



Title: The Awareness and Perceptions of Sexually Transmitted Infections among students attending the University of KwaZulu-Natal

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Dissertation submitted in fulfilment of the requirements for the degree:

**Master of Medical Science in the
School of Clinical Medicine, College of Health Sciences
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DECLARATION

- (i) The research reported in this dissertation, except where otherwise stated, is my original work and data collection was conducted in the University of KwaZulu Natal
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05 August 2021

Date

PERMISSION TO SUBMIT

As the candidate's supervisor, I have read the thesis and have given our approval for submission for examination



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ACKNOWLEDGEMENTS

I wish to extend my appreciation and gratitude to the following individuals:

My supervisor, Professor Nathlee Abbai for her academic support, guidance, her dedication to my research. She gave of herself and time to ensure the completion of each phase of this research to be completed in spite of the national and global pandemic. Thank you for staying motivated and optimistic throughout while everything fell apart around us.

Dr Makandwe Nyirenda, for assisting with the study design and for performing the statistical analysis.

My mother, my father and my sisters for supporting me with your love and encouragement. Above all, you reminded me to be still and to remember that The Almighty is ever present and that I am already victorious.

My loving fiancé, for being my ‘bee-st’ friend and for being the most patient throughout my studies. My cuteness, it is because of you that such journeys are worth every moment.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AYFS	Adolescent and Youth Friendly Services
BV	Bacterial vaginosis
CT	Chlamydia trachomatis
DSD	Department of Social Development
HEAIDS	Higher education and Training HIV/AIDS Programme
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HSRC	Human Science Research Council
ICF	Informed Consent Form
KZN	KwaZulu-Natal
LGV	Lymphogranuloma Venereum
SA	South Africa
SRH	Sexual Reproductive Health
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Infections
TVET	Technical and Vocational Education and Training
UKZN	University of KwaZulu-Natal
UNAIDS	United Nations Programmes of HIV/AIDS
UCT	University of Cape Town
UNDP	United Nations Development Programme
USA	United States of America
UWC	University of Western Cape
WHO	World Health Organisation

Abstract

Background

A high prevalence of sexually transmitted infections (STIs) have been reported among youth globally and this high prevalence calls for global efforts to improve sexual and reproductive health in this population. The prevalence of STIs in young South African women and men is 0.50% and 0.97% for Syphilis, 6.6% and 3.5% for Gonorrhoea and 14.7% and 6.0% for Chlamydia. Increased evidence on behavioural change is dependent on the comprehensive understanding and perception of one's own risk. Updated evidence of awareness and perception of STIs in university students is needed to inform relevant sex education programmes. The purpose of this study is to assess awareness and perceptions of STIs in students enrolled at the University of KwaZulu-Natal.

Methodology

The study used a quantitative research approach. This study was conducted at the University of KwaZulu-Natal in Durban, South Africa. The sample consists of 142 undergraduate and postgraduate registered students between the ages of 18 and 35 years. The study used purposive sampling to obtain the sample. A self-administered survey assessing awareness and perceptions of sexual risk behaviour and STIs was administered. Data was analysed using descriptive statistics. Means and standard deviation were used for continuous variables. Analyses were stratified by gender using Chi-square tests as it was expected that there would be differences in awareness and perceptions regarding risky sexual behaviour and STIs.. Analyses were done with STATA version 15.1.

Results

The study found that 78% of the students were aware of STIs. There was a significant association regarding awareness of Chlamydia infections, $p=0.015$. Similar to the other infections, a higher proportion of males were aware of Chlamydia when compared to females (96.4% versus 82.8%, $p=0.015$). Similar to Chlamydia infections, there was a significant association regarding awareness of Trichomonas across the different genders ($p=0.011$). According to the analysis, females are exposed to awareness of STIs from a younger age when compared to their male counterparts. Most students (34.5%) had reported that they had received information on STIs from social media and from their school teachers. There was a significant difference in the responses related to same sex practices and STI risk ($p=0.047$). While some

students had socially acceptable perceptions, there were some that were not acceptable including sexual debut (34,5%), concern about being at risk of STI (31%), condom-less sex as an STI risk (21.2%), ease of condom negotiation (41.5%), pregnancy being more risky than STIs (28.8%) and alcohol as an STI risk (28.2%).

Conclusion

This study had revealed the students have high awareness of STIs. Despite the high awareness, the students still have low risk perceptions especially towards condom use, alcohol consumption and age disparate relationships. These distorted attitudes will subsequently impact on the risk behaviours and further research needs to be conducted in order to fill the gap between awareness and perception. This study highlighted the clear discrepancy between the awareness of STIs and the reported perceptions of students. Future research to evaluate STI messaging and assess actual risk versus perceived risk in this population is recommended.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Youth between the ages of 15-24 years were reported to be at a population level of 1.2 billion globally in 2015, which makes up 1 out of 6 people in the world, and this population is anticipated to grow by 7% by the year 2030 (DeSA, 2013). The incidence rate of sexually acquired infections is also increasing, whereby 380 000 new Human Immunodeficiency Virus (HIV) infections per year are reported globally for individuals between the ages of 10-24 years (UNAIDS and UNDP, 2014). In South Africa, youth and young adults between the ages of 15-34 years were made up of 37% of the total population in 2012 (StatsSA, 2013). In 2014, 1500 of youth (15-24 years) were estimated to be newly infected with HIV on a daily basis (Simelela, 2015). One of the risk factors for acquiring sexually transmitted infections (STIs) is early age of sexual debut [sexually active during teenage years] (Dehne and Riedner, 2005, Geary et al., 2014). Sexual and reproductive health in this population is also threatened by vulnerability to STIs as a result of biological factors (Bearinger et al., 2007).

Past studies have reported that the highest prevalence rates for HIV are reported in youth and younger adults (Mbelle et al., 2014). Additionally, KwaZulu-Natal (KZN) was reported to have the highest HIV prevalence rate (12%) among the youth between the ages of 15-24 years in South Africa (Shisana et al., 2014). The prevalence rates of STIs for populations between the ages of 15-24 years old in South Africa is 8.0% to 20.6% for Chlamydia, 1.4% to 8.9% for Gonorrhoea, 3.1% to 20.0% for Trichomonas and 31.9% to 53.7% for Genital herpes (Francis et al., 2018). According to Heeren et al. (2013), university students in KZN are highly susceptible to STIs due to their active engagement in risky sexual behaviours. The factors that have been shown to influence the risk of STIs include the number of sexual partners, the type and frequency of sexual intercourse, lack of condom use and social factors such as the risk of violence (Dehne et al., 2005).

Lack of condom use seems to be a major contributing factor in KZN for the reported high STI prevalence rates (Mantell et al., 2011). Although condom use is increasing in university students in KZN, the consistency in use remains low (Maharaj and Cleland, 2006, Mantell et

al., 2011). Most university students fall within the ages of 15-24 years, during this time frame they experience their sexual debut and engage in risky sexual behaviours (Dehne et al., 2005, Akintola et al., 2012). About 89% of adolescents have their first sexual experience between ages of 15-24 years and are reported to have the highest number of multiple sexual partners than any other age group (Shisana et al., 2014).

Awareness and risk perception plays a significant role in the susceptibility to infection which includes the awareness of methods of transmission and willingness to change sexual behaviour (Macintyre et al., 2004). Although knowledge on transmission of HIV has increased due to campaigns such as Love Life over the years, the numbers of those who test for HIV remain low (Shisana et al., 2014, Ngidi et al., 2016). A South African national survey found that less than 50% of adolescents did not have knowledge about the effectiveness of condoms in preventing HIV (Shisana et al., 2014), which tells us that there are gaps in the messages being relayed to the youth in the communities. Messages on sexual risk behaviour provided to students in universities contradict the students' perception that sexual activity better one's social status which allows one an entry into particular peer groups (Bergamini et al., 2013).

Furthermore, the youth perceive that engaging in anal and oral sex has a lower risk of contracting STIs when compared to vaginal sex (Bergamini et al., 2013). In another study conducted in 4 African countries, the youth reported that they did not seek treatment for STI symptoms as they perceived them not to be serious and they lacked knowledge of where to access treatment for STIs (Biddlecom et al., 2007). Long term partnerships have been reported as one of the reasons for one perceiving themselves at a lower risk of being infected, because requesting for condoms to be used may be perceived as infidelity in the relationship (Kabiru et al., 2010). Increased evidence on behaviour change is dependent on the comprehensive understanding and perception of one's own risk. Updated evidence of awareness and perception of university students is needed to inform relevant and current sex education programmes.

Rationale

While there is literature on STI's among youth, the major focus has been on the 'knowledge' of sexually transmitted infections and not on the 'awareness' and related factors. Awareness is crucial in that it is the building block for deeper understanding of this public health concern. This study therefore will give insight on how cognisant the youth are regarding STI's, which will tell us where and how to build the knowledge based on the results. This will help better understand existing data on knowledge and assist with designing future programmes to include appropriate and relevant education materials. Furthermore, intensive efforts towards HIV awareness have been put in SA and have even masked the attention on other common STIs particularly in youth, hence this study will reveal how much work is still needed to raise awareness of other STIs that have previously not been included in awareness campaign initiatives. Assessing risk perception may be challenging for an individual because they may not be informed of how to assess their own risk. This study will inform us of the level of awareness they have to make informed behavioural change decisions. Lack of tailored messaging in health services targeted at this particular age group will be addressed in this study through perceptions of the youth themselves. Constructs of sex and sexuality have evolved over the past 10 years, therefore it is inevitable that perceptions have shifted and it is vital for us to understand current perceptions of youth to improve health outcomes.

Study Aim

The purpose of the study was to assess the awareness and the perceptions of sexually transmitted infections among students enrolled at the University of KwaZulu-Natal, by observing risk behaviour.

Study Objectives:

1. To assess awareness of sexually transmitted infections in a population of university students
2. To assess the awareness of risky sexual behaviour associated with sexually transmitted infections in the study population
3. To determine the proportion of students who have socially acceptable perceptions on sexually transmitted infections

In view of the foregoing, the observation of social factors surrounding STIs among students in UKZN was chosen to gain a better understanding of their thoughts and awareness on sexually transmitted infections and associated risk behaviours. This chapter looked at what the rationale, the purpose of the study and the main objectives of the study are. In the next chapter I will be addressing the various literature and studies that had been conducted locally and globally by looking at sexual risk behaviours, awareness and perceptions on STIs. Although some literature may use the term 'knowledge' and 'awareness' interchangeably, this study will look at the awareness of STIs.

CHAPTER TWO

LITERATURE REVIEW

2.1 SEXUAL RISK BEHAVIOURS

2.1.1 Early Sexual Debut

The behavioural determinants of STIs is the age of sexual debut, the age difference between partners, multiple sexual partners, condom use and sexual behavioural practices (Shisana et al., 2014). The median age in South Africa for early sexual debut is 16 years for males and 17 years for females (Pettifor et al., 2005, Zuma et al., 2010). However, in KZN sexual debut was 18 years and 19 years for females and males respectively (McGrath et al., 2009), which is in the age range of when youth are enrolled in university. Some studies have shown a long term effect of early sexual debut, where the earlier the first time experience of sex, the higher the likelihood of one engaging in risky behaviour later in life, which means that once risk behaviours are experienced, change of behaviour becomes more difficult later on (Zuma et al., 2010). Studies have shown that early sexual debut is linked with experiences of sexual coercion, which has consequently been associated with poor health outcomes amongst the youth (Maharaj and Munthre, 2006, Richter et al., 2015). In studies conducted in America and South Asia, early sexual coercion led to harmful sexual behaviour such as unprotected sex (Noell et al., 2001, Jejeebhoy et al., 2013).

Early sexual debut poses a high risk for acquiring STIs due to the behaviours associated with it, including non-use of condoms, the type of relationship, the characteristics of the partner and coercion and consent of sex (Pettifor et al., 2009). Although the rate of early sexual debut is considered to be high in Sub-Saharan Africa (SSA), this is also a common factor contributing to risky behaviour world-wide. In a survey conducted in China amongst college students from Shantou University where the age range was between 17-34 years, it was discovered that 25 of 220 students had their first sexual encounter at the age of 19 years or less (Zhang et al., 2013). In another study conducted in New York City in the United States amongst 7th to 10th grade students, 66% of male students and 52% of female students had reported to have already had their first sexual intercourse by the 10th grade (O'Donnell et al., 2001). In another study conducted observing adolescent sexual behaviour among 16-18 year old high school students

in Poland, 26% of students were reported to have sexual intercourse at 15 years or earlier (Woynarowska et al., 2006).

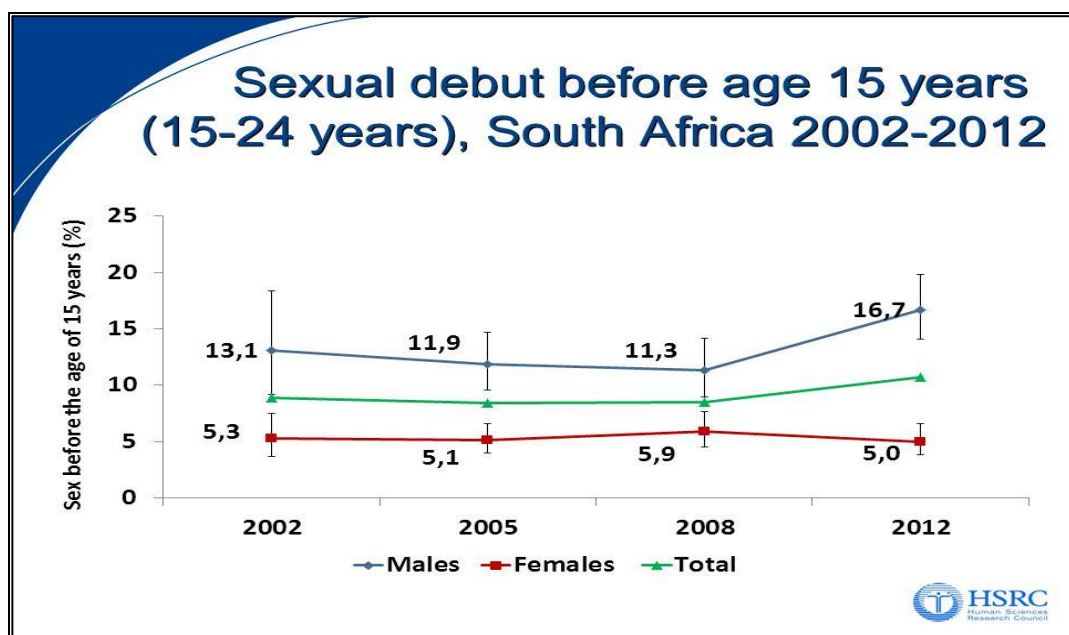


Figure 1: Graph presenting Sexual Debut before the Age 15 Years (15-24 years), South Africa 2002-2012 (Shisana et al., 2014).

Figure 1 shows the results rates of sexual debut amongst South African youth. The rates were fairly stable amongst the females from 2002 to 2012 (average 5.3%), with a slight increase between 2005 and 2008 and a slight decrease between 2008 and 2012. In contrast, for the males the average rate is 13.1% which is significantly higher than the females. In addition, for males, the rate of first sex before 15 years increased between 2008 and 2012. This figure shows that the males consistently reported higher rates of early sexual debut when compared to females (Shisana et al., 2014). Thus, it would prove to be a useful exercise to strengthen existing programmes that encourage delay in sexual debut amongst young people.

Furthermore, studies have shown that risky sexual behaviour was associated with the commitment to religious beliefs (Garner, 2000, Odimegwu, 2005). Studies have shown that there is a strong relationship between religion and sexual behaviour amongst university students, where those with strong religious views are more traditional in their sexual values while others who are more unconventional in religious views are more liberal in their sexual values (McMillen et al., 2011). This means that the adolescents who report that they have strong religious beliefs are less likely to report a higher number of lifetime sex partners compared to those who are less stronger in their beliefs and this was confirmed by a study that

was conducted among school-going adolescents in South Africa (Amoateng et al., 2014). Results of studies conducted on sexual debut draw attention to high rates of coerced sexual debut and evidence has shown that the sexual abuse experience increased the likelihood of risky behaviour especially amongst young woman (Jewkes and Abrahams, 2002). Figure 1 shows that males engage in earlier sexual debut when compared to females.

2.1.2 Condom Usage

Currently, a combination of prevention methods including condom education and promotion and distribution are the most effective methods of STI prevention globally since they are cost effective and can be used by everyone who is sexually active (Taylor et al., 2017a). Condom use is influenced by multiple factors some including the exposure to sexual education before sexual debut, perception that they are at low risk and the type of relationships that one is engaged in (Hendriksen et al., 2007, Mantell et al., 2011). The household National survey revealed that the 15-24 years age group had a higher percentage of condom use compared to the other age groups (Shisana et al., 2014), consequently, they still remain as the most vulnerable group for acquiring STIs. This suggests that although they may report condom use, the inconsistency and incorrect use of condoms remains high. One study reported that use of condoms during the first sexual experience increased the likelihood of longer term use of condoms (Hendriksen et al., 2007). Additionally, another study reported that condom use at the start of a new relationship also increased the likelihood of consistent condom use within the relationship, however, once trust is established in a longer-term relationship, condom use declines (Mantell et al., 2011). In a study conducted among college students in Durban, 28% of men and 32% of women reported that genital contact had occurred before the use of the condom (Maharaj and Cleland, 2006). This suggests that youth maybe aware of STIs but knowledge on STI acquisition is lacking and/or the youth perceive themselves at low risk of being infected (Nyasulu et al., 2018). Published literature has often shown the vast majority of males expressing the decrease in sexual pleasure when using condoms. A qualitative study conducted in Khutsong, South Africa among young people, found that males and their peers expressed the negative attitudes that they had towards condoms and believed that condoms were for the people who had already been infected with a STI (MacPhail and Campbell, 2001). Additionally, another study that investigated the progress and challenges to male and female condoms in South Africa, reported on the stigmatisation of condoms and how they are linked

to having a STI (Beksinska et al., 2012) This finding highlights the need for increased condom use education.

Violence has played a significant role with regards to condom use due to social norms that dictate that sex and condom use should only be initiated by men (Wood et al., 1998). In a study conducted in South Africa among 7 692 females and males between 15-24 years, found that 25.4% and 40.4% respectively did not talk to their first sex partners about condom use (Pettifor et al., 2009). Gender has played a role in sexual risk behaviours (Beksinska et al., 2012). Additional social factors predicting condom use in youth is; level of education, religion, transactional sex, alcohol use, multiple concurrent partners and social acceptability (Beksinska et al., 2012). In a study conducted in four cities in SSA, it was found that level of education was found to be the most common factor to determine condom use. In addition, occupation was also shown to be the marker of condom use (Lagarde et al., 2001).

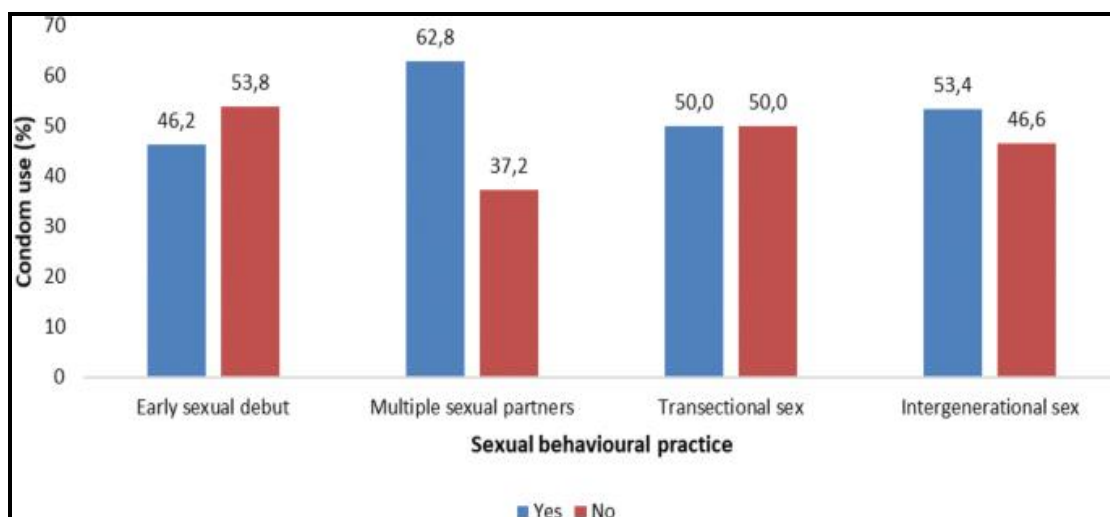


Figure 2: Male condom use at last sex by sexual behavioural practices among the sexually active young women aged 16–24 years, National HIV Communication Survey, South Africa, 2012. Taken from (Ntshiqqa et al., 2018).

According to Figure 2 more than half (53.8%) of the young women between 16-24 years old did not use a condom when encountering their first sexual experience at a young age. More than a third of the young women with increased HIV risk who reported to have multiple sexual partners were not using condoms. Additionally, almost half (46.6%) the young women who were practicing intergenerational sex (young women between 15-24 years having sex with a partner 5 years or older) were not using condoms during sexual practices. This study showed

that condom use was associated with delayed sexual debut, cohabitation with a regular partner and practicing sex with a recent partner (Ntshiqha et al., 2018).

2.1.3 Transactional Sex and Age Disparate Sex

Gender inequalities in a sexual relationship play a significant role in condom use when money or goods are used as an exchange for sexual intercourse. A study conducted in four countries in SSA showed that between 36% - 80% of youth were engaging in transactional sexual practices (Moore et al., 2007). Studies have shown that transactional sex is detrimental to the health of the youth due to the idea that the partners are majority of the time older and have the right as providers to be make the decision regarding sexual practices (Moore et al., 2007, Mampane, 2018). Consequently, transactional sexual relationships commonly consist of age disparate partners, this is where there is an age gap of 5 years or 10 years or sometimes termed the 'sugar daddy' phenomenon (UNAIDS, 2018). This behaviour increases the risk of STIs among youth due to their exploitative nature resulting in a 28% increased likelihood of unprotected sex (Leclerc-Madlala, 2008). The elder partner has authority over the sexual decisions in the relationship in exchange for material possessions and these decisions are often to the detriment of the reproductive health of the young partner (Kuate-Defo, 2004).

The concern that the STI epidemic is focused on the younger women when compared to the men, could possibly be due to SSA having the largest average age disparate relationships globally (Wellings et al., 2006). Transactional and age disparate sex occurs globally but the nature of these relationships may be different according to the motivation or drive behind the behaviour. According to UNAIDS (2018), within SSA, transactional sex relationships are not commercial, in other words, the parties involved will identify their partners as boyfriend, girlfriend or lovers as opposed to sex worker or client. So although not formerly negotiated, the exchange of gifts both monetary and non-monetary is expected in the sexual/romantic relationship as a benefit of providing sex (UNAIDS, 2018). Studies conducted in KZN, reported that just over a third of the female participants who were in age disparate relationships, may be linked to economic inequalities (Harling et al., 2014, George et al., 2019). One study went further to show that there was a higher coital frequency in age disparate relationships despite existing concurrent partners at the time (George et al., 2019). Although the studies did not record seroconversions due to the age disparate relationships, however, the increase risk of coital acts increases the risk of STIs with non-use of condoms based on gendered inequalities regarding condom use negotiation (Wingood and DiClemente, 2000).

In light of this, “men’s gifts to girlfriends are one symptom of heightened gendered inequalities” in South Africa today (Hunter, 2009). Some women need gifts for their wellbeing and others needed it for social survival as part of globalisation processes through consumption. In a study conducted in Madagascar, South Africa and Lesotho in 2010, women expressed the need to consume modern goods to keep up with their peers with regards to material possessions. Furthermore, the males and females in Lesotho working in the mining sector expressed that these types of relationships helped provide for living expenses such as rent, school fees, food and more (Stoebenau et al., 2011). These types of relationships have also led to being labelled a ‘sugar daddy’ or a ‘sugar mummy’ practice and have, however, posed threats to the reproductive health of youth including increased rates in STIs, HIV and abortions (Kuate-Defo, 2004). Literature has presented evidence of these relationships in Higher Education Institutions (Gobind and Du Plessis, 2015, Albers et al., 2017), which means that the youth in these institutions are vulnerable to health risks alongside the fast rate of consumerism. Additionally, the ‘blesser/blessee’ phenomenon is a newer term predominantly used online and is the new digital age ‘sugar’ relationships, which is not based on survival needs of transactional sex but more on image and commodification on social media (Moodley and Ebrahim, 2019). Unfortunately, this phenomenon is not all glamorous as blessers have been associated with playing a major role in the HIV epidemic in South Africa and needs to be integrated in the strategy of finding a cure for HIV (Khazan, 2018).

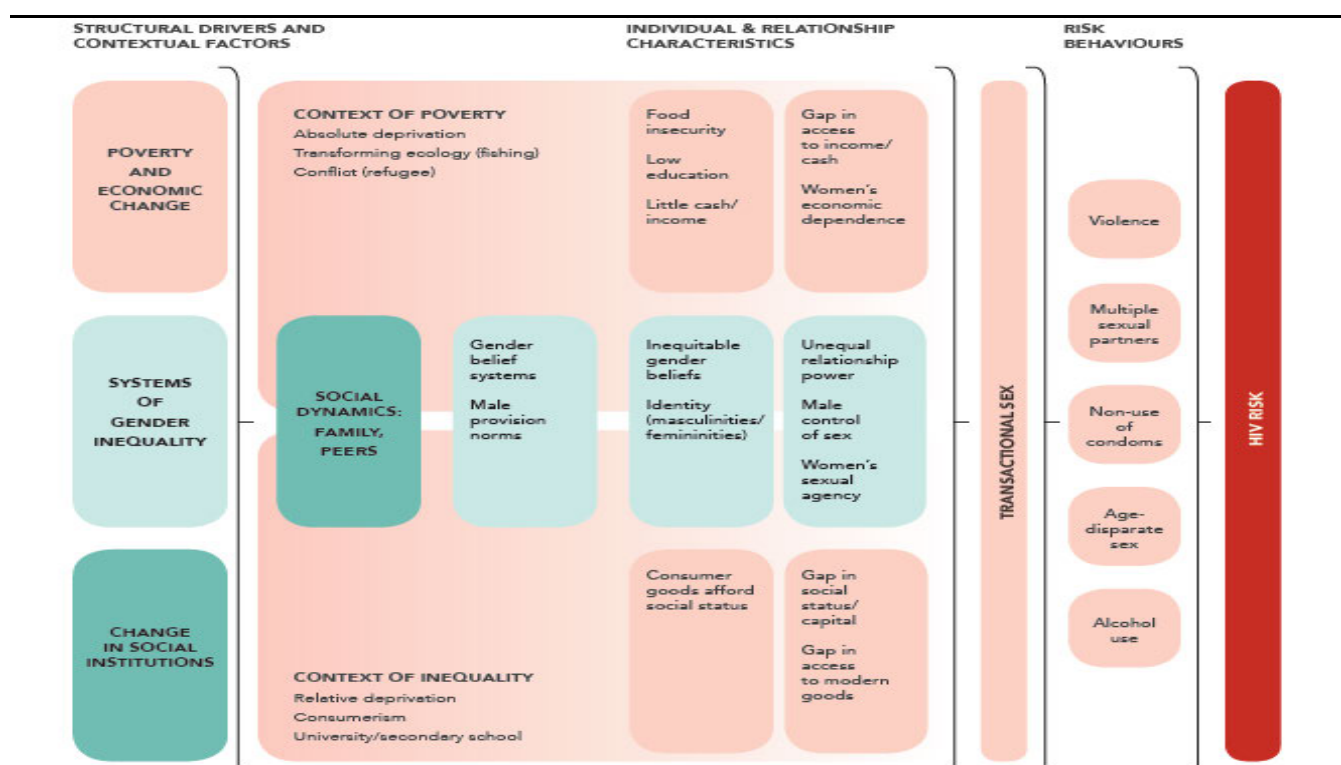


Figure 3: Drivers of STI risk through transactional sex or adolescent girls and young women in Sub-Saharan Africa. Taken from UNAIDS Report 2018.

Figure 3 summarizes some of what has been discussed above, that there are different levels that an individual is influenced by in engaging in transactional sex, including structural, relationships, contextual and individual levels. Structural and contextual levels include: (1) poverty and economic change where we see drivers such as lack of food and low education; (2) gender inequality where we see societal beliefs of unequal power relations where males are given power to control sex; and (3) changes in the social institutions where consumerism is a major role player in affording an individual social status (UNAIDS, 2018).

2.1.4 Having Multiple Sexual Partners

The financial and material exchange for sex is commonly associated with the continuous change of sex partners and inconsistent condom use (Mampane, 2018, UNAIDS, 2018). Subsequently, the youth are at increased risks of getting STIs and an urgent need to prioritise and ensure prevention programmes is of utmost importance and we can see evidence of this in literature (Harling et al., 2014, Shisana et al., 2015, De Wet et al., 2018a). According to the National Survey, the age group of 15-24 years was highlighted as the age group that practice having multiple partnerships (22.4%) when compared to the other age groups (15.4%) in the

past year (Shisana et al., 2014). In a review conducted in 24 countries in SSA, results showed that the urban educated youth between 15-19 years reported to have multiple partners, placing them at an increased risk of STIs and HIV (Doyle et al., 2012b). Doyle et al. (2012) added that urban educated students would engage in age disparate sexual relationships more than their rural counterparts would.

Societal gender inequalities are reported to be one of the major motivators for women for having multiple partners, for example, literature conducted in SSA reported that some women reported having multiple partners because they could not obtain careers that could provide financial freedom as these types of jobs would usually be awarded to men, which in turn rendered them financially dependent on a man (Stoebenau et al., 2011). Furthermore, some of the cultural restrictions about having sex with multiple partners especially for women is the fear of falling pregnant (Hunter, 2009). It is evident that pregnancy prevention is prioritised over STI prevention, which means that STIs can be passed among the multiple partners without the women being aware, particularly when they are asymptomatic. Additionally, seeing as the young girls associated with sugar daddies are the ones mainly falling victim to STI transmission, they are consequently also transmitting STIs to their peer partners (Masenya, 2017).

In contrast, culturally, men are expected to have many partners, which creates another conundrum for transmission and re-transmission of STIs among the partners. In a study conducted in Botswana university students, a female reported that one is aware of the health risks associated with being in a relationship with a partner who has multiple partners, but she is afraid to address this concern with the partner as she could stand to lose the 'benefits' she receives from the partner (Albers et al., 2017). In another study conducted in 24 SSA countries, the most reported multiple partnerships were in 15-24 year olds in urban areas compared to the rural areas and the females who had a higher level of education reported having multiple partners when compared to the less educated females (Doyle et al., 2012a). It is therefore, imperative to develop further knowledge on the youth reporting to be engaging in multiple sexual relationships so to effectively tackle this risk behaviour pattern (Blignaut et al., 2015).

2.1.5. Types of Sex

Common STIs are transmitted mainly by vaginal sex, however, oral and anal sex also play a role in STI transmission (Workowski, 2015). Obtaining data on these types of sex will provide a better understanding of the patterns of sexual behaviours in high risk populations. A systematic review based on 103 studies, on oral and anal sex amongst adolescents and adults in SSA reported on the lack of condom use during oral and anal sex (Morhason-Bello et al., 2019). These studies also found that anal and oral sex was high amongst female sex workers and university students and that often those who reported engaging in anal and oral sex reported having frequent and multiple sex partners (Morhason-Bello et al., 2019).

Data related to sexual behaviour mainly focuses on vaginal sexual intercourse, however youth are engaged in sexual experimentation, which means they are exploring other types of sex including oral and anal sex (Steinberg, 2010). In a study conducted in the United States among men and women between 15-44 year olds, found that people were less likely to use condoms when engaging in risky behaviours including vaginal, oral and or anal sex (Leichliter et al., 2007). A study conducted amongst 34 couples in South Africa, found that 12% of the couples had oral HPV which was transmitted through oral sexual intercourse (Vogt et al., 2013). In a systematic review conducted on the frequency of heterosexual anal intercourse in South Africa, it was reported that the frequency of unprotected anal intercourse ranged between 0.7 to 21% among the general risk populations, which may imply that anal sex is a considerable contributor to HIV transmission in the country (Owen et al., 2017). A study conducted in South Africa, Uganda and Zimbabwe demonstrated that anal-penile sex was stigmatised in communities, however, 20 of the 88 women interviewed reported that they had engaged in anal-penile sex (Duby et al., 2016).

2.1.5. Alcohol and Substance Use

Alcohol and substance consumption has been associated with sexual risk behaviours, STI acquisition, violence and mental illnesses in youth populations (Simbayi et al., 2019, WHO, 2019). According to the WHO, in 2018 more than a quarter which accounted for 155 million (26.5%) of the youth between 15-19 years old consumed alcohol (WHO, 2019). A study conducted in Ethiopia amongst youth between 15-24 years old found that there was a significant association between substance and alcohol use with sexual risky behaviours

(Kebede et al., 2005b). This study concurs with other research studies conducted in South Africa which show that the youth are engaged in binge drinking which impacts sexual risk behaviours and violence (Kebede et al., 2005b, Kalichman et al., 2007, Letsela et al., 2019).

Youth girls who consume alcohol are at increased risk of lack of condom use, sexual violence and unplanned pregnancies (Morojele and Ramsoomar, 2016). A study conducted among students between 13-23 years in KZN reported a quarter of the students reporting drinking alcohol before having sex and 40% of the learners had not used condoms (Khuzwayo, 2020). In some situations, youth may engage in risky behaviours to get access to alcohol and drugs (Kalichman et al., 2007). Alcohol and some drugs are believed to decrease inhibitions, decrease rational decision making and increase risk behaviours such as unprotected sex (Kebede et al., 2005a). A study conducted at the University of Cape Town (UCT) in 2012 showed that students who were sexually active were 2.6 more times likely to be illicit drug users compared to those who were not sexually active (Blignaut et al., 2015). This alarming pattern of behaviour decreases their ability to make rational decisions despite their awareness of STIs and HIV (Blignaut et al., 2015).

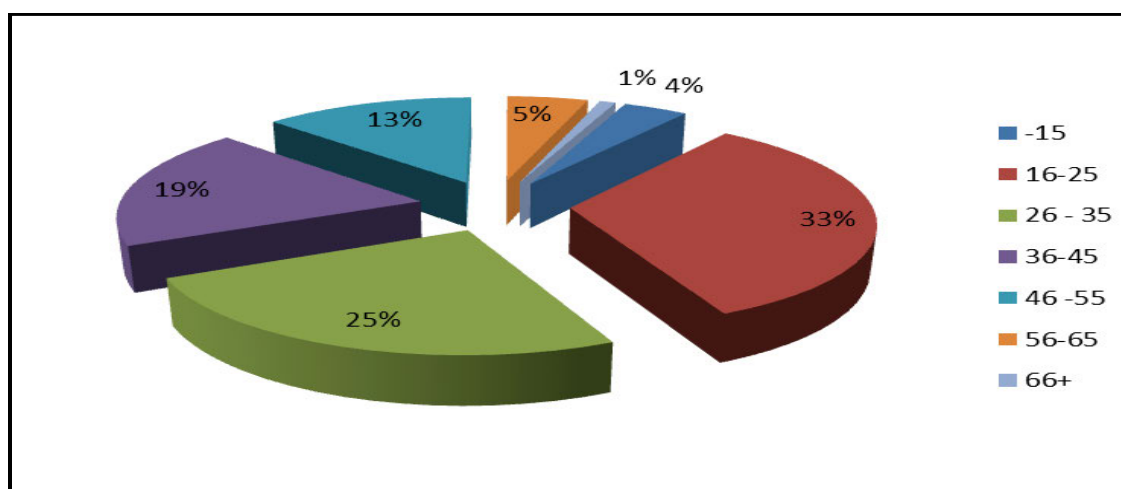


Figure 4: Findings of a Snap Shot Survey of Substance Abuse in South Africa: Department of Social Development (2010/2011 Report).

According to Figure 4, 4% minors (15 years of age) were reported to be substance abusers. The highest proportion (33%) of substance abusers was between 16-25 years old. The lowest proportion were those who were above the age of 66 years. However, the majority (58%) of substance abusers were youth between 16-35 years, these were individuals who are high school

students, tertiary students, job-seekers and still within the developmental stage (McKenzie, 2013).

2.2 AWARENESS AND PERCEPTIONS ON STIs

Adolescents and youth have sexual health and reproductive health (SRH) needs and have the right to awareness and knowledge of SRH to facilitate positive behaviour, attitudes and beliefs change (Habel et al., 2015, SADOH, 2017). Sexually transmitted infections among adolescents are a concern for the health status of the population (UN, 2012). Literature has revealed the persistent gap between knowledge and behaviour pertaining to STI prevention among youth (Reddy and Frantz, 2011, Shefer et al., 2012a, Beksinska et al., 2014). Moreover, literature on common STIs among youth is limited in South Africa, but there is greater evidence of global estimates. One million people acquire STIs on a daily basis around the world such as Human papilloma virus, Chlamydia, Gonorrhoea, Syphilis and Trichomonas. These infections if left untreated can lead to negative health outcomes such as infertility or susceptibility to HIV (Taylor et al., 2017b). To prevent negative health outcomes in adolescents, the WHO STI strategy 2016-2021 was developed to strengthen STI prevention strategies which include providing adolescents with comprehensive health information and education globally (Taylor et al., 2017b).

Table 1: Findings of knowledge of STIs from a study conducted in a college among 350 students of Bengaluru, New Guinea and Africa, where *n* represents the number of people who had knowledge on the STI, 2017 (Subbarao and Akhilesh, 2017).

Sexually transmitted infections	<i>n</i> (%)
HIV/AIDS	347 (99.2)
Genital herpes	114 (32.5)
Syphilis	95 (27)
Hepatitis B	108 (30.8)
LGV	26 (7.4)
Leprosy	17 (4.8)
Vitiligo/leukoderma	20 (5.7)
Chancroid	13 (3.7)
Tuberculosis	17 (4.8)
LGV=Lymphogranuloma venereum	

According to Table 1 almost all students (99.2%) knew about HIV/AIDS. However, more than half (64%) of the students knew of the other STIs other than HIV/AIDS. In addition, 15.3% of the students incorrectly classified either Leprosy, Vitiligo/leukoderma or Tuberculosis as STIs. About a third of the students knew of Genital herpes (32.5%) and Hepatitis B (30.8%) as STIs. Chancroid (3.7%) was the least known STI followed by Lymphogranuloma venereum (5.7%) and finally Syphilis (27%). This data concurs with literature reporting the need for further education on other STIs other than HIV/AIDS (Dehne et al., 2005, Taylor et al., 2017a, Clifton et al., 2018).

The WHO reports that one of the barriers to care in adolescents is the “lack of knowledge about awareness of, or the seriousness of STIs” (Dehne et al., 2005). Additionally, South African literature has revealed a high proportion of the awareness of STIs but low proportions of those who seek treatment when infected (Francis et al., 2018, Nyasulu et al., 2018, Nyalela et al., 2018). A study conducted amongst students in Technical and Vocational Education and Training (TVET) Colleges in South Africa showed that only 61.6% of students knew that abstaining from sex could prevent one from getting HIV, 83.8% of the students were aware of the risks of STIs and 37.9% did not know that anal sex increased the risk of HIV (Mbelle et al., 2014). In another study conducted at the University of KwaZulu-Natal (UKZN) and University of the Western Cape (UWC), found that basic knowledge of HIV was evident but details on HIV transmission was low at both universities (Reddy and Frantz, 2011). This highlights that while programmes and guidelines such as Love Life and the development of the National Youth Policy 2015-2020 (2008) are in place, there are still significant gaps in knowledge (Shefer et al., 2012b, De Wet et al., 2018b). Another study conducted in Durban, SA found that there was inadequate knowledge on STI’s among undergraduate college students (Hoque and Ghuman, 2011), however, the said study only focuses on undergraduate students and this study will be looking at both undergraduate and postgraduate, which means we will be able to get vast data from all levels of education in college.

In addition to knowledge, perception can contribute significantly to sexual reproductive health (Biddlecom et al., 2007). Barriers such as negative gender stereotypes and norms about accessing health services make it difficult for youth to get tested or treated for STIs (UNAIDS and UNDP, 2014). A study conducted at UKZN found that youth expressed that there is significant stigma around testing at clinic facilities, and they further expressed that STIs such as HIV are not personalised, however that they are the next person’s problem and not their own

(HEAIDS, 2008). Individuals possessing such perceptions will make less effort in being cautious when it comes to their sexual health. Another barrier in accessing STI services, and perhaps a more serious one, is that in addition to perceiving themselves at low risk for infection, is that the majority of STIs in youth may remain asymptomatic which decreases the likelihood of an individual to seek care (Dehne et al., 2005, Biddlecom et al., 2007).

Abstinence as a form of prevention of STIs is perceived as a futile exercise by university students since they report that being abstinent would deem an individual as unpopular amongst their peers as sex was the gateway to social acceptability (Ngidi et al., 2016). The youth at universities in their newly found freedom from home have expressed that they have pressures related to engaging in sexual activities from friends, 'sugar daddies' and elder students. This has enabled them to start having sex as a casual activity since social pressures made one fear that they are missing out if they do not participate (Heaids, 2010, Akintola et al., 2012). Furthermore, the youth also perceive having one partner as protective from STIs, because they would build the trust with the partner which would make them feel more comfortable to rely on the partner's faithfulness instead of relying on condoms (Bergamini et al., 2013). Male students have also expressed the negative attitudes towards condoms for reasons relating to the uncomfortable feel they have during the sex act, the possibility of breaking if they desired to have "rough sex" with their partners and the use of condoms as a symbol of mistrust in a relationship (Mbelle et al., 2018). The above perceptions are inspired by the context of student culture that need to be addressed by breaking the gendered norms that have been built to foster risky sexual behaviours.

Other social factors contributing to the choices that need attention are the wider societal cultures and religious institutions, which shun sexual activity before marriage (Mashau, 2011). Although cultural and religious beliefs may encourage one to feel restrained to having penetrative sex, such students would engage in non-penetrative sex such as masturbation to preserve their virginity (Ngidi et al., 2016). A study conducted with university students from Ethiopia, reported that 47% who practiced oral sex and 29% who practiced anal sex did not actually consider these acts as sexual intercourse (Ambaw et al., 2010). These studies highlight the importance of understanding the perceptions of youth in different social contexts, to have better insight of the rationale for choices made regarding sexual behaviours (Newton-Levinson et al., 2016).

There is paucity of information on HIV prevention studies conducted, however in addition to this, there is a need for youth focused structural interventions, which will inform the gaps in knowledge and change perception of the youth (Harrison et al., 2010). A review of data from SSA found that sex education and condom promotion did not lead to reduced sexual risk behaviours, however there was a significant change in knowledge and perceptions of STIs (Michielsen et al., 2010). Given the increasing prevalence rates of STIs among the child-bearing age groups, there is a need for more focused awareness and prevention efforts (Kharsany et al., 2020). Bekker (2015), described how social media was being used by 1.2 billion Facebook users of which 82% were between the ages of 18-35 years. This could very well be some of the innovations utilised to increase knowledge and change perceptions. This also raises the need to reiterate the need for appropriate adolescent and youth friendly service facilities (Beksinska et al., 2014, SADOH, 2017). Youth and healthcare workers have reported the desire for youth to get age-appropriate and accurate health information, this shows us that the youth are indeed concerned about their health but need adequate support from well-trained healthcare workers (Geary et al., 2014, James et al., 2018, Smith et al., 2018).

In conclusion, this chapter looked at multiple literature globally and locally that provided data on studies that were conducted in different countries and reviews of other literature reporting on the knowledge, awareness and perceptions on sexual behaviour and STI's. The literature is presented as a backdrop of this study to facilitate better conceptualisation of the issues to be explored that are affecting the youth. The literature on awareness among youth in tertiary level is scarce, in 2019 a study review was conducted on knowledge and STI's and only 9 studies were found between 2010 and 2019 (Badawi et al., 2019). Majority of the literature focuses on knowledge and not awareness. This highlights the importance of this study to contribute to data on awareness on STI's among this population group in SA and between genders, which is very minimal. The next chapter will look at the methodologies that were utilised to carry out our research.

CHAPTER THREE

METHODOLOGIES

3.1 Methods

3.1.1 Study Design

This study employed a quantitative cross-sectional approach to collect the data and achieve the aim of the study. The study employed a non-experimental research design method, which assists the researcher to investigate and describe a particular phenomenon in their naturalistic settings (Radhakrishnan, 2013). Thus, the choice of method was guided by the research question which required conceptualisation of risky behaviours among students within their relevant tertiary institution which will benefit the health programme developers in tertiary institutions within our communities.

3.1.2 Sample Selection

A convenient sampling approach was utilized to select individuals for this study. Based on an estimated proportion of 25% of the approximately 24000 UKZN students being engaged in risky sexual behaviour, the sample size calculated enough to assess risk perceptions in students with 95% confidence intervals and a 5% desired precision was 142 individuals. Enrolment continued until the desired sample size of 142 was achieved.

This study used purposive sampling to draw up on the required sample of participants who will provide the relevant information. Purposive sampling is a non-probability strategy used to deliberately choose the individuals to participate in the study based on the specific characteristics that will represent the targeted population (Etikan et al., 2016). In this study, the sample included respondents who were between the ages of 18-35 years as per the SA National Youth Policy (SAWYPD, 2020), registered as undergraduate or postgraduate students in the University of KwaZulu-Natal (Howard College and Medical School Campuses) in the Durban area.

	Mean age (SD)	Median Age (IQR)
Female	23.0 (3.1)	22 (4)
Male	22.5 (2.6)	22 (2)
Total	22.8 (3.0)	22 (3)

The method of sample selection assisted with reaching the targeted population during the national lockdown that was announced by the president on the 23 March 2020 which made the population a slightly hard-to-reach as this meant that many students would be home as per government instructions (SAGNA, 2020). Screening included those who read and signed the consent, these consisted of 142 students. The enrolled sample in this study consisted of 142 participants from UKZN who were registered for an Undergraduate, Honours, and Postgraduate (Masters and PhD) studies. Students from the Howard campus and Medical School were included in this study.

Eligibility Criteria

Inclusion Criteria:

- Males and females between 18 -35 years who are registered at UKZN at the time of study participation
- Participants must be willing to provide written consent for participation
- Participants must be willing to answer questions on sexual behaviour

Exclusion Criteria:

- Males and females who are not registered at the time of study participation
- Students who do not provide written consent

3.1.3 Recruitment Strategy

The researcher identified areas where students hang out within each campus for example, cafeteria, university gardens etc. The researcher approached potential participants and explained what the study is about to interested individuals. Interested students were requested to produce their student cards to ensure that they are registered in UKZN. They were given time to read the consent and ask any questions they had regarding the study. Once the student read and understood the consent, they printed their names and signed on the consent form. The participant was then assigned a study identification number for confidentiality purposes. The identifying number was recorded on the ICF and the questionnaire. The participant was requested to complete the questionnaire. Once the questionnaire was completed, the participant

was thanked for their participation and if they agree for the researcher to email the study results, email address was recorded on a log.

3.1.4 Data collection

The survey was distributed among students who were on campus in different locations including the cafeterias, open meeting spaces and lecture halls. Students were approached and informed about the study and those who voluntarily consented by reading and signing the consent form were given the survey to complete. The consent form included information on the study, the required participants, the benefits and risk of study participation and a clause on confidentiality and privacy of responses. The students were provided with sufficient time to complete the survey and although this required self-completion, the investigator was in close proximity to offer assistance or clarity when needed. The completion of the survey took between 10-15 minutes, which allowed for adequate time for the students to be able to provide accurate responses.

3.2 Data

3.2.1 Instruments and Procedures

This study examined the awareness on risk sexual behaviours and STIs among the UKZN students as well as assessed the perceptions that students have towards their risk of being infected with STIs. The awareness was assessed by having students answer multiple questions about sources of information and having students answer true or false questions about STI acquisition, transmission and possible outcomes of being infected with a STI. The demographics of the students were also included to gather information on gender, age and level of education.

This study utilised a structured survey questionnaire where the questions on awareness were adapted from a survey used by Jarworski, B. (2007) in a study titled “*Development and Psychometric Evaluation of a Self-administered Questionnaire to Measure Knowledge of Sexually Transmitted Diseases*”. Questions on sources of information were adapted from a survey used in a study titled “*Knowledge Level of University Students about Sexually Transmitted Diseases*” by Eksi (2014).

The statements assessing demographics were in the form of “select” the applicable answer. The “*True*” and “*False*” statements assessing awareness on STIs consisted of 17 statements: The 3 statements assessing sources of information and 14 statements assessing awareness of STIs. The researcher used Likert-Type data to determine perceptions (Boone and Boone, 2012). 12 unique stand-alone items that have Likert response options including “*Strongly Agree*”, “*Agree*”, “*Disagree*” and “*Strongly Disagree*”.

3.2.2 Variables

Demographic Variables

Age was collected as age since last birthday. Participants self-reported on their preferred gender and were categorised into males, females or transgender. Level of study categorised students into undergraduate and postgraduate groups. The latter category included all those doing diploma, honours, masters and PhD programs. Students either lived on campus (Yes) or at residences outside the Howard and/or Medical school campuses (No).

Awareness of STIs

Data on the awareness of the 7 common STIs i.e. HIV/AIDS (Yes/No), HSV-2 (Yes/No), Gonorrhoea (Yes/No), Chlamydia (Yes/No), Syphilis (Yes/No), HPV (Yes/No), Trichomonas (Yes/No) and I don’t know any STIs was collected. The age of initial STI education was collected as the first time they heard of STIs regardless of which STI it is. The sources of information categorised students between those who initially learnt about STIs through one of the following: Social Media (Like Google, Wikipedia, Facebook, Twitter, etc.); Parents; Television; Magazines and Newspapers; At school from friends or peers; At school from teachers; Trusted adult/ or family member; At church or other religious organisations; Traditional or initiation school; from doctor or nurse and Other. The following variables were obtained using *True* or *False* options: STI transmission method; curable STIs; STI impact on reproductive health; multiple sexual partners; condom-less sex; transactional sex; STI stigma and male circumcision.

Perceptions of STIs

The perceptions of STIs variables consisted of: Early sexual debut; penis-withdrawal method; condom-less sex with one partner; STI risk perception; frequent condom-less sex as an STI

risk; same-sex sexual contact as a STI risk; condom negotiation in an age disparate relationship; STI discussion with sex partners; concern with pregnancy versus acquiring STIs; cleansing after sexual contact as a STI preventative method; alcohol use as a STI risk factor and risk of reinfection after STI treatment. These variables were measured through the use of a 4 point Likert-type questions where “strongly agree” was coded as ‘1’, “agree” as ‘2’, “disagree” as ‘3’ and “strongly disagree” as ‘4’. Each variable could only be measured with one code.

3.2.3 Data Storage

Completed questionnaires will be stored in a lockable cupboard using participant identifiers to ensure confidentiality. The completed questionnaire will be captured on an excel spreadsheet/database. The electronic database will be a password protected excel spreadsheet that will be saved on an external hard-drive/USB and be stored even after the completion of the study with limited access.

3.3 Statistical Analysis of Data

In this study data were analysed using descriptive statistics. Means and standard deviation were used for continuous variables. Whereas counts and frequencies were used for categorical variables. Analyses were stratified by gender as it was expected that there would be differences in attitudes, awareness, and behaviours regarding risky sexual behaviour and STIs. Chi-square tests, as appropriate, were used to access differences between male and female respondents. Differences by gender in STI awareness and perceptions were explored in the analysis. Analyses were done with STATA version 15.1 (StataCorp, 2019). A p-value of <0.05 was considered significant in this analysis.

3.4 Ethical Considerations

National Health Research Ethics principles were adhered to including beneficence to the participants, equality and respect for the dignity of the participants (South African National Health Research Ethics Committee. *Ėthics in Health Research: Principles*, 2015). The University of KwaZulu-Natal Humanities and Social Sciences Research Ethics Committee approved the research on 20 September 2019 (Ref: HSS/0353/019M).

Individuals were provided with an informed consent prior to study participation to ensure voluntary and informed participation and information on their rights to withdraw from the study

at any point. The informed consent and questionnaire were conducted in English as this is the primary language used in teaching and learning at the university. The participant's privacy and confidentiality was respected through creating participant identity numbers for each participant enrolled instead of using their names. The highest level of objectivity was maintained in results and discussions of the study. Participants were informed that if they experienced any social harm through study participation, they may refer to student counselling and appropriate details were provided.

3.5 Conclusion

This chapter looked at the methods utilised in this study which were useful for collecting our data because it assisted better understanding of concepts such as sexual behaviour and STI awareness among students in a shorter period of time. This was even more useful with regards to adhering to the Covid-19 regulations. Although it was useful to select participants through purposive sampling, since individuals were hard to reach during the pandemic, it would have been more useful to recruit participants through the school's emailing system. The questionnaire was simple and user-friendly, which made it easier for participants to administer on their own with minimal assistance from the researcher.

CHAPTER FOUR

RESULTS

4.1 Demographics

This section provides a descriptive analysis of the students and will present the results using frequency and percentages of sociodemographic characteristics including gender, age, level of education and living arrangements.

The survey was distributed to undergraduate and postgraduate students who were on campus. Table 2 describes the characteristics of the students surveyed. A total of 142 students were part of this study. Of the 142 students, 87 (61%) were females and 55 (38.7%) were males. No-one was reported to be transgendered therefore, this was not presented in the table. The highest proportion of students were between the ages of 22-25 years of age (42.3%), followed by 18-21 year olds (39.4%) and 26-29 year olds (15.5%). A very small percentage of students were ≥ 30 years of age (2.8%). With regards to level of study, 104/142 (73.2%) were undergraduate students and 38/142 (26.8%) were postgraduates. The majority of the students, 103/142 (72.5%) were living off campus and 39/142 (27.5%) reported living on campus (Table 2).

Table 2: Socio-Demographic Characteristics of the Study Population.

Category	N	%
Total Sample	142	100
Gender		
Female	87	61.3
Male	55	38.7
Age		
18-21 years	56	39.4
22-25 years	60	42.3
26-29 years	22	15.5
≥ 30 years	4	2.8
Level of Study		
Undergraduate	104	73.2

Postgraduate	38	26.8
Living Arrangement		
On Campus	39	27.5
Off Campus	103	72.5

4.2 Awareness on sexually transmitted infections

According to Table 3, overall all students (100% male and female) were aware of HIV. Overall, 90.1% of the students were aware on HSV-2. A higher proportion of males were aware on HSV-2 when compared to females, 94.6% versus 87.4%, however there was no significance between gender and awareness of HSV-2 ($p=0.162$). According to the analysis, 90.8% of the students were aware of Gonorrhoea. Of these students, a higher proportion of males (96.4%) were aware of this infection when compared to 87.4% of the females were aware of this infection. However, this was not statistically significant, $p=0.070$. There was a significant association regarding awareness of Chlamydia infections, $p=0.015$. Similar to the other infections, a higher proportion of males were aware of Chlamydia when compared to females (96.4% versus 82.8%, $p=0.015$). There was a significant association regarding awareness of Trichomonas across the different genders ($p=0.011$). Approximately 91% of males were aware of Trichomonas when compared to 73.6% females, $p=0.011$. With reference to awareness on Syphilis, 96.4% of males were aware on Syphilis when compared to 89.7% females, this difference in proportions was not significant, $p=0.145$. Unlike the other infections, a very small percentage of the students, 7.8% were aware of Human papilloma virus (HPV). A higher proportion of female students (9.2%) were aware of HPV when compared to 5.4% of the male students. This difference was not significant, $p=0.417$. (Table 3).

Table 3: Awareness of Sexually Transmitted Infections amongst Male and Female Students (N=142).

Category	Total N (%)	Gender		P-value
		Female	Male	
Aware of STI				
Human immunodeficiency virus				-
No		0	0	
Yes	142 (100)	87 (100)	55 (100)	
Herpes Simplex Virus-2				0.162
No	14 (9.9)	11 (12.6)	3 (5.4)	
Yes	128 (90.1)	76 (87.4)	52 (94.6)	
Gonorrhoea				0.070
No	13 (9.2)	11 (12.6)	2 (3.6)	

Yes	129 (90.8)	76 (87.4)	53 (96.4)	
Chlamydia				0.015
No	17 (12.0)	15 (17.2)	2 (3.6)	
Yes	125 (88.0)	72 (82.8)	53 (96.4)	
Syphilis				0.145
No	11 (7.8)	9 (10.3)	2 (3.6)	
Yes	131 (92.2)	78 (89.7)	53 (96.4)	
Human Papilloma Virus				0.417
No	131 (92.2)	79 (90.8)	52 (94.6)	
Yes	11 (7.8)	8 (9.2)	3 (5.4)	
Trichomonas				0.011
No	28 (19.7)	23 (26.4)	5 (9.1)	
Yes	114 (80.3)	64 (73.6)	50 (90.9)	
Age at first awareness				0.162
≤ 14 years	75 (52.8)	50 (57.5)	25 (45.4)	
15-21 years	67 (47.2)	37 (42.5)	30 (54.6)	
Source of information on sexually transmitted infections				0.171
Social Media (like Google, Wikipedia, Facebook, Twitter, etc.)	27 (19.0)	20 (14.0)	7 (4.9)	
Parents	10 (7.0)	7 (4.9)	3 (2.1)	
Television	19 (13.3)	10 (7.0)	9 (6.3)	
Magazines and Newspaper	3 (2.1)	0 (0.0)	3 (2.1)	
At school from friends or peers	13 (9.1)	8 (5.6)	5 (3.5)	
At school from teachers	48 (33.8)	34 (23.9)	14 (9.8)	
Trusted adult or family member	4 (2.8)	1 (0.7)	3 (2.1)	
At church or other religious organisations	2 (1.4)	1 (0.7)	1 (0.7)	
Traditional or initiation school	1 (0.7)	1 (0.7)	0 (0.0)	
From Doctor or Nurse	10 (7.0)	4 (2.8)	6 (4.2)	
Other	5 (3.5)	1 (0.7)	4 (2.8)	

4.3. Awareness of sexually transmitted infections based on age

Overall, the majority of the students (52.8%) were 14 years or younger when they had first learnt of STIs when compared to 47.2% who reported first learning about STIs between the ages of 15-21 years old. However, there was no significant association between age and awareness of STIs, $p=0.162$ (Table 3). When stratified by gender, it was shown that a higher proportion of females (57.5%) had learnt about STIs at and below the age of 14 years when compared to males (45.4%). There was no statistical significance between gender and age categories of ≤ 14 years and 15-21 years in relation to when participants initially became aware of STIs ($p=0.162$). For the students who reported first learning of STIs at an older age (15-21 years old), it was shown that a higher proportion of males (54.6%) had first learnt of STIs at an older age when compared to female students (42.5%). However, this finding was not

significant ($p=0.162$) (Table 3). In this study more females reported to have been exposed to knowledge at a younger age compared to their male counterparts.

4.4. Sources of Information on sexually transmitted infections

Overall, the highest proportion for both males (9.8%) and females (23.9%) reported that they had initially received information on STIs at school from teachers bringing it to a total of 33.8% of the total sample population. Social media followed with a total of 19% of the population reporting to have received information from this platform. 13% of students had reported obtaining information on STIs from television. A higher proportion of students reported obtaining their information from school friends/peers (9.1%) than their parents and doctor/nurse (7.0). There was no significant difference ($p=0.171$) in the sources used to obtain information on STIs (Table 3). The sources of information with the least proportions included trusted adult or family member (2.8%); magazine and newspaper (2.1%); church or other religious organisation (1.4%) and traditional or initiation school (0.7%).

4.5. Awareness of factors associated with sexually transmitted infections

Table 4 describes the factors associated with awareness surrounding STIs. According to the analysis, overall a high proportion of students (97.2%) were aware that STIs were transmitted by oral and anal sex when compared to 2.1% who reported that they “did not know” this and 0.7% who reported that this statement was “false”. More female students believed that STIs could not be transmitted through oral and anal sex when compared to male students (1.2% versus 0%). In addition, more female students indicated that they “did not know” that STIs could be transmitted by oral and anal sex when compared to male students (2.3% versus 1.8%). There was no significant difference between the responses related to the transmission of STIs across both male and female students ($p=0.712$) (Table 4).

A higher proportion of students believed that STIs could be cured (81.0%) when compared to 5.6% who reported that this statement was “false” and 13.4% who “did not know” if some STIs could be cured. A higher percentage of female students reported that the statement on some STIs being curable was “false” when compared to the male students (6.9% versus 3.6%). There was no significant difference between the responses related to treatment of STIs across both male and female students ($p=0.690$) (Table 4).

Approximately 93% of the students knew that STIs affected the reproductive health of both men and women when compared to 3.55 who indicated that this statement was false and 3.5% who reported “don’t know” (Table 4). A higher percentage of female students (4.6%) reported “false” for STIs having an effect on reproductive health when compared to males (1.8%). There was no significant difference for the responses related to STIs and reproductive health, $p=0.681$.

All the male students (100%) were aware that having multiple sexual partners was a risk for STIs when compared to 97.7% of female students who were aware of this. Approximately, 2.3% of the female students were not aware that having multiple sexual partners was risky behaviour. There was no significant difference for the responses related to multiple sexual partners and STIs, $p=0.257$. Similarly, 100% of the male students were aware that having sex without a condom was a risk behaviour for STIs compared to 98.8% of the female students who believed this to be true and 1.2% of the female students who reported not knowing that condom-less sex was risky. There was no significant difference for the responses related to having sex without a condom and risk for STIs, $p=0.425$ (Table 4).

Overall, 91.6% of the study population reported that having transactional sex was a risk behaviour. A higher proportion of males (96.4%) reported that this statement was “true” when compared to 88.5% of the female students who reported the same. However, a higher proportion of female students (9.2%) indicated that this statement was “false” when compared to 1.8% of the male students who reported the same. In addition, a higher proportion of female students (2.3%) reported that they “did not know” that transactional sex was a risk behaviour when compared to 1.8% of the male students. This was not statistically significant, $p=0.206$ (Table 4).

Approximately, 51.4% of the study population believed that one can identify a person who has a STI when compared to 43.0% who reported that this statement was “false” and 5.6% who reported not knowing. A higher percentage of males believed this statement to be true when compared to females (58.2% versus 47.1%). However, a higher percentage of female students (47.1%) reported this statement to be false compared to 36.4% of the male students who reported the same. This was not statistically significant, $p=0.424$ (Table 4). Overall, a small proportion (3.5%) of the students believed that a circumcised male will contract a STI when

compared to 94.4% who believed the statement to be “false” and 2.1% who reported not knowing. Across both genders, this factor was not significant, $p=0.250$ despite more males reporting the statement to be false when compared to females (98.2% versus 91.9%) (Table 4).

Table 4: Awareness of Factors Associated with Sexually Transmitted Infections amongst the Study Population (N=142)

	Total N (%)	Gender		P-value
		Female	Male	
Sexually transmitted infections can be transmitted through Oral and Anal Sex				0.712
True	138 (97.2)	84 (96.6)	54 (98.2)	
False	1 (0.7)	1 (1.2)	0	
Don't Know	3 (2.1)	2 (2.3)	1 (1.8)	
Some sexually transmitted infections can be cured				0.690
True	115 (81.0)	69 (79.3)	46 (83.6)	
False	8 (5.6)	6 (6.9)	2 (3.6)	
Don't Know	19 (13.4)	12 (13.8)	7 (12.7)	
Sexually transmitted infections affect reproductive health of men and women				0.681
True	132 (93.0)	80 (91.9)	52 (94.6)	
False	5 (3.5)	4 (4.6)	1 (1.8)	
Don't know	5 (3.5)	3 (3.5)	2 (3.6)	
Multiple sexual partners is a risk behaviour				0.257
True	140 (98.6)	85 (97.7)	55 (100)	
False	0	0	0	
Don't know	2 (1.4)	2 (2.3)	0	
Condom-less sex is a risk behaviour				0.425
True	141 (99.3)	86 (98.8)	55 (100)	
False	0	0	0	
Don't know	1 (0.7)	1 (1.2)	0	
Transactional Sex is a risk behaviour				0.206
True	130 (91.6)	77 (88.5)	53 (96.4)	
False	9 (6.3)	8 (9.2)	1 (1.8)	
Don't know	3 (2.1)	2 (2.3)	1 (1.8)	
One can identify a person with a sexually transmitted infection				0.424
True	73 (51.4)	41 (47.1)	32 (58.2)	
False	61 (43.0)	41 (47.1)	20 (36.4)	
Don't know	8 (5.6)	5 (5.8)	3 (5.4)	
A circumcised male will not contract a sexually transmitted infection				0.250
True	5 (3.5)	4 (4.6)	1 (1.8)	
False	134 (94.4)	80 (91.9)	54 (98.2)	
Don't know	3 (2.1)	3 (3.5)	0	

4.6 Perceptions towards sexually transmitted infections

Table 5 describes the responses related to perceptions about sexually transmitted infections. Overall, 51.4% of the study population agreed that they should have sex after completing school when compared to 19.0% who disagreed that they should have sex after completing school. Of the study population, 14.1% strongly agreed that they should have sex after completing school, however, 15.5% of the study population strongly disagreed with this statement. Responses related to this statement were not significant, $p=0.097$ (Table 5). A small percentage of the study population (2.1%) agreed that pulling out before ejaculation can prevent STIs. However, 21.1% disagreed and 76.8% strongly disagreed with this statement. This was not significant, $p=0.277$. A higher proportion of the study population (70.4%) strongly disagreed that one should have condom-less sex if they only have one sexual partner, a higher proportion of male students (72.7%) strongly disagreed with condom-less sex when compared to 69.0% of the female students. However, 3.4% of the female students had agreed to have condom-less sex when compared to 1.8% of male students, these differences were not significant, $p=0.794$ (Table 5). A higher percentage of female students (37.9%) had strongly agreed that they were concerned regarding the risks of STIs when compared to 30.9% of the male students who reported the same. In keeping with this, more male students (18.2%) had strongly disagreed to be concerned with the risks for STIs when compared to the female students (17.2%), however, these differences were not significant, $p=0.795$ (Table 5).

Approximately, 43.7% of the study population had strongly agreed that having frequent condom-less sex was a risk factor for STIs, whereas 10.6% of the study population had disagreed and strongly disagreed with this statement. The majority of the male students had disagreed and strongly disagreed with this statement when compared to the female students (29.1% versus 23.0% and 14.5% versus 8.1%), this was however not significant, $p=0.417$ (Table 5).

According to the analysis, there was a significant difference in the responses related to same sex practices and STI risk ($p=0.047$). The majority of the study population had disagreed (22.5%) and strongly disagreed (68.3%) that having sex with an individual of the same sex reduced the risk of contracting STIs. The majority of female students disagreed with this statement when compared to the male students (28.7% versus 12.7%), however, 74.5% of the male students had strongly disagreed with this statement when compared to 64.4% of the

female students (Table 5). Across both male and female students, it was shown that both groups agreed that it was difficult to negotiate condom use in age disparate relationships (32.7% and 44.8%). However, 23.6% of the male students and 19.5% of the female students had disagreed with this statement. This factor was not significant, $p=0.139$ (Table 5).

A high proportion (54.9%) of the study population strongly agreed that they should be able to discuss STIs with their sex partners with a higher proportion of female students strongly agreeing when compared to male students (51.7% versus 30.0%). However, this difference was not significant, $p=0.749$ (Table 5). The majority of the study population (45.8%) strongly disagreed that they were more concerned with pregnancy than STIs, with more female students strongly disagreeing when compared to the male students (46.0% versus 45.5%). This difference was not significant, $p=0.385$ (Table 5).

A high proportion of the study population (68.3%) strongly disagreed that cleansing after sexual contact would prevent one from contracting STIs when compared to 1.4% of the study population who agreed with this statement. A higher proportion of female students strongly disagreed that cleansing will prevent STIs when compared to male students (70.1% versus 65.5%), however these differences were not significant ($p=0.590$) (Table 5). Across both female and male students, most of the study population (38.0%) had strongly agreed that alcohol consumption was a risk factor for STIs, however, 16.9% of the study population had strongly disagreed with this statement and this was not significant, $p=0.408$ (Table 5). The majority of the female and male students (81.6% and 81.8%) strongly disagreed that they could not get re-infected with a STI after been treated for one in the past. A small proportion of the females and males (1.2% and 3.6%) strongly believed that they would not get re-infected. This was shown to be insignificant, $p=0.408$ (Table 5).

Table 5: Perceptions on sexually transmitted infections among the study population (N=142)

	Total N (%)	Gender		P-value
		Female	Male	
I should start having sex after completing school				0.097
Strongly Agree	20 (14.1)	11 (12.6)	9 (16.4)	
Agree	73 (51.4)	40 (46.0)	33 (60.0)	
Disagree	27 (19.0)	22 (25.3)	5 (9.1)	
Strongly Disagree	22 (15.5)	14 (16.1)	8 (14.5)	

Pull Pulling out before ejaculation to can prevent STI's sexually transmitted infections				0.277
Strongly Agree	0	0	0	
Agree	3 (2.1)	3 (3.4)	0	
Disagree	30 (21.1)	20 (23.0)	10 (18.2)	
Strongly Disagree	109 (76.8)	64 (73.6)	45 (81.8)	
It is acceptable to have condom-less sex if I have only one partner				0.794
Strongly Agree	1 (0.7)	1 (1.1)	0	
Agree	4 (2.8)	3 (3.4)	1 (1.8)	
Disagree	37 (26.1)	23 (26.4)	14 (25.4)	
Strongly Disagree	100 (70.4)	60 (69.0)	40 (72.7)	
I am concerned about the risks for sexually transmitted infections				0.795
Strongly Agree	50 (35.2)	33 (37.9)	17 (30.9)	
Agree	48 (33.8)	27 (31.0)	21 (38.2)	
Disagree	19 (13.4)	12 (13.8)	7 (12.7)	
Strongly Disagree	25 (17.6)	15 (17.2)	10 (18.2)	
Frequent condom-less sex is a risky behaviour				0.417
Strongly Agree	62 (43.7)	40 (46.0)	22 (40.0)	
Agree	29 (20.4)	20 (23.0)	9 (16.4)	
Disagree	36 (10.6)	20 (23.0)	16 (29.1)	
Strongly Disagree	15 (10.6)	7 (8.1)	8 (14.5)	
Same sex decreases your risk of sexually transmitted infections				0.047
Strongly Agree	5 (3.5)	1 (1.1)	4 (7.3)	
Agree	8 (5.6)	5 (5.7)	3 (5.4)	
Disagree	32 (22.5)	25 (28.7)	7 (12.7)	
Strongly Disagree	97 (68.3)	56 (64.4)	41 (74.5)	
It is difficult to negotiate condom use in age disparate relationships				0.139
Strongly Agree	26 (18.3)	18 (20.7)	8 (14.5)	
Agree	57 (40.1)	39 (44.8)	18 (32.7)	
Disagree	30 (21.1)	17 (19.5)	13 (23.6)	
Strongly Disagree	29 (20.4)	13 (14.9)	16 (29.1)	
We should be able to discuss sexually transmitted infections freely with a sex partner				0.749
Strongly Agree	78 (54.9)	45 (51.7)	33 (30.0)	
Agree	50 (35.2)	32 (36.8)	18 (32.7)	
Disagree	10 (7.0)	7 (8.1)	3 (5.4)	
Strongly Disagree	4 (2.8)	3 (3.4)	1 (1.80)	
I am concerned more with pregnancy than sexually transmitted infections				0.385
Strongly Agree	12 (8.4)	10 (11.5)	2 (3.6)	
Agree	29 (20.4)	17 (19.5)	12 (21.8)	
Disagree	36 (25.4)	20 (23.0)	16 (29.1)	
Strongly Disagree	65 (45.8)	40 (46.0)	25 (45.5)	
Having a bath after sex can prevent sexually transmitted infections				0.590

Strongly Agree	2 (1.4)	2 (2.3)	0	
Agree	7 (4.9)	4 (4.6)	3 (5.4)	
Disagree	36 (25.4)	20 (23.0)	16 (29.1)	
Strongly Disagree	97 (68.3)	61 (70.1)	36 (65.5)	
Alcohol use is a risk behaviour				0.488
Strongly Agree	54 (38.0)	31 (35.6)	23 (41.8)	
Agree	48 (33.8)	28 (32.2)	20 (36.4)	
Disagree	16 (11.3)	10 (11.5)	6 (10.9)	
Strongly Disagree	24 (16.9)	18 (20.7)	6 (10.9)	
I cannot get re-infected with a sexually transmitted infection after being treated in the past				0.408
Strongly Agree	3 (2.1)	1 (1.2)	2 (3.6)	
Agree	3 (2.1)	3 (3.4)	0	
Disagree	20 (14.1)	12 (13.8)	8 (14.6)	
Strongly Disagree	116 (81.7)	71 (81.6)	45 (81.8)	

In summary, the results informs us that over 90% of students were aware of HIV, HSV, gonorrhoea and syphilis. Chlamydia (88%), HPV (7.8%) and trichomonas (80.3%) were the least that they were aware of with. Furthermore, more than half of the students became aware of STIs before at 14 years or less. The majority of students reported to have learnt of STIs from either media or their teachers. The students were aware of most factors associated with STIs, except that some STIs can be cured and the ability to identify a person who is infected with an STI. There are some reported perceptions that are not socially acceptable such as age at sexual debut, concern about risk of infection and pregnancy and alcohol as a risk behaviour. In the next chapter we will discuss the findings of this studies and recommend further observations for future studies.

Chapter Five

Discussion

This study aimed to explore the awareness and perceptions of tertiary level students at UKZN in order to better understand their behaviours that lead to the risk of acquiring STIs. The findings of the study revealed that the overall majority of the students (78%) were aware of the common STIs which are highly prevalent in South Africa especially HIV. A hundred percent of the students were aware of HIV. In addition, the most common STI that the students are aware of was Syphilis with 92% of the students reported being aware of it. The majority of students become aware of STIs prior to age 15 years and this awareness is obtained from school teachers. The students reported great awareness on prevention and transmission, however, there was a lower proportion of students who reported being aware of treatment of STIs.

The findings of the study are similar to a previous study conducted in Mississippi in the United States. In that study, a large proportion of college students (82.2%) had reported they had knowledge of the STIs which were prevalent in their setting (Doster, 2018). Another recent study conducted in the Northern Cape Province of South Africa amongst university students, also found that 70% of the students had knowledge of STIs (Nyasulu et al., 2018). Surprisingly, the same study found that only 11% of the students knew of HIV/AIDS, however, in this current study, 100% of the students had knowledge of HIV/AIDS. The difference in findings between this study and the study in the Northern Cape could be attributed to the fact that the youth were from ages 12-24 years whereas in this study the students were 18 to 35 years old. It is interesting that one study conducted in Durban among undergraduate students found that only 65.4% of students could identify HIV as an STI. It also found that they had limited knowledge on symptoms of STIs and that they obtained the STI information from friends parents, social media and medical personnel (Hoque and Ghuman, 2011). This emphasises on the importance of this study to bring to light the awareness status so that programme developers can work on proper messaging to increase knowledge based on the gaps presented in this study. Additionally, the Centre for Disease Control and Prevention reported the following for females: females are less likely to have STI symptoms than men, they are more likely to confuse an STI symptom for something else and female STI symptoms may not be easily visible as they would be for a man (CDC, 2011). This may provide rationale for males having a higher awareness than females in this study.

From the study's findings, it is evident that HIV/AIDS awareness programmes/campaigns have been successful. However, the same efforts need to be placed in creating awareness for other STIs and improving messaging on STI knowledge. Since the majority of the students obtain sex education from school teachers, it is vital that this source of information is refined so that accurate, relevant and current information is delivered to students. A systematic review on school based health education interventions in sub-Saharan Africa was conducted and found that there is a paucity in published evaluations of the interventions and there was no evidence of how effective they are in reducing STIs (Sani et al., 2016). This may contribute to the gaps in awareness in students found in this study.

In this study, despite having a high awareness for the majority of STIs, the students had reported having a poor awareness for HPV with only 7.8% reporting that they were aware of this infection. Of the total 7.8% of the students, 9.2% of the female students were aware of this infection. This is a cause for concern since in 2019, 20.2 million South African women who were 15 years and older were reported to be at risk of acquiring HPV and some of the most significant factors related to prevention of HPV is knowledge and awareness of this virus (Mofolo et al., 2018, Bruni et al., 2019). When stratified by gender, it was shown that overall the male students in this study reported to know more about the majority of STIs (with the exception of HPV) when compared to the female students (82% versus 75%). This was consistent with one study conducted in SA in 2018, which found that the group with lower risk perceptions had the higher awareness and knowledge of HIV and STIs and in this study, it was observed that the males were at lower perceived risks when compared to females (Nyasulu et al., 2018). There was significant differences in the reporting for Chlamydia and Trichomonas across the male and female students ($p=0.015$ and $p=0.011$, respectively). These results support one study conducted among female students, which found that females had major gaps in knowledge regarding Chlamydia and Trichomonas and were not aware of their asymptomatic nature (Keizur et al., 2020). Unawareness of the nature of some STIs can have a great impact on screening and testing amongst students because an individual may not be aware that there is a need for them to test for any common STIs.

According to Francis (2010), sex education is pivotal for informing youth of sexual reproductive health issues. A study conducted in Sicily, Italy among high school and university students showed that the older students had a high mean STI knowledge and one of the

contributing reasons is that the tertiary level students are more curious about their development, which often leads to their eagerness to obtaining more information regarding sexual reproductive health (Visalli et al., 2019). In this study, 52% of the total participants reported having been educated on STIs at the age of 14 years and younger and 42% were educated on STIs between the ages of 15-21 years. However, more females when compared to males reported that they had obtained knowledge on STIs at the age of 14 years and younger (57% versus 45%). According to the SA National HIV Prevalence Survey 2017 (Simbayi et al., 2019), 13.6% of youth had their first sexual debut before the age of 15 years, which is a cause for concern since only half of the youth obtain safe sex knowledge only at the age of 15 years and above.

Studies on sexual debut report that the first sexual experience in young people is usually characterised by condom-less sex, it is unplanned and based on misinformation (Akintola et al., 2012), therefore it is vital that the youth obtain the accurate information on STIs from reliable sources. This study found that the most utilized source of information was media (34%) and school (34%). However, the sources of information differed across the genders with most male students (34%) indicating that they had learnt about STIs from the media and the majority of the female students indicated that they learnt about STIs from school. The findings of this study are similar to other studies. Visalli et al. (2019) reported that school and university students learnt of STIs from the media such as the internet and from television. Simbayi et al. (2017) also reported that television and social media were leading sources of knowledge for those between the ages of 15-34 years. However, a study evaluating sex education suggested that schools would have been the ideal source for providing education on sex since children begin to initiate having sex during their school years. However, this is a challenge since many schools are not equipped to provide this type of education (Francis, 2010). A previous study had reported that interventions which include parents as sources of sex education may be more successful since parents are able to provide more frequent education on sex when compared to education provided by teachers and health workers (Akers et al., 2011).

Having a knowledge of STIs plays a significant role in decreasing risky behaviour such as having unprotected sex (Subbarao and Akhilesh, 2017). In this study, the awareness of the transmission, prevention and risk behaviours related to STIs amongst the students was fairly high. However, our findings differed from other studies conducted in other parts of the world including China (Zhang et al., 2013), Turkey (Ekşi and Kömürcü, 2014), Madagascar, the

United States (Reuter et al., 2018) and Italy (Visalli et al., 2019), which showed poor awareness or inaccurate knowledge regarding risk of STIs in the youth studied. The current study had revealed that education on STIs needs to be strengthened particularly with regards to treatment, since only 13% of the students in this study reported knowing that certain STIs are curable.

Risk perceptions has a major impact on the health of an individual (Ferrer and Klein, 2015). In this study, 60% of students had an overall high risk perception of STIs. This was consistent with a study conducted in the United Kingdom which found that youth had a higher risk perception on STIs when compared to older populations (Clifton et al., 2018). However, in this study more than a quarter of the students reported that it was acceptable that adolescents have their first sexual experience before they completed school. Past studies have reported that some of the earlier sexual debut experiences are due to coercion and suggested that interventions be targeted at delaying early sexual debut to decrease risk behaviours which lead to unplanned pregnancies and acquiring STIs (Zuma et al., 2010, Richter et al., 2015). In addition, almost a quarter of the students perceived frequent condom-less sex not to be a risk behaviour. According to Nyasula et al (2018), South African youth may have a lower STI risk perception. This is evident in the current study since a proportion of the students believed that frequent condom-less sex is not a risk behaviour.

In addition, age disparate relationships played a role in negotiating condom use. In this study, more than half the students that reported that it was difficult to negotiate condom use in a relationship where there is a significant age gap between partners. The negative perceptions of age disparate relationships faced by South African youth is well documented (Leclerc-Madlala, 2008, Mampane, 2018). Although this study did not explore further the rationale behind the perceptions regarding age disparate relationships, it has been reported that some of the major reasons for being in such relationships include; gender inequalities and the exchange of condom-less sex for economic resources, which consequently lead to higher risk of HIV infection (Ott et al., 2011). In this study, more than a quarter of the students reported to be more concerned with falling pregnant than being infected with a STI. This further emphasises the major role that societal norms play on the sexual behaviour in youth. One study reported that pregnancy is evidence of engaging in sex whereas having a STI cannot be visibly seen by the community (Newton-Levinson et al., 2016). Socio-cultural barriers and further education of youth sexual reproductive health require further attention to ensure the breakdown of sexual barriers, misconceptions and change of attitudes to improve health outcomes.

Finally, the issue of youth alcohol consumption is a global public health concern, and youth are typically one of the age groups which are vulnerable to harm from alcohol consumption such as engaging in risky behaviour. A South African study which explored the association between alcohol and health risk amongst the youth found that the youth have easy access to alcohol and alcohol marketing which is against South African legislation. In addition, the youth in that study linked alcohol consumption to sexual risk behaviours which was consisted with other studies (Morojele and Ramsoomar, 2016, Jernigan et al., 2017, Letsela et al., 2019). (WHO, 2019). In this study, it was shown that more than a quarter of the students did not perceive alcohol consumption as a risk behaviour. Therefore, there is a need for more data in order to better understand the perceptions and factors which contribute to low risk perceptions in the studied population.

In summary, this study has shown that although the majority of students are aware of most sexually transmitted infections, there are still gaps in awareness that need to be addressed by awareness campaigns in media and the schools' curriculums. Females present less awareness than males, which means that awareness needs to be strengthened through education for adolescent girls and young women while they are still young. Negative attitudes towards factors increasing the risk of STI infection including the age of sexual debut, condom negotiation and alcohol consumption were reported amongst the students. It is highly imperative that negative attitudes that impact on risky sexual behaviours be addressed to prevent STIs among students. In the next chapter, concluding statements, study limitations and recommendations will be presented.

Chapter Six

Conclusion

The significance of this study was to better understand the awareness and perceptions of the UKZN students regarding STIs. This study has revealed that the students have high levels of awareness of STIs. Greater efforts are needed on creating awareness on HPV because in this study, less than 92% of students were not even aware of the virus. This is a major concern as this virus may lead to other health issues such as cancer and HIV. Despite the high levels of awareness, the students still have socially unacceptable perceptions especially towards condom use, risk of infection, alcohol consumption and age disparate relationships. The negative beliefs and attitudes presented by students depict the immense amount of work that still needs to be done in changing sexual risk behaviours. These distorted perceptions will subsequently impact on other public health issues related to sexual reproduction and the uptake of interventions such as Pre-exposure Prophylaxis or screening and testing STI services.

Furthermore, this study reported that the main sources of information for the current youth are from their school teachers and social media. Therefore, interventions to empower parents need to be ramped up so that parents can be an alternative source of education. Also, current school education needs to be monitored and evaluated to ensure that the information is still accurate and current for the youth. Similarly with the school information, social media messages need to be evaluated closely to eliminate myths that are already existing online. Finally, this study has highlighted the clear discrepancy between the awareness of STIs and the reported perceptions of students, future research needs to focus on strategies on strengthening awareness and boosting positive perceptions on STIs in the youth in our communities.

Study Limitations

A major limitation of the current study was that due to the COVID-19 pandemic, a small sample of students were part of this study since the university did not approve the collection of data using an online survey since this would have been a breach of confidentiality as there would have been a link to the students by student numbers using this portal. Therefore, the data described here is not reflective of all registered students at UKZN. The study recruited mostly female students, so both genders were not equally represented. The study used a questionnaire

that was not piloted prior to study implementation, therefore there is a possibility of misinterpretation of the questions. The study relied on the accuracy of self-reported data. It cannot be ignored that the students could have responded in a way that would be pleasing to the researcher. However, despite the limitations, valuable information was obtained through this study which can be used as a foundation for future STI studies conducted in UKZN students.

Recommendations

Based on the findings of this study these are the following recommendations are made:

1. This study observed students only enrolled in one university being UKZN. Studies that could focus on other universities could bring insight on a larger scale.
2. Education on sexually transmitted infections and factors impacting on risky behaviours should be integrated within school curriculums and increase information presented on digital platforms on these topics. Additionally educators should constantly upgrade their awareness on these topics so that they provide the relevant information
3. Local governments should have mobile STI screenings in schools and tertiary institutions to encourage testing. Awareness can be addressed during the risk reduction counselling sessions.
4. Family programmes strengthening family ties need to be established to empower parents with information about STI's among youth and effective communication of this information between parents/guardians and their children.
5. Youth leaders of organisations should be trained on STI's among the youth they are leading, for example, the church youth leaders should have accurate and up to date knowledge of STI's and be able to deliver these appropriately.
6. Evaluation on school-based education interventions to improve effectiveness

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APPENDIX 1



4 April 2019

Dr N Abbai
School of Clinical Medicine

Dear Dr Abbai

MMEDSCI PROTOCOL: "Sexual risk behaviour and awareness of sexually transmitted infections in students attending at the University of KwaZulu-Natal"

Student: Ms. FN Mthembu, student number: 205510113 (Internal Medicine)

I am pleased to inform you that the abovementioned study has been approved.

Please note:

- The Academic Leader: Research must review any changes made to this study.
- The study may not begin without the approval of the Biomedical Research Ethics Committee.

May I take this opportunity to wish the student every success with the study.

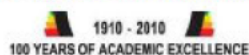
Yours sincerely



Postgraduate Administrator

C Ms. FN Mthembu Humanities and Social Sciences Research Ethics Committee
Westville Campus

Postgraduate, Higher Degrees & Research
School of Clinical Medicine, NRMSM Campus
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Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

APPENDIX 2



20 September 2019

Ms Funeka N Mthembu (205510113)
School of Clinical Medicine
Medical School

Dear Ms Mthembu,

Protocol reference number: HSS/0353/019M

Project title: Sexual risk behaviour and awareness of sexually transmitted infections in students attending at the University of KwaZulu-Natal.

Approval Notification – Full Committee Reviewed Protocol


With regards to your response received on 20 August 2019 to our letter of 03 June 2019, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. **PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 1 year from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully


Dr Rosemary Sibanda (Chair)
/ms

cc Supervisor: Dr N Abbai
cc Academic Leader Research: Professor Jackie M Van Wyk
cc Administrator: Lushenthree Konar

Humanities & Social Sciences Research Ethics Committee

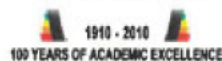
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APPENDIX 3



12 October 2020

Ms Funeka N Mthembu 205510113
School of Clinical Medicine
Medical School

Dear Ms Mthembu

Protocol reference number: HSS/0353/019M

Project title: Sexual risk behaviour and awareness of sexually transmitted infections in students attending at the University of KwaZulu-Natal.

Approval Notification – Recertification Application

Your request for Recertification dated 06 October 2020 was received.

This letter confirms that you have been granted Recertification Approval for a period of one year from the date of this letter. This approval is based strictly on the research protocol submitted and approved in 2019.

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study must be reviewed and approved through the amendment/modification prior to its implementation. Please quote the above reference number for all queries relating to this study.

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,








Professor Dipane J Hlalele (Chair)

/dd

cc Supervisor: Dr N Abbai
cc Academic Leader Research: Prof JM Van Wyk
cc Administrator: Lushentthree Konar

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
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Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS

APPENDIX 4

Student Questionnaire

Thank you for agreeing to participate in our research and taking the time to answer our questions. We are interested in knowing about people's health perceptions. Your answers to these questions will tell us about university students, which will help us for future research projects. There are no right or wrong answers. Please be honest when answering these questions. All of your answers will be kept confidential. Confidential means we will not tell your answers to anyone outside the research group.

Section 1: DEMOGRAPHICS

1.1 What is your gender?	1 = Male 2 = Female 3 = Transgender	
1.2 How old are you?	_ _ Years old	
1.3 What year of study are you in	1 = Undergraduate – 1 st year 2 = Undergraduate – 2 nd year 3 = Undergraduate – 3 rd Year 4 = Honours 5 = Postgraduate Diploma 6 = Masters 7 = PhD	
1.4 Do you live on campus	1 = No 2 = Yes	

Section 2: SOURCES OF INFORMATION

Source of Information. Please choose all that apply.		
2.1 Which of the following STIs have you heard about? Please choose all that apply.	1= HIV/AIDS 2= Herpes Simplex Virus (HSV) 2 3= Gonorrhoea 4= Chlamydia 5= Syphilis 6= Human Papilloma Virus (HPV) 7= Trichomaniasis 8= Don't know of any STIs	If Don't know skip to Q2.4
2.2 At what age did you first learn about sexually transmitted infections?	Cod in years	_ _

2.15 Having sex in exchange for gifts or money may put you at risk of contracting STIs?	<input type="radio"/> True <input type="radio"/> False <input type="radio"/> Don't Know	
2.16 A person can see if they have an STI	<input type="radio"/> True <input type="radio"/> False <input type="radio"/> Don't Know	
2.17 A circumcised male will not contract an STI	<input type="radio"/> True <input type="radio"/> False <input type="radio"/> Don't Know	

Section 3: Perceptions

Choose one that applies to your opinions/beliefs by marking with an 'X'	1. Agree Strongly	2. Agree	3. Disagree	4. Disagree Strongly
3.1 I think its acceptable to start having sex after tertiary and not before				
3.2 Pulling out the penis before ejaculation can help prevent STIs				
3.3 You don't have to use condoms when in a long term relationship with one partner				
3.4 I am concerend about contracting an STI				
3.5 You have to have had sex numerous times before you can get an STI				
3.6 Having sex with someone of the same sex decreases your risk of contracting STIs				
3.7 It is difficult to negotiate condom use with an older partner				
3.8 I can discuss STIs with my sex partner(s)				
3.9 If a cndom breaks during sex I would be concerned about pregnancy not STIs				
3.10 Taking a shower or washing with a sanitiser after sexual contact will prevent STI transmissison				
3.11 Having sex under alcohol influence can put one at risk of contracting an STI				
3.12 Once you have been treated and cured of STI's you will not be able to get it again				