexual behaviours such as multiple and casual sexual partnerships as well as increased vulnerability to teenage pregnancy and STIs including HIV/AIDS. Consequently, another study asserted that adolescents who engaged in sex before the age of 20 31.4% have had teenage pregnancy (Reese, Haydon, Herring and Halpern, 2013).

Similarly, other studies in sub-Saharan Africa revealed significant associations between risky sexual behaviours including early sexual debut and HIV infection among young people (Stockl, Kalra, Jacobi and Watts, 2013; Chimoyi and Musenge, 2014). A study of sexually active women found a 40.1% HIV prevalence in a sample (Pettifor, Van der Straten, Dunbar, Shiboski and Padian, 2004). Additionally, 11.8% of women reported having coital debut before the age of 15 years (Pettifor *et al.*, 2004). Similarly, a study found a high HIV prevalence among participants aged between 12 and 25 years and early sexual debut were strongly associated with the high HIV prevalence (Kharsany *et al.*, 2012). Delaying the age of first sex can significantly reduce the chances of one from getting HIV. Furthermore, delaying age at first sex has been shown as a one of the contributory factors in the decline of HIV prevalence in the respective six sub-Saharan African countries i.e. Uganda, Kenya, Ghana, Tanzania, Zambia and Zimbabwe (Zaba, Pisani, Slaymaker and Boerma, 2004). Moreover, delayed coital debut has been associated with a reduction in HIV prevalence in younger cohorts (Gregson *et al.*, 2006). However, Hallet *et al.* (2007) argue that the benefit of delaying sexual debut is comparatively small and is reduced if males continue to prefer young partners or if young women spend more time unmarried.

On the other hand, a study of adolescents in three countries in sub-Saharan Africa showed a negative association between early coital debut and risky HIV behaviour (Yode and LeGrand, 2012). For example, it was found that Burkinabe girls who engaged in early coital debut (i.e. between the ages of 17 and 19), Malawian boys, and Ugandan young boys and girls between the ages of 14 and 16 years were more likely to have had one sexual partner in the past 30 days, not many as indicated in many previous studies. Furthermore, the investigators suggested that a delay in the onset of sexual activity during adolescent stage should be encouraged (Yode and LeGrand, 2012). In Namibia, Ntumba, Scott and Igumbor (2012) asserted that delaying the onset of sexual intercourse among adolescents and consistent condom use should be stressed.

According to a growing body of literature in South Africa, HIV/AIDS is endemic in the sub-population of 15-24 years and there are correlates between the age of coital debut and HIV seroprevalence. Wand and Ramjee (2012), in a study of sexually active women in KwaZulu-Natal (KZN), South Africa found that prevalence of HIV, STIs (chlamydia, gonorrhoea, syphilis) and herpes simplex virus 2 (HSV2) were 41%, 16% and 73%, respectively. Similarly, the highest seroconversion rate of HIV/AIDS was observed among women who had reported to have had sex at 15 years or younger (Wand and Ramjee, 2012). Consequently, the association of HIV status with younger age at sexual debut may be likely due to an increased number of lifetime partners (Wand and Ramjee, 2012). Based on data from a survey by Pettifor *et al.* (2009) found that young women were more likely than young men to engage in early sex debut. Similarly, young women who have had coital debut at a tender age were more likely to report that their partner had physically coerced them into sex (Pettifor *et al.*, 2009). Furthermore, young women who have had their sexual debut at an early age or had experienced sexual coercion were more likely to report condom nonuse at their first sexual encounter (Pettifor *et al.*, 2009).

2.5.2 Intergenerational sex

Intergenerational sex practice (i.e. relationships with a 10-year or more age gap between sexual partners or age-disparate relationships, i.e. relationships in which the age gap between sexual partners is five years more (UNAIDS, 2011a); in particular where young females have sexual relationship with older males have been touted as another important driver of HIV in sub-Saharan Africa, particularly in the southern African region (Harrison, Colvin, Kuo, Swartz and Lurie, 2015). (Katz and Low-Ber, 2008; Poulin, 2007; Southern African Development Community,

2006). Young women are on average, three to six more likely to be infected with HIV than their male counterparts in southern Africa region (UNAIDS, 2012). A number of studies found that compared to both older men and older women, in young women, there are a number of biological factors that have been identified to explain this age/gender-disparity in vulnerability. For example, the still-maturing cervix has a higher proportion of genital mucosa exposed to HIV that is highly susceptible to infection, and young women have relatively high levels of genital inflammation which has consistently been reported to increase HIV acquisition risk (Dellar, Dlamini and Karim, 2015; Yi, Shannon, Prodger, McKinnon and Kaul, 2013). While biological factors such as still-maturing young women vaginal mucosa may account for women's greater susceptibility to HIV; the difference is marked and cannot be explained on the basis of biological factors alone (Leclerc-Madlala, 2008). For all intents and purposes, the concept intergenerational sex is more common between a young female and an older male partner (commonly referred to as sugar daddy syndrome), but the phenomenon is reported to be on the increase (Forsloff, 2009), which may have significant implications for the prevalence of HIV/AIDS as observed by (Phaswana-Mafuya *et al.*, 2014). This study will focus on the "sugar daddy syndrome".

A number of studies suggest that young people who have less exposure to sex are sexually connected with more sexually experienced adults whose HIV prevalence is likely to be high (Muula, 2008; Doherty, Shiboski, Ellen, Adimora and Padian, 2006). Further, awareness of HIV risks in these relationships (intergenerational sexual partnerships) remains low (Leclerc-Madlala, 2008). Young women were also found to be more worried about the risk of falling pregnant or being 'caught' in their relationships with older men than contracting STIs and/or HIV/AIDS (Jones, 2006; Nkosana and Rosenthal, 2007). Some older men, on the other hand believe that younger women are less likely to be infected with HIV and they consider young girls 'safe' (Woolf and Maisto, 2008). Finally, Amo-Adjei, Kumi-Kyereme and Tuoyire (2014) found that young women engage in age-mixing relationships just like transactional sex relationships primarily for material gain not for survival as cited elsewhere.

Intergenerational sex bears common similarities to transactional sex because sex is exchanged for money and/or other materials but the concept of intergenerational sex is clearly for commercial sex or prostitution. The former is based on material support mainly through relationships with a 'sugar daddy or sugar mummy' (Moore and Biddlecom, 2007). A study by Shisana *et al.* (2005) found a

higher HIV prevalence among adolescent males and females alike who reported to have sexual partners who were five or more years older than themselves. In the same vein, evidence from other studies suggest that intergeneration sex contributes to early coital debut and HIV prevalence among young females (Pettifor *et al.*, 2009; Shisana *et al.*, 2009; Speizer *et al.*, 2009).

Mercer *et al.* (2009) demonstrated that unequal power dynamics in such relationships; young women in age-mixing relationships are most vulnerable to HIV infection because of their inability to negotiate condom use (LeFranc, Samms-Vaughan, Hambleton, Fox and Brown, 2008; Gage and Hutchinson, 2006). In instances where a young woman does not assert herself, she is faced with the likelihood of gender-based violence (Zulu, 2007). Young women reported that they often cannot insist on safe sex practices as doing so would jeopardize their economic goals in the relations (Luke, 2005)

Several studies have explored factors luring girls to engage in intergenerational sexual partnerships. Evidence from several studies indicate that young women commit to intergenerational sexual partnerships with older partners for primarily economic survival; education expenses enhanced social status among their peers and connections in social networks; improved life opportunities and options; security; love and most probably the option of marriage (Mavhundu-Mudzusi, Sandy and Tshibangu-Kalala, 2014; Toska *et al.*, 2015).

It is strikingly obvious that the National HIV Prevalence, Incidence, Behaviour and Communication Survey conducted by South African Human Sciences Research Council specifically pin-pointed intergenerational sexual relationships between young women and older men as a significant risk factor for young women with respect to their vulnerability to HIV infection (Shisana *et al.*, 2009). The number of women with sexual partners who were more than 5 years older than them was found to have increased from 18.5% in 2005 to 27.6% in 2008 (Shisana *et al.*, 2009). According to study by Bhana and Pattman (2011) young women in KZN, found that ideals of love amongst participants were bound with their dreams for material goods.

High risk intergenerational sex may also occur between older men who know they are infected with HIV, and young virgin women wittingly engage in unprotected sex (Ogana, 2006). In South Africa, as in many countries in Southern Africa there is a growing myth that having sex with a virgin cures HIV/AIDS. The extent to which such practices could be driving the HIV epidemic in

South Africa is likely to be small though (Muula, 2008). However, a study found a negative association between intergenerational sex and HIV incidence (Harling *et al.*, 2014).

2.5.3 Multiple concurrent relationships

There is a growing body of literature that shows that multiple concurrent relationships and casual sex facilitates the spread of STIs which would increase the risk of HIV (Mah and Halperin, 2010). People who have multiple concurrent sex partners are considered to be at-most-risk group for HIV infection (Fehringer *et al.*, 2013; Maughan-Brown, 2013). When people engage in unprotected sex with many different partners they increase their vulnerability to HIV (Southern Africa HIV and AIDS Information Dissemination Services, 2014). According to UNAIDS concurrent partnerships is overlapping sexual partnerships where sexual intercourse with one partner occurs between two acts of intercourse with another partner (UNAIDS, 2009). Sex with non-primary partners may pose high HIV risks to often 'less-risk' monogamous primary partners (Kalichman *et al.*, 2013; Astatke, Greiner, Costenbader and Meyanathan, 2012). Men are more likely than women to have concurrent partnerships (Onoya, Zuma, Zungu, Shisana and Mehlomakhulu, 2014).

Studies of STI clinic attendees established that men consider it 'normal' to have more than one sexual partner as this supports their sense of masculinity (Senn, Scott-Sheldon, Seward, Wright and Carey, 2011). Moreover, these studies revealed that men reported an average of 3.9 female partners in the past 90 days (Carey *et al.*, 2010; Senn *et al.*, 2011). Similarly, Nunn *et al.* (2012) found that multiple concurrent partnerships were prevalent among African American women and the motivations were almost identical as their male counterparts. Additionally, 89.4% women reported one main and one or more non-primary partners (Nunn *et al.*, 2012).

A study by Waldrop-Valverde, Davis, Sales, Rose and DiClemente (2013) demonstrated the high prevalence of sexual concurrency among young African American women, with the results showing that almost one-quarter of participants reported sexual concurrent partnerships and 28.4% suspected male partner concurrency. A study of sexual active villagers in China found that 66.7% reported multiple sexual partnerships in the past year (Yang *et al.*, 2012). On the contrary, only 21.3% reported that they had used a condom in the same period (Yang *et al.*, 2012).

There were approximately 2.4 million PLHIV by the end of 2011 in India (Arora, Nagelkerke and Jha, 2012). And several factors have been identified for this large disease burden. A study on risk

factors for sexual transmission of HIV in India (Arora *et al.*, 2012) identified that having multiple sexual partners and a history of STIs increase the probability of HIV infection. Arora *et al.* (2012) further notes the risk factors examined in their analysis should remain targets of HIV preventive programs. The findings also confirm the assertion that sexual risk factors for HIV infection continue to be an important part of Indian HIV epidemic nearly three decades after first case of HIV has been discovered.

Similarly, a study by Chen *et al.* (2007) demonstrated that the number of sex partners, history of commercial sex and infection with HSV-2 or other STIs showed significant associations with HIV. The findings in this study are in line with previous studies elsewhere which suggest that multiple sexual relationships, casual sex, STIs notably HSV-2 are as important to HIV transmission in advanced as in early HIV epidemic (Chen *et al.*, 2007). Another study also found a positive association between HSV-2 and HIV infection (Lemme *et al.*, 2013). Nevertheless, several sexual behavioural factors (condom use, number and type of sexual partnerships) were also associated with HIV infection (Lemme *et al.*, 2013). Fatusi and Wang (2009) also highlighted an association between multiple sexual partners and STIs. Multiple sexual partners and early sexual debut are associated with STIs among adolescents and young adult males (Fatusi and Wang, 2009).

According to UNAIDS (2012), the Caribbean region was most affected by HIV/AIDS after sub-Saharan Africa. A study found that 73% of respondents reported condom use with a casual partner and 14% with a cohabiting partner (Cobat, Halfe and Gremy, 2008). Additionally, men and women who engaged in concurrent partnerships in the past five years were at higher risk of infection: 7% reported an STI versus 4% among those who had two or more partners but not at the same time (Cobat *et al.*, 2008). A review of Caribbean sexual behaviours surveys identified that more young males than females reported multiple partnerships in the past 12 months associated with inconsistent condom use (Allen *et al.*, 2013).

The HIV/AIDS epidemic in sub-Saharan Africa has been attributed to high-risk sexual behaviours including, but not limited to multiple concurrent sexual partnerships by both genders. The findings from a study of Kenyan youths revealed that concurrent partnerships was frequent in the population with 61% of all partnerships being concurrent (Westercamp, Mattson and Bailey, 2013). Furthermore, the lifetime prevalence of concurrency was 77% (Westercamp *et al.*, 2013). These findings were consistent with other studies in Kenya which found that disco funerals were

an important place for young people to meet and engage in risky sexual activities such as transactional sex partnerships, multiple concurrent relationships, and girls were often gang-raped or coerced into sex (Njue, Voeten and Remes, 2009, 2011).

Evidence indicates that the HIV prevalence in South Africa varies by racial group. In an effort to explain the difference in the HIV prevalence among different racial groups in South Africa, a study showed that the prevalence of HIV was 0.5%, 1%, 3.2% and 19% in an adult population of Whites, Indians, Coloureds and Black Africans respectively (Kenyon, Buyze and Colebunders, 2013). Moreover, the reported prevalence of concurrency was 6 to 17 times higher in the Black Africans as opposed to the White men (Kenyon *et al.*, 2013). The differences in sexual behaviour in general and the multiple concurrent relationships above all could well explain the marked differences of HIV prevalence between South African races, with Blacks, being the hardest hit by HIV/AIDS (Kenyon *et al.*, 2013). Studies further revealed that congruency was more common with males, Black Africans, those who knew that their partner had another partner, early coital debut, four or more life sexual partners, alcohol use, and self-perception of being at high risk for contracting HIV (Kenyon, Boulle, Badri and Asselman, 2010).

Nevertheless, a study in Uganda found no evidence of association between extra-spousal partnerships and a form of sexual concurrency with HIV serostatus (Kasamba, Sully, Weiss, Baisle and Maher, 2011). Likewise, for both men and women, extra-spousal partnerships were associated with not knowing their partners' HIV status, and extra-spousal partnerships were also associated with increased condom use (Kasamba *et al.*, 2011). Furthermore, extra-spousal partnerships in the past year were reported by 17% of married men and 2% of married women, further alluding to the fact that men are serial cheaters (Kasamba *et al.*, 2011). A study in a HIV hyper endemic area in KZN of South Africa showed no evidence to suggest that concurrent partnerships are an important driver of HIV incidences in sub-Saharan Africa, further casting doubt on this weakly held notion without concrete empirical evidence (Tanser *et al.*, 2011). Similar studies about correlation of concurrent sexual partnerships and high HIV prevalence in Sub-Saharan Africa (Sawers and Stillwaggon, 2010; Reniers and Tfaily, 2012) found no association.

2.5.4 Condom use among youth

Condom use is an important tool of combination prevention and one of the most efficient technologies available to effectively reduce the sexual transmission of HIV among sexually active people (UNAIDS, 2012), other STIs and unplanned pregnancies (Pazol, Kramer and Hogue, 2010; Bankole, Singh, Hussain and Oestreicher, 2009). STIs increase the probability of contracting HIV (Naidoo, Wand, Abbai, and Ramjee, 2014). A condom – if correctly and consistently used guarantees more than 90% effectiveness at preventing acquisition and transmission of HIV (Nabikindu, 2014; Exavery *et al.*, 2012). According to De Coninck and Marrone (2012), condom use is an important indicator of safe sexual behaviour and failure to use it consistently during sexual intercourse with an HIV positive individual is a potential predictor of future HIV infection. A study of high school female learners in Cameroon found that although the respondents recognized the dangers of risky sexual behaviour including unsafe sex, they found it difficult to use protective measures such as delay in sexual debut, having one steady primary sexual partner and condom use consistently and they usually did not perceive themselves as at risk (Tarkang, 2015).

Moreover, studies show that consistent and correct condom use not only reduce the risk of HIV acquisition but other STIs, including chlamydia, gonorrhoea, and trichomoniasis (Crosby, Charnigo, Weathers, Caliendo and Shrier, 2012; Beksinska, Smit and Mantell, 2012; Holmes, Levine and Weaver, 2004). Another study regarding condom effectiveness to prevent HIV (Vera, Orozco, Soto and Aburto, 2008) demonstrated that male condom protection against HIV/AIDS in heterosexual serodiscordant partners was 60 to 95%. Moreover, two studies found that reported consistent condom use among a group of men reduced the risk of HPV acquisition (Campbell *et al.*, 2013).

Although there is an increasing extant literature suggesting an increased condom use at last sex among young people (Mantell *et al.*, 2011; UNAIDS (2012), negative attitudes towards condoms such as fertility desires and sexual conformity of women as way to accomplish their economic status still exist (Ochako *et al.*, 2015). In addition, negative barriers to condom use stem out of cultural beliefs that ‘good sex’ and perceptions of sex from a procreation standpoint (Golub, Starks, Payton and Parsons, 2012). Furthermore, evidence from several sources indicate that condom dislike is due to several reasons, including assertions that it reduces sexual pleasure (Noroozi, Khoei, Taleghani, Tavakoli and Gholami, 2015; Abdurraheem and Fawole, 2009) ,

condoms “contain worms” and instead of preventing HIV they cause infection (Siegler, Mbwambo, McCarty and DiClemente, 2012), uncomfortable to use, and they stuck into a vagina (Tavory and Swidler; 2009 ; Kaler, 2004), and that they promote infidelity (Kennedy *et al.*, 2015). Other barriers such as perceived self-efficacy of condoms, myths such as those reported by (Bankole, Biddlecom, Guiella, Singh and Zulu, 2007), belief that condoms had small holes or can disappear into the vagina have also been reported (Versteeg and Murray, 2008). Bankole *et al.* (2007) reported that participants believed that condoms impact negatively on sexual pleasure. A study by Gimenez-Garcia (2012) concurred that a perceived decreased in sexual pleasure associated with condom use was an important barrier among youth.

On the other hand, marital status greatly affects condom use (Exavery *et al.*, 2012). In non-marital relationships condom use is high and is primarily intended for preventing STIs, especially HIV/AIDS. These findings are inconsistent with other prior studies which suggest that condom use in casual sexual relationships is low (Exavery *et al.*, 2012). In contrast, condom use and marriage are incompatible since bringing the two together may be thought of as confessing cheating/infidelity (Chimbiri, 2007). Evidence suggest that besides preventing pregnancy condom use within marriage shows lack of trust between partners and consequently betrays the intimacy that is fundamental in building marriages (Chimbiri, 2007). Married women would most likely use condoms if they knew or suspected that their partners could be infected with HIV or other STIs (Exavery *et al.*, 2012). Condom use among unmarried women may be affected by the type of relationship (Exavery *et al.*, 2012). In relationships in which large amounts of material support are involved condom use is less likely (Maswanya, Moji, Aoyagi and Takemoto, 2011). Also, condom use tends to be higher in the beginning of a relationship but drops in subsequent contacts as the relationship advances, even if HIV status may be unknown (Tavory and Swidler, 2009) and this is referred to as condom fatigue .

Recent data indicates that Brazil bears the highest burden of HIV in Latin America (UNAIDS/WHO, 2013a). By the end of 2012 there were approximately 730.000 adult PLHIV in Brazil. The prevalence of the whole of Latin America was estimated at 1.5 million in 2012 (UNAIDS/WHO, 2013). A study of PLHIV in Brazil found that the 14-24.9 year-old age stratum carried the highest proportion of recent infection (25%) (Bassichetto *et al.*, 2008). Moreover, of those HIV-1 infected individuals the main route of transmission was sexual contact (89.4%) and

unsurprisingly, 53.4% of infected individuals had a history of inconsistent condom use (Bassichetto *et al.*, 2008). The study found that young participants were most vulnerable to HIV infection, confirming what is already known based on data from previous studies (Bassichetto *et al.*, 2008). The study further revealed that younger individuals were not only most at risk of recent HIV-1 acquisition, but were also least likely to seek out HCT (Bassichetto *et al.*, 2008). In another study it was found that among adolescents who stated that they have had sexual intercourse before the age of 13 years, 21% did use condoms the last time they had sex (Oliveira-Campos, Giatti, Malta and Barreto, 2013).

The heightened vulnerability to HIV infection of younger individuals may be attributable to several factors, including unprotected receptive anal sex. The risk of HIV transmission is 18 times more likely to occur through unprotected receptive anal sex than through unprotected vaginal sex (Baggaley, White and Boily, 2010). A study of men who have sex with men (MSM) found risky sexual behaviours, such as nearly all men (93%) had more than one current sex partner, knowledge levels about HIV and other STIs were low and HIV stigma was high and younger men who have sex with men (YMSM) used condoms less often for receptive anal and vaginal sex (Nelson *et al.*, 2015). The study affirms the discrepancy between knowledge on HIV/AIDS and sexual practices, including inconsistent condom use. As mentioned earlier, sexual transmission accounts for the majority of persons who are newly infected by HIV infection, thus undermining the UN's goal of getting to zero new HIV infections by 2015, and will require substantial reductions each year. Achieving zero HIV infections will require effective combination prevention, including the provision of condoms and behavioral change measures in the at-most risk subpopulation: the youth (UNAIDS/WHO, 2012). Nowhere in the world is that statement truer than in sub-Saharan Africa where most HIV incidences are transmitted heterosexually (UNAIDS/WHO, 2012). In spite of preventive measures, young people continue to engage in risk sexual behaviours and do not use condoms consistently (Lillie and Curbow, 2009).

For example, a study in Ethiopia revealed that 5.4% of the overall proportion of adolescents had ever engaged in oral sex and 4.3% of them had ever engaged in anal sex (Cherie and Berhane, 2012). Additionally, 51.6% had oral sex and 57.1% had anal sex in the past year. Consequently, consistent condom use was reported by 12.2% of those practicing oral sex and notably 26.1% of anal sex (Cherie and Berhane, 2012). This is comparable to the study by Shiferaw *et al.* (2011)

which showed that despite youth knowledge of HIV/AIDS they continue to lead risk sexual behaviour. Engaging in unprotected anal sex has been shown to increase HIV risk by 13 times compared to oral sex (Ramjee and Daniels, 2013). A study involving adolescents attending schools in Cape Verde found that the majority (84.72%) of respondents reported having used a condom in their first sexual intercourse (Tavares, Schor, Junior and Diniz, 2009). On the other hand, of these, 78% stated that they had used condoms primarily to avoid unplanned pregnancy, 67% to avoid unplanned pregnancy and STIs, and 58% to avoid STIs (Tavares *et al.*, 2009). The findings in this study reflect an optimistic change in sexual behaviour among adolescents and could well explain the low prevalence of HIV in Cape Verde.

A more positive attitude towards condom was also evident in a study of out-of-school adolescents by Nobelius *et al.* (2012) that despite an abundance of negative discourses and myths about condoms in their community, adolescents believed condoms protect them from STIs including HIV, and unintended pregnancies. Moreover, girls wanted their male partners to use condoms, but most lack condom self-efficacy. Girls aged 13-14 years reported the least difficulty asking for condoms. This is contrary to previous studies which found that young girls did not have bargaining powers for condom use in relationships; older girls attributed this to coming-of-age in the AIDS era. Boys over the age of 17 years always use condoms with casual partners, but only occasionally for pregnancy prevention with steady partners (Nobelius *et al.*, 2012). However, a similar study revealed high incidences of non use of condom among those who had ever had sexual intercourse; citing that it reduces sexual pleasure (Adebiyi and Asuzu, 2009).

HIV/AIDS-related knowledge does not translate into safer sex practice. For example, a study of university students by Agardh, Tumwine and Ostrergren (2011) in Uganda indicated that among sexually experienced students, 46% of the males and 23% of the females had had three or more sexual partners, and 32% of the males and 38% of the females did not consistently use condoms. However, the findings in this study contrast with results from a study of medical students which showed a high utilization of condoms among sexually active groups (65%) (Daniyam, Agaba and Agaba, 2010).

As demonstrated earlier, reported condom use at last sex has increased considerably among South African youth in general. A survey provided a more encouraging report on the status of increased condom use among youth at last sex in general from 57.1% among young males and 46.1% among

young females in 2002 to 87.4% and 73.1%, respectively, in 2008 (South African National HIV Prevalence, Incidence, Behaviour and Communications Survey, 2008). However, rates of HIV as well as teenage pregnancies, the indicators of unprotected sex remained alarmingly high among South African youth (Chersich and Rees, 2010). Heeren, Jemmott, Mandeya and Tyler's (2007) study revealed that about three-quarters of university students in South Africa had early sex debut; were less likely to use condoms at first sexual intercourse encounter, had sex with multiple partners in the past 90 days prior the study. Moyo, Levandowski, MacPhail, Rees and Pettifor's (2008) study of demonstrated that only 39.2% of young men reported consistent condom use with their most recent sex partner.

As stated earlier women in sub-Saharan Africa account for nearly 60% of HIV infections. A number of studies have shown that poverty, age, and risk sexual behaviors are some of the reasons for women's heightened HIV risk in the sub-Saharan Africa region. Indeed, study findings in Ivory Coast and Kenya indicated that for every young man aged 18-24 years infected with HIV there were five young women aged 18-24 years (Singh, Buckner, Tate and Kamwanga, 2011). Results from a South African study of women suggest that women are dependent on their male partners' use of condoms (Pitpitan *et al.*, 2012). In addition, compared to women who did not fear condom negotiation, those who did were less likely to report more gender-based violence and unprotected sex (Pitpitan *et al.*, 2012). However, results from another study in South Africa found an overall high use of condom use among participants (60.3%) at last sexual encounter (Van Loggerenberg *et al.*, 2012). Moreover, self-perceived ability to use condoms, the level of formal education and condom use as a contraceptive were all significantly associated with self-reported condom use at sexual encounter.

A study of young people by (Chimbidi, McGrath, Herbst, Tint and Newell 2010) about condom use and consistency in HIV hyper endemic area of KZN suggests a low condom use among participants. About 48% of sexually active participants reported that they had never used condoms, (25%) reported "sometimes", and (27%) reported "always" using condoms with the most recent partner. In like manner, low condom use was associated with femininity and having a regular partner (Chimbidi *et al.*, 2010). Correspondingly, a Ugandan youth study found that only 34% (males) and 30% (females) reported using a condom at sexual debut (Valadez, Jeffery, Davis, Ouma, Lwanga and Moxon, 2014). However, a study of university students showed that 90.7% who were

sexually active 90.5% used condoms as contraceptive the last time they had sex (Hoque and Ghuman, 2012).

Extant evidence shows a negative attitude towards condoms across several populations in Africa. A study conducted by (Exavery *et al.*, 2012) of adolescents in three rural districts of Tanzania found that acceptance of condom promotion and distribution was found among 37% of the adolescents. It is interesting to note that being sexually active and aged 15–19 was the strongest predictor of the acceptability of condom promotion and distribution. The rest of participants did not agree that a condom was effective in preventing transmissions of STIs, including HIV. However, in their study of students, Mbarushimana and Ntaganira (2013) found that about (81%) believed that female condoms could prevent HIV and (78%) unplanned pregnancies and STIs.

2.6. SUMMARY

This chapter discussed data-based literature of HIV-related knowledge, attitudes and risky sexual behaviours among youth. The next chapter will discuss the research methodology.

CHAPTER 3

METHODOLOGY

3.1. INTRODUCTION

This chapter outlines the research methodology used in this study. The study design, study settings, population, data collection methods and ethical considerations are also discussed in this chapter.

3.2 STUDY DESIGN

A cross-sectional survey was conducted among youth aged 15-24 years visiting Namakgale primary health care clinics which are the only primary health care facilities in Namakgale. The study adopted a quantitative, descriptive approach. A quantitative, descriptive design enabled the exploration of more information about the knowledge, attitudes and behaviour of Namakgale youth towards HIV/AIDS as recommended by (Babbie and Mouton, 2001). According to Burns and Grove (2009) a cross sectional survey seeks to determine the current status of a population's characteristics at one point in time while also attempting to discover the relationships among variables (Tugli, Zungu, Klu and Ramathuba, 2014).

3.3 STUDY SETTING

The study was conducted at two clinics in Namakgale, namely, Namakgale A Clinic and Namakgale B Clinic. The clinics are in close proximity to one other and residents of Namakgale and the neighbouring village of Mashishimale utilize them interchangeably. Namakgale is divided into five sections; A, B, C, D and E. In 2011 its population was 36365 in (StatsSA, 2012). Namakgale is a large township which is situated in Ba-Phalaborwa municipality in the Mopani district, Limpopo Province (South Africa). Ba-Phalaborwa is a mining area situated in the north-eastern part of Mopani less than one kilometre from the Kruger National Park border and includes the towns of Phalaborwa, Namakgale, Lulekani and Gravelotte and is surrounded by the five traditional authorities of Makhushane, Majeje, Mashishimale, Maseke and Seloane (StatsSA, 2012). Namakgale comprises of people who speak different languages including; Sepedi and Xitsonga (StatsSA, 2012). Transactional sex, teenage pregnancy and alcohol abuse are some of the problems which affect Namakgale youth as do other areas in Ba-Phalaborwa municipality and consequently result in high HIV/AIDS prevalence (Shilumani, 2007). The majority of Namakgale residents are Africans.

3.4 STUDY POPULATION AND SAMPLING

3.4.1 Study population

In this study, the target population included all young clients aged 15-24 years visiting two Namakgale clinics, who had resided in Namakgale for the past twelve months prior the commencement of the study. The target population is the entire aggregation of respondents that meet the designated set of criteria (Burns and Grove, 1997).

3.4.2 Sampling Method

In this study, convenience sampling was used to select respondents. According to Polit and Beck (2006) convenience sampling involves drawing samples that are both easily accessible and willing to participate in the study. A total of 152 Namakgale youths who were clients at Namakgale clinics and had resided in Namakgale for the past twelve months were selected. This sampling method was chosen because it was hoped that it would allow the researcher to study phenomena under investigation on readily available young participants (Brink, Van der Walt and Van Rensburg, 2006). The major limitation of convenience sampling was that the sample was not representative enough and therefore results could not be generalised to the whole youth population in Namakgale and Ba-Phalaborwa (Dunn and Ferri, 1999).

Participants were recruited when they came for consultations or when they came for LoveLife sessions at Namakgale clinics. Young people in Namakgale consult the clinics for various services including HIV/AIDS, STIs and TB (HAST), ANC, family planning and for acute and minor consultations. The clinics were purposively selected for the study as they were the only clinics in Namakgale, and as demonstrated by StatsSA, (2012) this age group mostly use clinics.

3.4.4 The sample frame

The sample frame was based on the total number of young clinic attendees in 2013 for the respective clinics (Ba-Phalaborwa DHIS, 2013). Shown in Table 1, is the sample frame for the study.

Table 1. Sample Frame of clinics and participants stratified by gender.

Clinic	Male Youth	Female Youth	Grand total
Namakgale A	106	332	438
Namakgale B	126	403	529

Grand Total	232	735	967
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3.4.5 Sample size

The sample size was calculated using Slovin's formula, where N is the total number of young clinic attendees for the year 2013 for both clinics (PHC clinics youth' headcount i.e. 967), n is the sample size and e is the accepted level of error. For this study e is 0.05.

$$n = N / (1 + Ne^2)$$

$$n = 967 / (1 + 967 \times (0.05)^2)$$

$$n = 967 / (1 + 5.09)$$

$$n = 967 / 6.09$$

Sample size (n) = 159

$$\text{Namakgale A clinic sample size (n)} = 438 / (1 + 438 \times (0.05)^2)$$

$$n = 438 / (1 + 438 \times (0.05)^2)$$

$$n = 438 / (1 + 5.09)$$

$$n = 438 / 6.09$$

$$n = 72$$

Sample size for Namakgale A Clinic (n) = 72

$$\text{Namakgale B clinic sample size (n)} = 529 / (1 + 529 \times (0.05)^2)$$

$$n = 529 / (1 + 5.09)$$

$$n = 529 / 6.09$$

Sample size for Namakgale B Clinic (n) n= 87

According to Nelson, Groom and Potrac (2014), it would be extremely difficult for any researcher to study the entire population. Consequently, Kelley, Clark, Brown and Sitzia (2003) conceded that much as larger samples are more powerful when it comes to accurate study findings, they are time

consuming and expensive. It is important to note that as much as large samples are important for making accurate inferences they do not necessarily guarantee estimates that are unbiased (UNAIDS/WHO, 2011b, p. 21). However, if the sample is too small it may fail to answer the research question, and to detect important effects or associations, or may rather estimate those effects or associations imprecisely. Accordingly, optimum sample size is an important component of any study (Zodpey, 2004).

In this study, 7 participants from Namakgale B Clinic who had initially agreed to complete the questionnaires failed to do so. In turn, only 152 participants completed questionnaires. Based on the above formula, the adjusted sample size for Namakgale A was 72 and for Namakgale B clinic was 87. This sample size was based on each clinic's annual headcount of young people who attended the clinics in 2013 (Ba-Phalaborwa DHIS, 2013). According to The Health Communication Unit (2007, p. 54) arriving on the sample size is primarily driven by the budget and size of the subgroups one wish to analyze.

Shown in Table 2, is the sample size distribution for the study.

Table 2. Sample size distribution

A total of 152 participants completed the questionnaires; 80 participants from Namakgale B and 72 participants from Namakgale A as shown in Table 2.

Namakgale Clinics	Number of participants
Namakgale A	72
Namakgale B	80
Grand Totals	152

Inclusion Criteria

In this study, all youth aged 15-24 years visiting Namakgale clinics who could speak Xitsonga, Sepedi and/or English were included. According to Rees (1997), inclusion criteria are the characteristics that researchers want those in a sample to possess.

Exclusion criteria

In this study, young clients from nearby villages of Ba-Phalaborwa such as Mashishimale, Majeje and Maseke who come for consultations at Namakgale clinics were excluded from the study. In addition, young people who were mentally incapacitated were not included in the study due to potential ethical issues (NDoH, 2006). Likewise, young participants who had not resided in Namakgale for less than 12 months prior data collection were not involved in the study. Talbot (1995) defines exclusion criteria as characteristics which a participant may possess that could adversely affect accuracy of the study findings.

3.5 DATA COLLECTION INSTRUMENT

3.5.1 Questionnaire

Self-completed structured questionnaire were employed to collect data pertaining to HIV/AIDS-related knowledge, attitudes and behaviour among the youths. The questionnaire was constructed in English, translated into the two main languages spoken in Namakgale, namely: Sepedi and Xitsonga and then translated back into English during survey development to ensure internal validity as recommended by Pearson, Stevens, Sanogo and Gonzalo (2012).

A questionnaire was employed as a data collection instrument to gather data pertaining to knowledge, attitudes and behaviour towards HIV/AIDS among the youth as questionnaires ensure client anonymity and no researcher bias (Acorn and Barnett, 1999). The questionnaire contained 40 items to be rated according to 5 point Likert scale (for example, *1=Strongly Disagree, 2=Disagree, 3=Don't know, 4=Agree and 5=Strongly Agree*). According to Stronge and Brodt (2005), a questionnaire can be used to measure knowledge, attitudes and provide insights into an individual's behaviour.

The questionnaire was divided into four sections: Section A focussed on socio-demographic characteristics of the respondents including ethnicity, age, and religion. Section B contained 28 HIV/AIDS-related knowledge items including respondents' sources of information, transmission prevention and control of HIV/AIDS. Section C comprised of 12 questions on attitudes of youth towards PLHIV. Finally, Section D contained 27 questions about practices related to HIV/AIDS, including risky sexual behaviours and daily activities. Because questionnaires tend to have a low return rate (Phellas, Bloch, and Seale, 2011) the following steps were taken to overcome these potential barriers:

(i). A well-written information letter was sent with the questionnaire explaining the main reason why the study was being carried out and guaranteeing confidentiality of responses. A reminder letter was sent to respondents three weeks after the initial contact. (ii) Respondent burden' puts pressure on respondents through the time and effort necessary to complete a questionnaire. In order to overcome this problem, close-ended questions which are more efficient and less-time consuming for respondents were employed and instructions were clear (Polit and Beck, 2010) (Appendix 6).

3.6 PLAN FOR DATA COLLECTION

In order to preserve confidentiality and privacy of each participant, two quiet rooms (stations) were used in each clinic to conduct data collection.

3.6.1 Questionnaire administration

The respondents were asked to complete anonymous self-completed questionnaires at the respective facilities in the presence of the research team. Instructions were given to the participants prior to the completion of questionnaires on unacceptable behaviours such as talking to each other or discussing their responses. In addition, participants were briefed about difficult terminologies used in the questionnaire and were given guidance on how to fill the form before data collection.

3.6.2 Pre-testing of the instrument

The questionnaire was pre-tested on 15 young clients who did not take part in the main study but did possess all the attributes required for inclusion in the sample at nearby Mashishimale Clinic, representing 10% of the actual population recommended for pre-testing the questionnaire (Czaja and Blair, 2005).

Before the survey, the questionnaire was pre-tested in order to ensure (1) the acceptability of the test to the population surveyed (2) the proper/improper interpretation of the meaning of the questions asked (3) that the duration of administering the questionnaire remained reasonable (4) that the questions are easy to follow and coded well and (5) to identify the reactions of respondents and potential problem questions (Thanavanh *et al.*, 2013; Polit and Beck, 2004). Finally, all mistakes and challenges experienced in the pre-test were rectified in the main study.

3.7 VALIDITY AND RELIABILITY

3.7.1 Validity

According to Polit and Hungler (1995), validity refers to the degree to which the data collection instrument measures what it is supposed to measure. Self-reporting data on sexual behaviour is inherently unreliable and invalid due to multiple sources of bias, including under-reports of stigmatized behaviours and over-reports of normative behaviours, making validity checks on sexual behaviour data a must (DiClemente *et al.*, 2013).

3.7.2 Reliability

The questionnaire (Appendix 7) for this study was designed and developed after extensive consultation with the supervisors and other experts in public health in the Department of Public Health at the University of Venda. The process of developing the questionnaire also involved extensive literature search on the topic and related studies. In order to ensure that the questionnaire was appropriate for the target population the questionnaire was structured in simple English as explained in Section 3.5. In addition, the questionnaire was pre-tested at Mashishimale clinic on 15 young participants who shared the same attributes with the target population but were not included in the main study. In addition, the participants were allowed time to go through the questionnaire while the researcher was around so as to understand if there was ambiguity or difficulty concerning the understanding of the questionnaire. Also, during the pre-testing, problem areas, misinterpretations, or culturally unacceptable sexual terminology were identified and rectified in the main study.

According to Polit and Beck (2004), a data collection instrument is reliable to the degree that its measures reflect correct scores, to the degree that errors of measurement are absent from obtained scores. The questionnaire was administered on two occasions, a week interval and the results compared. A reliability coefficient was calculated on the two sets of data for each part of the questionnaire.

The researcher used the split-half test described by Parahoo (2010) to check internal consistency. The questionnaire was split into two equal halves and the data was checked for similarity. Consistency was checked by Cronbach's alpha as described by Polit and Beck (2010). Cronbach's alpha has a range of values between 0.00 and 1.00 and a value of > 0.7 will be regarded as acceptable (Webb, Shavelson and Haertel, 2007).

3.8 ETHICAL CONSIDERATIONS

3.8.1 Approval to conduct study

Approval to conduct the study was obtained from the University Higher Degrees Committee at the University of Venda.

3.8.2 Ethical clearance

Ethical clearance was obtained from the Research Ethics Committee at the University of Venda.

3.8.3 Permission to conduct a research

Permission to conduct the study was obtained from the Department of Health in Limpopo province.

3.8.4 Informed consent (Respect for persons)

Participant information and informed written consent was sought from participant for participation in the study. Details concerning the purpose and nature of the study were given to the participants/ participants' guardians/parents (under 18 participants) in a language of their choice (e.g. English, SePedi and XiTsonga). In addition, completion of the questionnaire and participant information and the informed consent form by participants was taken as them giving consent to participate in the study. Participants were given adequate time to consider their participation. More importantly, participants were informed of their right to withdraw at any stage or decline to respond to whichever questions they felt uncomfortable with (Appendix 5).

3.8.5 Confidentiality

Information provided by the participants was treated as confidential and under no circumstances would the information divulged or made available to any third party, except as reports and publications (Brink, 2006).

Self-administered questionnaires can potentially protect the anonymity and privacy of the participants contributing to the confidentiality of the responses. Additionally, anonymity and confidentiality of the information provided by the participants was assured and maintained as outlined by UNAIDS/WHO (2005).

3.8.6 Anonymity

The participants did not write their names or any identification in the questionnaire in order to ensure complete anonymity and such instructions appeared at the beginning of the questionnaire. The participant's' identities were not made available in reports and research publication. Signed

consent form were not stapled to the instrument but were kept under lock and key. Each participant's questionnaire did not have a name written on it. The original questionnaire was kept under lock and key. Furthermore, questionnaires were given codes instead of the names of the participants. The data was analyzed in groups, not individually to avoid identifying the participants by their responses (Brink, 2006).

3.8.7 Freedom from harm and exploitation (Beneficence/non-maleficence)

At the pre-testing stage the questionnaire was checked for potentially damaging questions. Parahoo (2006) maintains that questions on knowledge, behaviour or experience may also be threatening to health professionals if data can be accessed by their employers. A written guarantee was given to the participants that the data collected would remain confidential and that only the researcher and the statistician employed by the researcher would have access to it. The participants were not coerced by giving empty promises. Also, no participant was victimized because she/he had declined to participate in the study (Appendix 5).

While questionnaires are considered to be less intrusive than interviews, observations or experiments, they can still potentially cause harm (Parahoo, 2006). It is possible for sensitive and highly personal questions to be threatening if they trigger traumatic memories or guilt when the respondent is alone and without support.

3.8.8 Protect the young (vulnerable group)

Participants (18 years and older) were required to sign an informed written consent form detailing the purpose of the research and voluntary participation before the commencement of the study (Appendix H). For those under 18 years, guardians/parents signed consent on their behalf. No participant was coerced into participating in the survey against his/her will. When survey includes collecting data from young people (15-24 years), additional ethical issues arise. Young people may be vulnerable to exploitation, abuse and other harmful outcomes (legal, physical and social).

3.9 SUMMARY

This chapter discussed the research methodology. It has also examined the ethical consideration. The next chapter describes data analysis, presentation and interpretation of the findings.

CHAPTER 4

RESULTS PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The results of this study are presented as follows: Demography; knowledge level of Namakgale youth towards HIV/AIDS; attitudes of Namakgale youth towards people living with HIV and risky sexual behaviours among Namakgale youth in the results are presented in graphs and tables.

4.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

A total of 152 participants took part in this study, and 59% were females whilst (41%) were males (Table 4.1). Table 4.1 shows that the range of age distribution was 15.8% for participants aged 19 years and 2% for participants who were 22 years of age. With regards to religion, majority of participants were Christian (76.3%) and participants Islam (1.4%). The majority of participants were single (62.5%) while only 3.9% were married.

Table 4.1: Demographic characteristics of the participants

Variables	Female (n=89)	Male (n =63	Total (n=152)
	N (%)	N (%)	N (%)
Age (years)			
15	5(3.3)	0(0)	5(3.3)
16	10(6.6)	5(3.3)	16(10.5)
17	13(8.6)	5(3.3)	18(11.8)
18	15(9.9)	4(2.6)	19(12.4)
19	15(9.9)	9(5.9)	24(15.7)
20	9(5.9)	11(7.2)	20(13.1)

21	9(5.9)	11(7.2)	20(13.1)
22	1(0.7)	2(1.3)	3(2)
23	5(3.3)	8(5.3)	13(8.5)
24	7(4.6)	8(5.3)	15(9.8)
Religion			
Christianity	10(6.6)	13(8.6)	23(15.1)
African	73(48)	43(28.3)	116(76.3)
Islam	0(0)	1(0.7)	1(0.7)
*No religion	6(3.9)	5(3.3)	11(7.2)
Marital status			
In a Casual relationship	3(2)	1(0.7)	4(2.6)
In a steady (serious) relationship	20(13.2)	13(8.6)	33(21.7)
Married	4(2.6)	43(28.3)	47(30.9)
Single	62(40.8)	1(0.7)	63(41.4)
Level of education			
Bachelor's degree	5(3.3)	1(0.7)	6(3.9)
Grade 11 or lower	47(30.9)	18(11.8)	65(42.8)
Grade 12	26(17.1)	29(19.1)	55(36.2)
None	1(0.7)	2(1.3)	3(2)
Post-matric diploma or	10(6.6)	13(8.6)	23(15.1)

certificate			
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* Statistically significant at $p \leq 0.05$

4.2 KNOWLEDGE ON HIV/AIDS

Participants' opinions were used to evaluate their knowledge level on HIV. A set of 10 statements in which respondents chose between Yes and No as an answer were provided. The statements were divided into four sets with the first set measuring knowledge on HIV and AIDS, causes and relationship. The second set was on HIV transmission, while the third set focused on HIV transmission prevention and the fourth set measured knowledge on HIV/AIDS cure. Table 4.2 depicts the results.

Table 4.2 Knowledge on HIV/AIDS

Statements	Yes		No.	
	N.	%	N.	%
HIV and AIDS causes and relationship				
There is a difference between HIV and AIDS.	117	77.0	35	23.0
HIV can cause AIDS.	118	77.6	34	22.4
Witchcraft can cause HIV/AIDS.	34	22.4	118	77.6
HIV transmission				
Having sex with someone who is HIV positive and not using a condom can transmit HIV/AIDS.	138	90.8	14	9.2
A person can get HIV from mosquito bites.	20	13.2	132	86.8
HIV transmission prevention				
A person can reduce the risk of getting HIV by using a condom every time they have sex.	124	81.6	28	18.4
A person can get HIV/AIDS from kissing, hugging and touching someone who has HIV/ AIDS.	27	17.8	125	82.2
HIV/AIDS myths				
At present there is a cure for AIDS	48	31.6	104	68.4

Having sexual intercourse with a virgin can cure HIV/AIDS.	23	15.1	129	84.9
HIV/AIDS can be cured with herbal (traditional) medicine.	23	15.1	129	84.9

N=Number, %=Percentage

Knowledge on HIV and AIDS causes and relationship

As shown in Table 4.2, the range of distribution shows that 77.0% of participants indicated that there was a difference between HIV and AIDS while 22.4% of participants believed that witchcraft could cause HIV/AIDS.

Knowledge of HIV Transmission

As shown in Table 4.2, the range of distribution shows that 90.8% believed that having sex with someone who is HIV positive and not using a condom could transmit HIV and while 13.2% indicated that mosquito bites could transmit HIV.

Knowledge of HIV transmission prevention

With regard to HIV transmission prevention, Table 4.2 above shows that the range of distribution shows that 81.6% of participants believed that a person could reduce the risk of contracting HIV by regularly using a condom every time they had sex while 17.8% indicated that a person could contract HIV/AIDS from kissing, hugging and touching someone who has HIV.

Knowledge of HIV/AIDS myths

As shown in Table 4.2, concerning common myths about HIV/AIDS, the range of distributions shows that 31.6% of participants believed that currently there is a cure for HIV while 15.1% of participants indicated that having sexual intercourse with a virgin could cure HIV/AIDS and 15.1% also indicated that HIV/AIDS could be cured with herbal (traditional) medicine.

Overall HIV Knowledge levels

The results for overall HIV knowledge levels based on overall scores and means are shown in Table 4.3.

Table 4.3: Overall knowledge score by demographic characteristics of the participants

Variables	Median scores
Gender	
Male	16
Female	14
Age group (years)	
15-19	15

20-24	15
Religion	
Christianity	15
African	13
Islam	8
No religion	14
Marital status	
Single	14
Steady	16
Casual	15
Married	16
Level of education	
None	15
Grade 11	15
Grade 12	14
Post-Matric Certificate or Diploma	16

Overall Knowledge score: Table 4.3 shows the overall knowledge score for the sample. There was a fair proportion 34 (22.4%) of respondents with a knowledge score of 16 out of the possible 18 and 32 (21%) respondents with a knowledge score of 17 out of the possible 18. Two (2) participants each got an overall score of 5 and 7 out of the possible 18 respectively. These results show that respondents generally had good knowledge of HIV.

4.3.7 Knowledge levels by Demographic characteristics as shown in Table 4.3.

- **Gender-** results show that by using the median as a measure of dispersion, males have more knowledge, median =16 than females median =14. This implies that male respondents tend to have more information on HIV/AIDS than their female counterparts.
- **Age** – Results show that all age categories (15-19) and (20-24) have the same knowledge levels median=15. Therefore, differences in age do not affect the level of knowledge among the respondents

- **Religion** - In terms of religion, Christians have slightly more knowledge, median =15 followed by those with no religion, median =14. HIV knowledge is affected to a certain extent by respondents' religion.

Source of Information about HIV/AIDS

Figure 4.1 shows that the majority of the participants through television (89%), followed by the school (86%), Internet (86%), Social media (82%), Radio (81%), Magazine (78%), respectively.

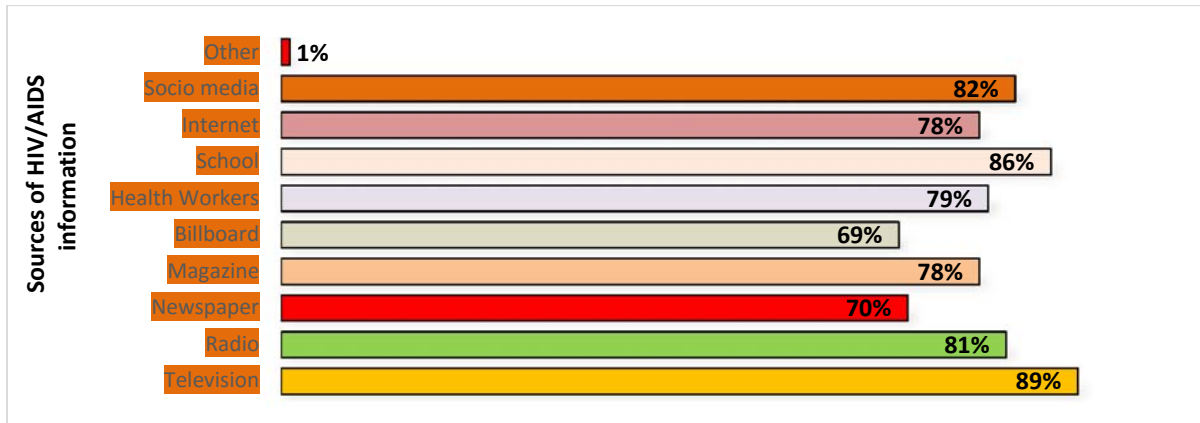


Figure 4.1: Sources of HIV information

4.4 ATTITUDES TOWARDS PEOPLE LIVING WITH HIV

As shown in Table 4.4, participants were posed questions on their attitudes towards people living with HIV and their responses were rated on 5-point Likert scale.

Table 4.4 Attitudes towards people living with HIV

	SA	A	D	SD
Statements	N (%)	N (%)	N (%)	N (%)
The majority of people living with HIV are promiscuous	38(25.7)	37(24.3)	31(20.4)	45(29.6)
People living with HIV are merely receiving the punishment they deserve	11(7.2)	27(17.8)	54(34.9)	60(40.1)
All persons living with HIV should live away from Namakgale	9(5.9)	17(11.2)	53(34.9)	72(48.0)
If your friend is HIV positive, you would continue your friendship with him/her	55(35.5)	59(39.5)	25(16.4)	13(8.6)
If you knew that a shopkeeper or food seller is infected with HIV, you would buy food from them	52(34.2)	44(28.9)	38(25.0)	18(11.8)
If a relative of yours has HIV/AIDS, you would be willing to care for them in your household	60(39.5)	50(32.9)	28(18.4)	14(9.2)

SA=Strongly agree; A= Agree; D= Disagree; SD= Strongly disagree

Table 4.4 shows that 25.7% of participants strongly agreed that the majority of people living with HIV are promiscuous while 29.6% of participants strongly disagreed. About 40.1% of participants strongly disagreed that people living with HIV are merely receiving the punishment they deserve while 7.2% strongly agreed. Concerning whether all people living with HIV should live away from Namakgale, about 48% of participants strongly disagreed and only 5.9% strongly agreed. About 39.5% of participants agreed that if their friend was HIV positive they would continue their friendship with them while 8.6% strongly disagreed. About 34.2% of participants strongly agreed that if they knew that a shopkeeper or food seller was HIV positive they would continue to buy food from them while 11.8% of participants strongly disagreed. About 39.5% of participants strongly agreed that if a relative of them had HIV/AIDS they would be willing to care for them in their household while 9.2% of participants strongly disagreed.

4.5 RISKY SEXUAL BEHAVIOUR

Various responses on risky sexual behaviour were divided into various questions into risk factors and associated outcomes. The criteria for risk factors and associated outcomes are shown in Table 4.5.

Table 4.5: Risky sexual behaviours

Statements	Male		Female		Total	
	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)
Have had sexual intercourse	54(85.7%)	9(14.3)	55(61.8)	34(38.2)	109(71.7)	43(28.3)
Age at first sex						
<15 years	3(50.0)		2(61.8)		5(55.9)	
15-19 years	24(46.2)		20(34.5)		44(40.7)	
20-24 years	26(5.8)		34(3.6)		60(3.6)	
Number of lifetime sexual partners						
1-2	20(38.5)		34(63.0)		54(51.0)	
3-5	19(36.5)		16(29.6)		27(33.0)	
6-8	9(17.3)		3(5.6)		34(22.4)	
Above 9	4(7.7)		3(1.9)		29(4.8)	
Age of first sexual partners						
<15	18(50.0)		29(49.1)		47(30.9)	
16-19	7(32.7)		12(53.7)		19(12.5)	
20-24	2(1.3)		3(2)		5(3.3)	
25-29	0(0)		1(0.7)		1(0.7)	
Above 30						

Gender was chosen as a risk factor although it was not behaviour for a number of possible outcomes that could expose one to HIV infection. About 85.7% of male participants have had sex while 61.8% of females have had sex. About 61.8% of 15 years and younger of females had early coital debut in comparison to 50% of their male counterparts. About 36.5% of male participants had 3 to 5 multiple concurrent sexual partners while 29.6% of female participants had 3 to 5 sexual partners. About 49.1% of female and 51% of the male participants indicated that their first sexual partners were aged 15 years or younger, compared to only 16.7% of the female participants. In addition, 53.7% of the female participants in comparison to 32.7% of the male participants had 16-19 years as their first sexual partners.

Risk Estimate: Gender as a risk factor

This study took exposure to being a male and then calculated the Odds ratio and Relative risks associated with being a male as shown in Table 4.6.

From the output in Table 4.6, male youths were 2.7 times more likely to have engaged in sexual activities than females in the same population of Namakgale youths between 15-24 years of age. CI = (1.382; 5.174). This association was statistically significant since the confidence interval did not include 1.

Table 4.6: Odds Ratio (OR) and Relative Risks for Gender as a risk factor

	Value	95% Confidence Interval (CI)	
		Lower	Upper
Odds Ratio for Gender (Female / Male)	3.709	1.625	8.465
For cohort Have you ever had sexual intercourse? = Yes	2.674	1.382	5.174
For cohort Have you ever had sexual intercourse? = No	.721	.595	.874
N of Valid Cases	152		

Risk Estimate: Multiple lifetime sexual partners as a risk factor

Table 4.7 shows that as the number of sexual partners increased, so did the proportion of males. This suggests men have more sexual partners than their female counter-parts. This study further classified the sexual partners between 1-2 as “Normal” and 3-5, 6-8 and 9 or more as “Risky”.

Table 4.7: Odds Ratio and Relative Risk for Multiple lifetime sexual partners as a risk factor

	Value	95% CI	
		Lower	Upper
Odds Ratio for Gender (Female / Male)	2.800	1.279	6.130
For cohort Sexual Partners = Normal (1-2 sexual partners)	1.655	1.112	2.462
For cohort Sexual Partners = Risky (3 or more sexual partners)	.591	.392	.891
N of Valid Cases	107		

Results show that females were less likely to have more than 2 sexual partners (Risky behaviour) than their male counter-parts. The relative risk/Odds ratio <1 and this association was statistically significant, CI (0.392; 0.891).

Risk Estimate: Age at first sex as a risk factor (early coital debut).

In this study first sex before the age of 15 years was considered “risky”. More than 60% of females had sexual intercourse before the age of 15 and about 48% of males had sexual intercourse before the age of 15.

Table 4.8: Odds Ratio and Relative Risk for Age at first sex as a risk factor

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Gender (Female / Male)	1.697	.768	3.747
For cohort Age at Onset of Sex = <15 years	1.265	.888	1.802
For cohort Age at Onset of Sex = Above 15 years	.745	.478	1.163
N of Valid Cases	101		

As shown in Table 4.8 females were 1.3 times more likely to have sexual intercourse before the age of 15 than their male counterparts. However this association was not statistically significant as the Odds Ratio and Relative Risk were 1, CI= (0.888; 1.802)

CONDOM USE AT FIRST SEX STRATIFIED BY DEMOGRAPHIC CHARACTERISTICS

Table 4.9 shows results of condom use at coital debut (first sex).

Table 4.9: Use of condom use at first sex stratified by demographic characteristics

Variables	Use of condom at first sex stratified by demographic characteristics				
	Yes N (%)		No N (%)		Total N (%)
Gender					
Male	30(58.8)		21(41.2)		51(48.6)
Female	32(59.3)		22(40.7)		54(51.4)
Total	62(59)		43(41)		105(100)
Age group (years)					
15-19	44(69.8)		19(30.2)		63(60.6)
20-24	18(43.9)		23(56.1)		41(39.4)
Total	62(59.6)		42(40.4)		104(100)
Relationship status					
Single	27(51.9)		25(48.1)		52(49.5)
In a casual relationship	12(66.7)		6(33.3)		18(17.1)
In a steady (serious) relationship	20 (66.7)		10(33.3)		30(28.6)
Married	3(60.0)		2(40.0)		5(4.8)
Total	62(59.0)		43(41.0)		105(100)
Level of education					
None	2(66.7)		1(33.3)		3(2.9)
Grade 11 or lower	21(61.8)		13(38.2)		34(32.4)
Grade 12	24(57.1)		18(42.9)		42(40.0)
Post-matric diploma or certificate	11(52.4)		10(47.6)		21(20.0)
Bachelor's degree	4(80.0)		1(20)		5(4.8)

Total	62(59.0)		43(41)	105(100)

N= number; %=percentage

Results in Table 4.9 show that 59.3% of the female participants used condoms at first sex while (58.8%) of male participants indicated to have used condoms on their coital debut. The results on Age category indicated that 69.8% of the participants aged 15-19 years age range used condoms during their first sexual encounter compared to 43.9% of 20-24 years age range. With regard to relationship status, 66.7% of participants in both casual and steady relationships indicated that they had used condoms in their first sexual intercourse. Concerning education level, 80% of participants with Bachelor's degree indicated that they had used condoms in their first sexual encounter while only 52.4% of participants with post-matric diploma indicated that they had used condoms in their first sexual encounter.

CONDOM USE AT LAST SEX STRATIFIED BY DEMOGRAPHIC CHARACTERISTICS

Results in Table 4.10 show condom use at last sex stratified by demographic characteristics. Failure to use condoms consistently during sex may put one at risk of contracting HIV/AIDS.

Table 4.10: Use of condom at last sex stratified by demographic characteristics

Variables	Use of condom at last sex stratified by demographic characteristics			
	Yes N (%)		No N (%)	Total N (%)
Gender				
Male	29(66.7)		23(44.2)	52(49.1)
Female	36(55.8)		18(33.3)	54(50.9)
Total	65(61.3)		41(38.7)	106(100)
Age group (years)				
15-19	44(68.8)		20(31.3)	64(60.4)
20-24	22(52.4)		20(47.6)	42(39.6)
Total	66(62.3)		40(37.7)	106(100)
Marital status				

Single	33(63.5)		19(36.5)		52(49.1)
In a casual relationship	11(57.9)		8(42.1)		19(17.9)
In a steady (serious) relationship	20(66.7)		10(33.3)		30(28.3)
Married	1(20.0)		4(80.0)		5(4.7)
Total	65(61.3)		41(38.7)		106(100)
Level of education					
None	2(1.9)		1(1.0)		3(2.8)
Grade 11 or lower	21(20.0)		13(12.4)		34(32.1)
Grade 12	26(24.8)		16(15.2)		42(39.6)
Post-matric diploma or certificate	9(8.6)		12(11.4)		21(19.8)
Bachelor's degree	1(1.0)		4(3.8)		5(4.7)
Total	59(56.2)		46(43.8)		105(100)

N= number; %=percentage

TABLE 4.10: Shows the results of condom use on last sex

Gender and condom use on last sex: The results indicated that 66.7% of female participants used a condom in their last sex while 55.8% of male participants indicated that they had used a condom in their last sex.

Age category and condom use on last sex: 68.8% of range distribution of 15-19 years indicated that they had used a condom in their last sex while 52.4% of range distribution of 20-24 years indicated that they had used a condom in their last sex.

Relationship and condom use on last sex: 66.7% of people in steady relationships indicated that they had used condoms in their last sex while 20% of married participants indicated that they had used a condom in their last sex.

FREQUENCY OF CONDOM USE IN THE PAST 12 MONTHS

Results for frequency of use of condoms and demographic characteristics in the past 12 months are shown in Table 4.11. Respondents were asked "How often did they use condoms in the past 12 months?"

Gender and frequency of condom use in the past 12 months: As shown in Table 7, 42.6% of female participants indicated that they always used condoms in the past 12 months while 36.5 of male counterparts indicated that they always used condoms in the past 12 months.

Age group and frequency of condom use in the past 12 months: About, 46% of the respondents aged 15 to 19 always used condoms compared to 31% of the age group 20 to 24.

Relationship and frequency of use of condoms in the past 12 months: About 44.2% of the single participants always used condoms while only 1% of married participants indicated they always used condoms in the past 12 months.

Table 4.11: Frequency of use of condom in the past 12 months stratified by demographic characteristics

Variables	Frequency of use of condom in the past 12 months stratified by demographic characteristics				
	Always N (%)	Often N (%)	Half of the time N (%)	Rarely N (%)	Never N (%)
Gender					
Male	19(36.5)	11(21.2)	5(9.6)	13(25.0)	4(7.7)
Female	23(42.6)	8(14.8)	8(14.8)	10(18.5)	5(9.3)
Total	42(39.6)	19(17.9)	13(12.3)	23(21.7)	9(8.5)
Age group (years)					
15-19	29(46.0)	8(12.7)	8(12.7)	15(23.8)	3(4.8)
20-24	13(31.0)	11(26.2)	5(11.9)	8(19.0)	5(11.9)
Total	42(40.0)	19(18.1)	13(12.4)	23(21.9)	8(7.6)
Marital status					
Single	23(44.2)	5(3.3)	2(1.3)	3(2)	4(2.6)
In a casual relationship	6(31.6)	8(5.3)	3(2)	6(3.9)	2(1.3)
In a steady (serious)	12(40.0)	0(0)	1(0.7)	1(0.7)	2(1.3)
Married	1(20.0)	6(3.9)	7(4.6)	14(9.2)	2(1.3)
Total	42(39.6)	19(12.5)	13(8.6)	24(15.8)	10(6.6)
Level of education					
None	1(33.3)	1(33.3)	1(33.3)	0(0)	0(0)
Grade 11 or lower	15(42.9)	10(28.6)	2(5.7)	5(14.3)	3(8.6)
Grade 12	19(45.2)	3(7.1)	5(11.9)	12(28.6)	3(7.1)

Post-matric diploma or certificate	7(33.3)	3(14.3)	3(14.3)	6(28.6)	2(9.5)
Bachelor's degree	0(0)	2(40.0)	2(40.0)	0(0)	1(20.0)
Total	42(39.6)	19(17.9)	12(11.3)	23(21.7)	9(8.5)

N= number; %=percentage

OTHER SEXUAL PARTNERS IN THE PAST 12 MONTHS (MULTIPLE CONCURRENT RELATIONSHIPS)

Respondents were asked “*other than your steady partner, have you had other sexual partners in the past 12 months?*” Table 4.12 shows results for tabulation of demographic variables and presents of other sexual partners.

Table 4.12: Other sexual partners in the past 12 months (multiple concurrent relationships)

Variables	Other sexual partners in the past 12 months stratified by demographic characteristics			
	Yes N (%)		No N (%)	Total N (%)
Gender				
Male	32(61.5)		20(72.2)	52(49.1)
Female	15(27.8)		39(38.5)	54(50.9)
Total	47(44.3)		59(55.7)	106(100)
Age group (years)				
15-19	26(41.3)		37(58.7)	63(60.0)
20-24	21(50.0)		21(50.0)	42(40.0)
Total	47(44.8)		58(55.2)	105(100)
Marital status				
Single	23(44.2)		29(55.8)	52(49.1)
In a casual relationship	16(84.2)		3(15.8)	19(17.9)
In a steady (serious) relationship	6(20.0)		24(80.0)	30(28.3)
Married	2(40.0)		3(60.0)	5(4.7)
Total	47(44.3)		59(55.7)	106(100)
Level of education				
None	0(0)		3(100)	3(2.8)
Grade 11 or lower	13(37.1)		22(62.9)	35(33.0)
Grade 12	21(50.0)		21(50.0)	42(39.6)
Post-matric diploma or certificate	13(61.9)		8(38.1)	21(19.8)
Bachelor's degree	0(0)		5(100)	5(4.7)

Total	47(44.3)		59(55.7)		106(100)
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Table 4.12: Gender and other sexual partners in the past 12 months: About 61.5% of male participants indicated that they have had other multiple concurrent sexual partners in the past 12 months while only 27.8% of female counterparts indicated that they have had other multiple concurrent relationships

Age category and other sexual partners in the past 12 months: About 50% of 20-24 years range indicated that they have had other multiple concurrent sexual partners compared to 41.3% age range of 15-19 years.

Relationship and other sexual partners in the past 12 months: About 84.2% of participants in casual partnerships indicated that they have had other multiple concurrent sexual partners in the past 12 months while only 20% of participants in serious relationships indicated that they have other multiple concurrent sexual partners in the same period.

Risk Estimate: Multiple concurrent sexual partners in the past 12 months as a risk factor

Table 4.12 shows that as the number of sexual partners increase, so does the proportion of males. This suggests men have more sexual partners than their female counter-parts. This study classified the annual sexual partners between 1-2 as “Normal” and 3-5, 6-8 and 9 or more as “Risky”.

Table 4.13: Odds Ratio and Relative Risk for Multiple concurrent sexual partners in the past 12 months

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Gender (Female / Male)	2.800	1.279	6.130
For cohort Sexual Partners in past 12 months = Normal	1.655	1.112	2.462
For cohort Sexual Partners in past 12 months = Risky	.591	.392	.891
N of Valid Cases	107		

4.7 SUMMARY OF FINDINGS

Objective I: Assess the level of knowledge of HIV/AIDS among Namakgale youth.

- The majority (77%) of the respondents had knowledge on the differences between HIV and AIDS and also on HIV as a cause of AIDS.
- The majority (80%) of the respondent had knowledge of how HIV was transmitted. However, there is still a significant number of respondents who had little knowledge on the transmission of HIV.
- The majority of the respondents (84.9%) knew that HIV/AIDS could not be cured by the methods stated, though, below 16% of respondents did not have knowledge on the cure of HIV/AIDS.
- Generally, the level of HIV knowledge among the respondents was good.
- Male respondents had slightly more knowledge of HIV than their female counter parts.
- Respondents with higher education levels had more HIV knowledge than those with lower educational level.

Objective II: Explore the attitude of Namakgale youth towards HIV/AIDS epidemic.

- The majority of the respondents (75%) expressed a positive attitude towards PLHIV as they expressed that it was not a punishment to be HIV positive,
- The majority (80%) of the respondent express a positive attitude towards PLHIV as they want them to remain in Namakgale.
- The majority of the respondents (75%) friendship would not be affected by the HIV status of their friends compared to 25% of the respondents who thought otherwise.
- The results show a fairly positive attitude towards HIV positive shopkeeper or food-seller by only 63.1% of the respondents affirmed co-existence compared to 36.9% who express otherwise.
- There was a fairly positive attitude towards caring HIV/AIDS patients by 72.4% of the compared to 27.6% who expressed their displeasure.
- There was a general positive attitude towards the HIV positive teacher to continue teaching by 67.1% respondents and slightly negative attitude by 32.8%.

Objective III: Assess the possible risky sexual behaviour for vulnerability to HIV infection among Namakgale youth.

- Generally, 85% of the male respondents were more likely to be at risk of HIV infection through risky sexual practices compared to their female counterparts.
- In terms gender and age category, 65% of the females in the 15 to 19 age category were more likely be at risk compared to other age groups. Female respondents were 1.3 times more likely to have sexual intercourse the age between 15 and 19.
- Male respondents were more likely to have more sexual partners than females, thereby making them more likely to be at risk of HIV infection. More male respondents were likely to have sexual partners aged 15 to 19 years of age.
- 58% of both female and male youth were likely to use condoms at first sex. However, at least 40% of the youth did not use at first sex.
- Respondents of lower educational level were more likely not to use condoms and were more likely to be at risk than the other educational level groups.
- Male respondents were likely not to demand the use of condoms during last sexual intercourse compared to their female counterparts.
- The majority of the married women (80%) did not use a condom at last sex.
- Respondents with higher educational level were more likely to use condoms on the last sexual intercourse compared to those of lower educational level.
- About 70% of male respondents in the age 20 to 24 were likely to have unprotected sexual intercourse with a multiple of partners putting them at risk.
- Generally, 66.7% of the female respondents had steady sexual partners compared to 50% of male respondents. The majority of respondents who were single or were in casual relationships did not have steady partners, resulting in multiple partners and increasing risks of infection.
- About 72% of the female respondents had only one partner in the last 12 months unlike 56.6% of their male counterparts aged 20 to 24 who had multiple concurrent partners.
- About 68% of respondents in single relationship used condoms with other casual partners.

4.8 CONCLUSION

This chapter presented analysed and interpreted results section by section. A summary of findings was also presented. The next chapter discussed the findings, and gives conclusions, implications and recommendations based on the findings.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS OF THE STUDY

5.1 INTRODUCTION

The previous chapter presented analysed and interpreted results of this study. This chapter discusses findings and draws conclusions on the study based on the objectives of the study. Recommendations are also given based on study findings. The chapter is structured as follows: Discussions of findings in which the researcher elaborate on the findings and link them with the existing literature; Conclusions; the researcher states the conclusions made from the discussions of the results; implications of the study: a discussion on what the research conclusions mean to the health and the public community in general; and recommendations, a section in which major ideas could be utilised in the quest to improve the HIV knowledge level and attitudes of youths towards HIV patients. The Chapter concludes with a conclusion that summaries what the chapter dealt with.

5.2 DISCUSSION OF FINDINGS

5.2.1 ASSESS THE LEVEL OF KNOWLEDGE OF HIV/AIDS AMONG NAMAKGALE YOUTHS

This study revealed that the majority (77%) of Namakgale youth demonstrated a high level of knowledge about HIV/AIDS. Participants in this study demonstrated awareness on the difference between HIV and AIDS that there was no cure for HIV/AIDS and that HIV causes AIDS. These could be due to efforts by the Department of Health (DoH), curriculum inclusion of HIV/AIDS in the text books and other several non-governmental organizations (NGOs) HIV/AIDS awareness programmes. The findings were consistent with those made by Fennie and Laas (2014), and Adeboye, Yongsong, Akinwumi and James (2016). This high level of basic information on HIV/AIDS knowledge could also be due to the large number of female participants (59%) who formed part of this study as they regularly visit health care facilities than male counterparts and are usually exposed to HIV/AIDS related information and knowledge. However, misconceptions about HIV infection and transmission such as the belief that HIV/AIDS could be transmitted by mosquito bites (13.2%), witchcraft (22.4%), cure for HIV/AIDS exist (31.6%) and having sex with a virgin could cure HIV/AIDS (15.1%) were observed among a small proportion of the participants. These misconceptions could result in

risky sexual behaviours such as unprotected sex or multiple sexual partners which may increase their vulnerability to HIV infection. These findings have shown an urgent need for reinforcement of HIV/AIDS awareness campaigns and school-based interventions that lead to behaviour and perception change among youths. Similar misconceptions have been reported by Nubed (2016) which stated that although knowledge about modes of transmission is good misconceptions still persist. This indicates that Namakgale youth need more information and education about some aspects sources of HIV transmission. By contrast, the findings of this study were not consistent with previous studies (Shokoohi *et al.*, 2016) which revealed that very few participants had sufficient knowledge about HIV/AIDS.

5.2.2 SOURCES OF HIV INFORMATION

The results show that participants indicated that television was the most common source of HIV information (89%), followed by school (86%), social media (82%) and the radio (81%). Billboards were the least source of information (69%). The majority of respondents who were exposed to electronic and social media were still attending school therefore; much of the HIV information was obtained through this way. Respondents either did not read available billboards or there were very few billboards with HIV information in Namakgale. These findings are consistent with a similar study by Huda and Amanullah (2013).

Research by Unadike, Ekrikpo and Bassey (2012) indicate that young people remain the most vulnerable sub-population severely affected by HIV/AIDS due rapid spread amongst them mainly through risk sexual behaviour. Previous studies have also emphasised the importance of HIV knowledge as a determinant factor in the spread of HIV and its prevention (Rudaitis, 2010). High HIV knowledge level is an important factor among the youth as it indicates awareness of the causes of AIDS, transmission of HIV and its prevention. Shisana *et al.* (2014) also found that the overall levels of HIV knowledge between females and males did not vary so much but did vary significantly by age and locality type. This study found that HIV knowledge among male youths was slightly more than that of their female counter parts. Similarly, HIV knowledge varied with educational level, implying that youths with higher educational level had more HIV knowledge than those with lower educational level. This study also found out that the majority (77%) of the youth were able to distinguish between HIV and AIDS and also point out that HIV was the cause of AIDS. This piece of information was vital in this study as most of the studies reviewed did not attempt to find out whether participants had such valuable knowledge. This

implies that most of the studies which measured HIV knowledge level assumed that the samples they dealt with knew the differences.

Unlike previous study findings youths in this study were aware that HIV is not transmitted through casual contact but sexual and other means. The majority (80%) of the youths had knowledge of how HIV was transmitted although others still had little knowledge on the transmission of HIV. The knowledge on HIV transmission is also important in that it raises a lot of questions among the community and surrounded by a lot of myth. Shisana et al. (2014) points out that sufficient knowledge in HIV transmission is important in minimising risk sexual behaviour among the youths. For example, Anderson, Beutel and Maughan-Brown (2007) in (Fennie and Laas, 2014) argue that in South Africa, as in many other less developed countries, the primary method of HIV/AIDS transmission is heterosexual intercourse. The findings of this study are different from those in China where information and knowledge about HIV/AIDS among youth were limited (Zhang, Li, Mao, Stanton, Zhao, Wang and Mathur, 2008). Studies on HIV/AIDS done in China show that, although college students could identify HIV transmission routes they still harbour misconceptions about HIV modes of transmission (Zhang *et al.*, 2008). With regard to the cure of HIV/AIDS, the majority of the youths (84.9%) were aware of the fact that HIV/AIDS did not have cure, hence they were expected to refrain from risky sexual behaviour.

Increasing the percentage of people aged 15-24 years who have comprehensive knowledge of HIV/AIDS to 95% is one of the Millennium Development Goals (MDG) 2015, goal number 6 (Rokhmah, 2014). Based on the discussions above it could be inferred that the HIV knowledge level among more than 75% youth in Namakgale was accurate and good. Youth had knowledge on HIV as the cause of AIDS, how HIV was transmitted and that there was no cure for HIV/AIDS. This is in line with MDG 2015.

5.2.3 EXPLORE THE ATTITUDES OF NAMAKGALE YOUTH TOWARDS HIV/AIDS

Discriminating and stigmatizing attitudes to PLHIV might be a barrier to effective HIV treatment programme (Mansoor, 2008). Participants in this study exhibited favourable (positive) attitudes towards PLHIV. For example, the majority of youths (82.9%) (i.e 48% SD and 34.9% D) disagreed that all PLHIV should live away from Namakgale; 75% (i.e. 35.5% SA and 39.5 A) (of

participants agreed that they would continue with a friendship; 63.1% (i.e. 34.2% SA and 28.9% A) of the participants agreed that they would continue to buy items from a shop seller who was HIV positive; and 72.4% (i.e. 39.5 SA and 32.9% A) agreed that they would care for an HIV positive relative. This positive attitude could be attributed to the fact that participants in this study have more HIV-related knowledge gained from different sources of information and either themselves, or their friends/relatives were living with HIV. Furthermore, the wider availability of antiretroviral treatment (ART) that has been proven to prolong the lives of PLHIV may have resulted in a positive shift in perception of HIV/AIDS as a fatal disease to the extent that HIV/AIDS is now both a chronic and manageable condition. Similarly, Ndjiembi, Zamba, Masika, Zhang and Zhang (2014) discovered that participants exhibited positive attitudes towards PLHIV. For example, Ndjiembi et al. (2014) reported that 58.9% of respondents were willing to care for an HIV positive relative, and 44.7% revealed that they would continue to buy from a shop seller who was HIV positive. In contrast to this study finding, Haroun, El Saleh, Wood, Mechli, Al Marzouqi and Anouti (2016) reported that 85% of the participants had negative attitudes towards PLHIV. These study findings suggest that increased awareness to HIV/AIDS have impact on the eradication of stigmatizing and discriminative attitudes towards PLHIV.

In addition, positive attitudes towards PLHIV can make young people to get tested for HIV, easily disclose their HIV-positive status to their peers and families and access life-saving antiretroviral therapy and contribute towards achievement of UNAIDS 90-90-90 HIV treatment target which aims at ending HIV by 2030. Existing strategies which are aimed at reducing discrepancies in knowledge and stigma and discrimination towards PLHIV should be strengthened.

Namakgale youths did not judge HIV infected community members. Rather, the youth seemed to be positive attitude to people living with HIV/AIDS in Namakgale regardless of their gender, relationships, religion and educational attainment. The problem of negative attitudes towards PLHIV has been well researched in sub-Saharan Africa and studies carried out in the region have shown consistently that it affects both adults and youth (Majelantle, 2013). Majelantle (2013) found out that half of youth in Botswana believed that if one is known to be an HIV/AIDS patient should be isolated even if they do not show signs of illness. Youth were known to be

harbouring negative judgemental attitudes towards HIV positive people (Majelantle *et al.*, 2013). The findings of this study are rather different. This observation may attribute to the fact that youths in the unit studied could have more HIV knowledge than those in previous studies.

Discriminatory attitudes by youth towards PLWHA is another area which has been studied extensively (Beaulieu *et al.*, 2014). HIV-related stigma and discrimination refers to prejudice, negative attitudes and abuse directed at people living with HIV and AIDS (Stang, Lloyd, Brady, Holland and Baral, 2013). In many of countries with available data, over 50% of men and women report having discriminatory attitudes towards people living with HIV (Stang *et al.*, 2013). Most of the people who discriminate against HIV positive people are reported to be the youth. It was inferred from these findings that youths in the study unit did not discriminate PLHIV. This finding is also in contrast with previous studies in which youth tended to show discriminatory behaviour towards PLHIV. Stang *et al.* (2013) posits that HIV-related stigma and discrimination can hamper efforts to prevent new infections and engage people in HIV treatment, care and support programmes.

However, in Namakgale, the youth seemed to be accepting PLHIV. The finding of this study demonstrates that the youth in Namakgale had the accurate knowledge of HIV/AIDS which led them to have some positive attitudes towards PLHIV. Cloete, Strobel, Simbayi, van Wyk, Henda and Nqeketo (2010) posit that inaccurate beliefs and low level knowledge about HIV transmission usually leads to more fear, negative judgement and discrimination, which can further stigmatise people living with HIV. Previous studies in other South African communities yielded results showing that participants holding traditional beliefs about the causes of AIDS were more likely to stigmatise people living with HIV (Cloete *et al.*, 2010; Beaulieu *et al.*, 2014).

It could be tentatively concluded that that youth in Namakgale had positive attitudes towards PLHIV and were eager to stay with them and befriend them.

5.2.4 POSSIBLE RISKY SEXUAL BEHAVIOURS FOR VULNERABILITY TO HIV INFECTION AMONG NAMAKGALE YOUTH

Studies on HIV/AIDS have shown that youth tend to live a permissive lifestyle that allows promiscuity leading to increased risky sexual behaviours. Such risky sexual behaviours tend to increase sexually transmitted diseases, including HIV and AIDS (Rokhmah, 2014). It was justified in this study to assess the possible risky sexual behaviour of vulnerability to HIV

infection among the Namakgale youth. A number of studies have demonstrated that increased knowledge about HIV/AIDS is not a predictor for behavioural and attitude change although knowledge about the disease is a prerequisite for change (Beaulieu *et al.*, 2014). The same authors report that young people in Botswana continue to engage in risky sexual behaviour despite widespread information and knowledge about HIV/AIDS. A good case involves youth in Botswana students where questions related to HIV/AIDS knowledge yielded 96% correct responses (Majelantle *et al.*, 2008). This implies that the high level of knowledge in HIV and positive attitude towards PLHIV shown by youth in Namakgale is not a predictor of change in their sexual behaviour.

In this study, results showed that about 85% of the male youths were more likely to be at risk or vulnerable to HIV infection due to risky sexual behaviours compared to their female counterparts. A similar study carried by CDC (2014) established that among youth aged 15 to 24 diagnosed with HIV in 2014, 80% were males.

On the female side, 65% of age category 15 to 19 were more likely at risk compared to females in other age groups. The reason was that female youth in the age category 15 to 19 were 1.3 times more likely to have sexual intercourse with older males, thereby, possibly exposing them to HIV infections. These results were somehow consistent with findings of the UNICEF (2008) which reports that in Southern Africa, the total number of HIV infected girls and young women aged 14 to 20 years was more than twice as high as among their male counterparts that is 1.9 million compared to 780.000. The implication was that more girls and young women were infected because it could be that female youths knew less than boys and young men about how HIV was transmitted and how it could be prevented. These findings point to the fact that 15 to 19 age category females who engage in sexual relationships could do so often for economic and other material reasons and hardly have very limited possibilities to negotiate safe sex (UNICEF, 2008). This is also supported by Udigwe, Adogu, Nwabueze, Adinma, Ubajaka and Onwasigwe (2014)'s finding that the sexual health indices of adolescents in Nigeria were very poor as the modal age of 15 to 19 had practised risky sexual behaviours exposing them to HIV infection.

Another factor which could be used to explain the findings is the educational level of the youth in Namakgale. It was established that youths with lower educational levels were more likely not to use condoms at first sex, thereby making the age group more vulnerable and at risk of HIV infection than those with higher educational levels. Several studies have reported disparities in educational levels between female and male youths due to economic and social factors. Male youths tend to attain higher educational levels than their female counterparts, hence have more knowledge about HIV/AIDS knowledge than female youths 70% of male youth in the age 20 to 24 were likely to have unprotected sexual intercourse with a multiple of partners putting the partners at risk of HIV infection. The risk sexual behaviour occurred despite the high HIV knowledge levels among the male youths.

In this study, male youths were likely to have more sexual partners than females, thereby making them more likely to be at risk of HIV infection. According to UNICEF (2008), norms and expectations of masculinity and male behaviour increase men's and boys' risk of acquiring HIV and other sexually transmitted infections compared to women. In South Africa, men and boys are generally encouraged to have multiple sexual partners and also older men can seek out sexual relationships with younger women or girls. This risk sexual behaviour makes young women to be more vulnerable to HIV infection than their male counterparts.

Youth with a high level of HIV knowledge were expected to use condoms during sexual intercourse. In this study, 58% of both female and male youth were likely to use condoms on the onset of sexual intercourse while 40% of the youth did not use condoms on the onset of sexual intercourse. Most of the male youths were likely not to demand the use of condoms during last sexual intercourse compared to their female counterpart. It would suggest that male youth rather preferred unprotected sex. Males would always have their way due to the fact that in some cultures femininity deprives women of sexual health knowledge, simultaneously preventing them from controlling their bodies or deciding the terms on which they have sexual intercourse, hence being vulnerable to unprotected sex.

The majority of married women (80%) did not demand use of condoms during their last sexual intercourse, probably because they had steady sexual partners compared to 50% of married male

youths. However, these women were at risk because their partners were having multiple partners who also had their own multiple partners. Studies in multiple partner relationships report a high risk of HIV spread among the youth with multiple partners compared to mono partner relationships (Pebody, 2009; Castagnaro, 2010). The majority of youth who were in single or casual relationship did not have steady partners, resulting in multiple partners and increasing risks of HIV infection.

The educational level of youth was a crucial factor as youth with higher educational level were more likely to use condoms whenever they had sexual intercourse compared to those of lower educational level. Thaver (2010) argues that the South African school curricula seem to be having a positive effect on youths' knowledge and awareness of HIV and AIDS, but they do not adequately meet the goals of the national policy of promoting healthy behaviour and positive attitudes. The implication is that while most of the youth have knowledge of HIV/AIDS their persistent in risky sexual behaviour does not reflect.

Regardless of the fact that the youths had knowledge on how HIV was transmitted, the majority (72%) did not use condoms with their other sexual partners. The majority of the female (75%) held the view that male partners were responsible for using condoms during sex. This was common among 20 to 24 age category. This implies that the majority of the female youth did not demand the use of the condoms because they expected their male counterparts to do so. A study by Esere (2008) concluded that despite increased sexual knowledge, adolescents were poor contraceptive users and were less likely than adults to consistently use condoms or other methods of protection that could reduce their chances of infection.

There was a small difference between female and male respondents who used condoms with other partners. At least 60% of both genders did not use condoms with other partners and this risk sexual behaviour had the potential to increase the risk to HIV infection among vulnerable youths. The use of condoms is a voluntary act but may need mutual agreement between partners and also require some degree of skill and patients. One often cited barrier to condom use is lack of motivation to use condoms by partners in involved in sexual intercourse (Calsyn, Peavey, Wells, Campbell, Hatch-Maillette, Greenfield and Susan Tross, 2014). In this study, it was found

that youths with three or more partners were more likely not to use condoms during sex than those with fewer partners. Calsyn et al. (2014) also posit that condom use behaviour could be heavily influenced by existing sexual relationship dynamics, as well as the partner interaction before and during the sexual encounter. Studies show that barriers to condom use between males and females were different. In this study, female and male youth did not differ greatly in the degree to which they reported engaging in sexual risk behaviour though males exposed themselves to more chances of being infected by HIV. However, females were more vulnerable as the majority of them reported having been involved in risk sexual behaviour with older male partners who had many partners.

The researcher could tentatively conclude that youth were vulnerable to HIV infection through risk sexual behaviours regardless of the high level of HIV knowledge and its transmission due engaging in one or more risky sexual behaviours. By engaging in risk sexual behaviour, the youth in Namakgale seemed not to be able to utilise the vital knowledge they had acquired so far.

5.3 LIMITATIONS OF THE STUDY

The study was limited to Namakgale youth of Ba-Phalaborwa Municipality in Mopani District who visited two clinics, meaning that the study population was small. The sample size of the study limits the generalisability of the findings of the study to the entire population. This limited the scope of the study to young people visiting public primary health care facilities in Namakgale, resulting in a small population sample size.

5.4 CONCLUSIONS OF THE STUDY

Knowledge of HIV/AIDS is an important component of HIV/AIDS risk prevention strategies that may influence engagement in high risk behaviour (Anderson and Beutel, 2007), particularly by youth. This study concluded that:

- HIV knowledge level among the youth in Namakgale was high. The youth were aware that HIV was the main cause of AIDS. The youth also knew that HIV was different from AIDS, the mode of transmission and AIDS is incurable.
- Nearly all the 85% of the in Namakgale knew that HIV infection was preventable by safe sex, abstinence and being faithful to one partner, most of the youth, 75% could still practice risky sexual behaviour;

Although recent studies among youth in South Africa and other African countries had found at least moderate levels of knowledge about HIV/AIDS, important and critical gaps in HIV/AIDS knowledge remain (Anderson and Beutel, 2007).

On attitudes towards PLHIV, it could be concluded that the youth in Namakgale did not have judgemental and discriminatory attitudes towards PLHIV as indicated by willingness to:

- Accommodate or live with PLHIV in Namakgale regardless gender, age, educational level and type of relationships.
- Continue with friendships with those infected with HIV including teaching staff.

Findings from risk behaviours and discussions made so far lead to the conclusions that:

- The majority of the youth (75%) and above were vulnerable to HIV as they indulged in risky sexual behaviours.
- Females in the age category of 15 to 19 years were more vulnerable in risky sexual behaviours by not demanding condom use during sexual intercourse with older multiple partners;
- Male in casual relationships had more multiple partners for the past 12 months whom they had condomless sex with;

Although the youth in Namakgale had high HIV knowledge level, they still practised risky sexual behaviour which made them vulnerable to HIV infections.

5.5 RECOMMENDATIONS OF THE STUDY

The following recommendations were made based on the findings and conclusions of this study:

- Additional studies are required, preferably qualitative studies that seek gain deeper insights on why certain youths have poor knowledge of HIV, negative attitudes towards PLHIV and risky sexual practices.
- These findings suggest an urgent need for reinforcement of HIV/AIDS awareness campaigns and school-based interventions for those youths who still harbour myths and misconceptions about HIV transmission.
- Sustained education and HIV/AIDS awareness is crucial to the elimination of discriminatory attitudes towards HIV.

- Policy-makers and the media should educate late adolescents (15-19 years) more about risky sexual practices e.g. intergeneration sex (age group between sexual partners is 10 years or more), transactional sex etc.

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APPENDIX 1: REQUEST FOR A PERMISSION TO CONDUCT A STUDY FROM LIMPOPO DEPARTMENT OF HEALTH

PO BOX 95
Phalaborwa
1390
10 August 2015

Limpopo Province
Department of Health
Private Bag X9302
Polokwane
0700

The Head of Department
APPLICATION TO CONDUCT A STUDY

I, Gudani Netshivhuyu, hereby request the Department of Health to allow me to conduct a study at Mopani District.

Research Topic: Knowledge, attitude and behaviour among youth of Namakgale Township in Mopani District of Limpopo Province towards HIV/AIDS.

Institution: University of Venda.

Researcher: Netshivhuyu Gudani.

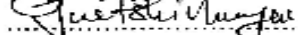
Study duration: February 2012-December 2015.

PERSAL: 83048294

Working place: Namakgale B Clinic, Ba-Phalaborwa Municipality, Mopani District.

Occupation: Professional Nurse.

I hope my application will be taken into consideration:


.....

Yours faithfully

Gudani Netshivhuyu


contact: 0792261768

email: tshivhuyugudani@gmail.com

130

110

APPENDIX 2: PERMISSION TO CONDUCT A STUDY BY THE LIMPOPO PROVINCE DEPARTMENT OF HEALTH



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila 015 2936210 Ref:4/2/2

Netshivhuyu G
University of Venda
Private Bag X5050
Tlohoenyandhu
0950


Greetings,

RE: Knowledge, attitude and behavior amongst youth oh Namakgale Township in Mopani District of Limpopo Province towards HIV/ AIDS

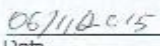
The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that-
 - Research must be loaded on the NHRD site (<http://nhrd.het.org.za>) by the researcher.
 - Further arrangement should be made with the targeted institutions.
 - In the course of your study there should be no action that disrupts the services.
 - After completion of the study, a copy should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - The above approval is valid for a 3 year period.
 - If the proposal has been amended, a new approval should be sought from the Department of Health.

Your cooperation will be highly appreciated.



Head of Department



Date

18 College Street Polokwane, 0700, Private Bag x0302, POLOKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: <http://www.limpopo.gov.za>

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APPENDIX 3: APPLICATION FOR AN ETHICAL CLEARANCE

PO BOX 95
Phalaborwa
1390
10/04/2015

University of Venda
Private Bag X5050
Tlohoenyandou
0950

Ethical Clearance Committee

APPLICATION FOR ETHICAL CLEARANCE

I, Gudani Netshivhuyu, hereby request the University of Venda Ethical Clearance Committee to approve and authorize my research proposal

Research Topic: Knowledge, attitude and behaviour among youth of Namafogate Township in Mopani District of Limpopo Province towards HIV/AIDS.

Department of Health.


School: Health Sciences.

Researcher supervisor: Professor H.A. Akinsola.

Co-supervisor: Dr D.T. Goon.

Study duration: 2015 and 2016.

I hope my application will be taken into consideration.



Yours faithfully

contact: 0792261768

Gudani Netshivhuyu

email: tshivhuyugudani@gmail.com

APPENDIX 4: ETHICAL CLEARANCE CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mr G Netshivhuyu

Student No:
11540781

PROJECT TITLE: **Knowledge, attitude and behaviour among youth of Namakgale Township in Mopani District of Limpopo Province towards HIV/AIDS.**

PROJECT NO: SHS/15/PH/08/0505

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof HA Akinsola	University of Venda	Supervisor
Prof DT Goon	University of Fort Hare	Co-Supervisor
Mr G Netshivhuyu	University of Venda	Investigator - Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: May 2015

Decision by Ethical Clearance Committee Granted

Signature of Chairperson of the Committee:

Name of the Chairperson of the Committee: Prof. G.E. Ekosse




University of Venda

PRIVATE BAG X6050, THOHOYANDOL, 0850, LIMPOPO PROVINCE, SOUTH AFRICA
TELEPHONE (015) 952 8816/8313 FAX (015) 952 9060

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APPENDIX 5: PARTICIPANT INFORMATION AND INFORMED CONSENT

I, Netshivhuyu Gudani a post graduate student at the University of Venda Department Of Public Health.

I am conducting a research titled **Knowledge, attitude and behaviour among youth of Namakgale Township in Mopani District of Limpopo Province towards HIV/AIDS**. I would like to request you to participate in the study. Information obtained from you will be treated as confidential. Your participation in this study is voluntary and you are free to withdraw at any time. Your decision to take part in this study will have no negative impact on your health or work. No remuneration that will be received by the participants for the purpose of being part of the research.

Researcher's signature.....Date.....

Participant

I.....have been thoroughly informed about the study and have read through the consent form and hereby voluntarily consent to participate in this study. I am fully aware that I can withdraw my consent at anytime without jeopardizing any health care for the benefit of me and my family.

Participant's signature.....Date.....

For more information contact Netshivhuyu G (Researcher) on 079 2261768 or tshivhuyugudani@gmail.com

APPENDIX 6: PARENTS/GUARDIANS INFORMATION AND CONSENT FORM

I, Netshivhuyu Gudani a post graduate student at the University of Venda Department Of Public Health.

I am conducting a research titled **Knowledge, attitude and behaviour among youth of Namakgale Township in Mopani District of Limpopo Province towards HIV/AIDS**. I would like to request your child's participation in this study. Information obtained from you will be treated as confidential. Your child's participation in this study is voluntary and he/she is free to withdraw at any time. Your decision to allow your child to take part in this study will have no negative impact on your child's health or work. No remuneration that will be received by the participants for the purpose of being part of the research.

Researcher's signature.....Date.....

Participant

I.....have been thoroughly informed about the study and have read through the consent form and hereby voluntarily consent my child to participate in this study. I am fully aware that I can withdraw my consent at anytime without jeopardizing any health care for the benefit of me and my family.

Parent/guardian's signature.....Date.....

For more information contact Netshivhuyu G (Researcher) on 079 2261768 or tshivhuyugudani@gmail.com

APPENDIX 7: QUESTIONNAIRE

INSTRUCTIONS:

1. Please **do not write your name on** any part of this questionnaire!
2. Do not tear any page!
3. Please **do not** consult each other while answering this questionnaire!
4. Use a cross (x) in the relevant box or write down in the space provided to answer as shown in an example shown below!

EXAMPLE of how to complete this questionnaire: Question: What is your gender?		
1. Male	<input type="checkbox"/>	1
2. Female	<input type="checkbox"/>	2

<i>For Office Use Only</i>	
Year	
Date	
Questionnaire Number	

Section A: Socio-demographic information: This section of the questionnaire refers to background or demographical information. Although we are aware of the sensitivity of the questionnaire in this section, the information will allow us to compare groups of respondents. In addition, we assure you that your response will remain anonymous and confidential. Your cooperation is appreciated.

Q1. What is your gender? (Mark only one response!)

1. Male 1
2. Female 2

Q2. What is your age in years? Please write in your answer.....

Q3. What is your religion? (Mark only one answer!)

1. Christianity 1
2. African 2
3. Islam 4
4. None 3

5. Other 5

Q4. How would you describe your current marital/relationship status? (Mark only one answer!)

- | | | |
|---------------------------------------|--------------------------|---|
| 1. Single | <input type="checkbox"/> | 1 |
| 2. Married | <input type="checkbox"/> | 2 |
| 3. In a steady (serious) relationship | <input type="checkbox"/> | 3 |
| 4. In casual relationships | <input type="checkbox"/> | 4 |

Q5. What is your highest grade passed? (Mark only one response!)

- | | | |
|---------------------------------------|--------------------------|---|
| 1. None | <input type="checkbox"/> | 1 |
| 2. Grade 11 or lower | <input type="checkbox"/> | 2 |
| 3. Grade 12 | <input type="checkbox"/> | 3 |
| 4. Post-matric diploma or certificate | <input type="checkbox"/> | 4 |
| 5. Bachelor's degree | <input type="checkbox"/> | 5 |
| 6. Post-graduate degree | <input type="checkbox"/> | 6 |

Q6. Are you working? (Mark only one response!)

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Q7. Are you currently studying (i.e. secondary school, vocational training, university etc.)? (Mark only one response!)

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Section B: HIV/AIDS-related knowledge: Knowledge of HIV/AIDS epidemic can offer significant immunity against contracting of virus and lack or inadequate HIV/AIDS-related knowledge can seriously put an individual at risk of infection. We are hoping that you answer

questions in this section in mind. It is really important that you answer these questions thoughtfully.

HIV/AIDS-RELATED KNOWLEDGE		
Knowledge statements	Yes	No
Q8. There is a difference between HIV and AIDS.		
Q9. At present there is a cure for AIDS.		
Q10. HIV can cause AIDS.		
Q11. Having sex with someone who is HIV and not using a condom can transmit HIV.		
Q12. A person can reduce the risk of getting HIV by using a condom every time they have sex.		
Q13. Witchcraft can cause HIV/AIDS.		
Q14. A person can get HIV from mosquito bites.		
Q15. Having sexual intercourse with a virgin can cure HIV/AIDS.		
Q16. A person can get HIV/AIDS from kissing, hugging and touching someone who has HIV/AIDS.		

Q17. HIV/AIDS can be cured with herbal (traditional) medicine.		
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Q18. From what source did you receive information about HIV/AIDS? (**More than one answer possible**)

1. Television		1
2. Radio		2
3. Newspaper		3
4. Magazines		4
5. Billboard		5
6. Health care workers		6
7. School		7
8. Internet		8
9. Social media		9
10. Other		9

Section C: Attitudes towards people living with HIV. HIV/AIDS-related stigma and discrimination prevents people to disclose their HIV status. Please choose the appropriate answer.

HIV/AIDS-RELATED ATTITUDES				
Attitudes statements	SA	A	D	SD
Q20. The majority of people living with HIV are promiscuous.				
Q21. People living with HIV are merely receiving the punishment they deserve				
Q22. All persons living with HIV should live away from Namakgale.				

Q23. If your friend is HIV positive, you would continue your friendship with him/her.				
Q24. If you knew that a shopkeeper or foodseller is infected with HIV, you would buy food from them.				
Q25. If a relative of yours has HIV/AIDS, you would be willing to care for them in your household.				
Q26. If a teacher is infected with HIV but is not sick, he or she should be allowed to continue teaching in a school.				

Key: SD = Strongly agree

A = Agree

D = Disagree

SD = Strongly disagree

Section D: Risk sexual behaviour: The questions in this section are very personal. Risky sexual behaviours (e.g. poor condom use, early initiation of sexual activity and transactional sex) can put an individual at risk of contracting virus; **young people are the most vulnerable group of contracting HIV in South Africa.** Please answer this section as honestly as possible, and we remind you that your information will be **confidential** and policy-makers to plan targeted awareness program.

Q27. Have you ever had sexual intercourse? **(Mark only one response!)**

1. Yes 1
2. No 2

Q28. How old were you the **first time** you had sexual intercourse? (**Write down age in years!**)

Age in years.....

Q29. In the past 12 months, how many people have you had sexual intercourse with? (**Mark only one response!**)

- | | | |
|--------------|--------------------------|---|
| 1. 1-2 | <input type="checkbox"/> | 1 |
| 2. 3-5 | <input type="checkbox"/> | 2 |
| 3. 6-8 | <input type="checkbox"/> | 3 |
| 4. 9 or more | <input type="checkbox"/> | 4 |

Q30. How old was your partner the first you had sexual intercourse? (**Mark only one response!**)

- | | | |
|--------------------------|--------------------------|---|
| 1. Younger than 15 years | <input type="checkbox"/> | 1 |
| 2. 16-19 years | <input type="checkbox"/> | 2 |
| 3. 20-24 years | <input type="checkbox"/> | 3 |
| 4. 25-29 years | <input type="checkbox"/> | 4 |
| 5. 30 years and older | <input type="checkbox"/> | 5 |

Q31. Did you use a condom the **first** time you had sexual intercourse? (**Mark only one response!**)

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Q32. The **last** time you had sex; did you or your partner use a condom? (**Mark only one response!**)

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Q33. In general how often did you use condoms in the past 12 months? (**Mark only one response!**)

- | | | |
|-----------|--------------------------|---|
| 1. Always | <input type="checkbox"/> | 1 |
|-----------|--------------------------|---|

- | | | |
|---------------------|--------------------------|---|
| 2. Often | <input type="checkbox"/> | 2 |
| 3. Half of the time | <input type="checkbox"/> | 3 |
| 4. Rarely | <input type="checkbox"/> | 4 |
| 5. Never | <input type="checkbox"/> | 5 |

Q34. How often did you or your partner use a condom in the past 12 months? **(Mark only one response!)**

- | | | |
|---------------------|--------------------------|---|
| 1. Always | <input type="checkbox"/> | 1 |
| 2. Often | <input type="checkbox"/> | 2 |
| 3. Half of the time | <input type="checkbox"/> | 3 |
| 4. Rarely | <input type="checkbox"/> | 4 |
| 5. Never | <input type="checkbox"/> | 5 |

Q35. Other than your steady partner have you had other sexual partners in the past 12 months? **(Mark only one response!)**

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Q37. How many sexual partners have you had since you were born (lifetime partners)? **(Mark only one response!)**

- | | | |
|--------------|--------------------------|---|
| 1. 1-2 | <input type="checkbox"/> | 1 |
| 2. 3-5 | <input type="checkbox"/> | 2 |
| 3. 6-8 | <input type="checkbox"/> | 3 |
| 4. 9 or more | <input type="checkbox"/> | 4 |

Q39. Have you ever had sexual intercourse with someone who was 10 years or older than you? **(Mark only one response!)**

- | | | |
|--------|--------------------------|---|
| 1. Yes | <input type="checkbox"/> | 1 |
| 2. No | <input type="checkbox"/> | 2 |

Thank you for your time and thought in completing this questionnaire.

Your Participation is appreciated

APPENDIX 8: CONFIRMATION BY LANGUAGE EDITOR

24th NOVEMBER 2014

TO WHOM IT MAY CONCERN

RE:EDITING OF NETSHIVHUYU GUDANI'S PROPOSAL

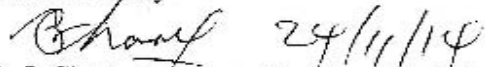
This letter serves to confirm that I have edited NETSHIVHUYU GUDANI's Masters Proposal whose title is "KNOWLEDGE, ATTITUDES AND BEHAVIOUR AMONG YOUTHS OF NENAKGALE TOWNSHIP IN MOPANI DISTRICT OF LIMPOPO PROVINCE TOWARDS HIV/AIDS"

My work entailed identifying and correcting grammatical, typographical, formatting and related editorial errors in the document.

I have recommended a number of corrections related to grammar, typographical errors and sentence construction.

Should there be any queries regarding the editorial aspects of the document please do not hesitate to contact me.

Yours sincerely



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