

HIV knowledge and sexual risk behaviour of grade 12 learners in the Cape Metropole, Cape Town

by

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degree Master of Nursing Science at the University of
Stellenbosch*



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DECLARATION

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December 2013

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ABSTRACT

The HIV pandemic threatens the social, emotional, and physical development of all persons, especially the youth. Adolescents are more at risk of contracting HIV as their lifestyle often involves sexual exploration and experimentation. Effective educational interventions are central to HIV prevention in South Africa. Being a clinical nurse practitioner in a primary health care (PHC) facility, the principal investigator observed that school learners failed to practice safe sex and demonstrated little knowledge about HIV/AIDS prevention.

The aim of the study was to investigate the reported level of HIV knowledge and sexual risk behaviour of grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town. A descriptive, non-experimental, research design was employed with a primarily quantitative approach. The study population comprised grade 12 learners from high schools in the Eastern Sub-District of the Cape Metropole in Cape Town (N=7940). A total of 92 participants from four schools (2 public and 2 private) were included in the sample by using a cluster sampling method. A self-completion semi-structured questionnaire was used to collect the data. Data was collected by the principal investigator and a trained field worker.

Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, Stellenbosch University (N11/07/225). Permission to conduct the research was obtained from the Department of Education.

Reliability and validity were assured by means of a pilot study and the use of experts in the field of nursing research and statistics.

Descriptive statistics were used to analyse data. Statistical associations were determined using ANOVA and the Mann-Whitney U tests. The qualitative data was analysed thematically and then quantified.

The results show that the average HIV/AIDS knowledge score of participants was 60.73%. However, many gaps in HIV/AIDS knowledge were identified. Only 77.2% (n=71) of participants knew the meaning of HIV, 80.4% (n=74) did not know all the ways in which HIV can be transmitted and only 8.7% (n=8) knew how to safely use a condom. The majority of participants (67.4%; n=62) believed in the myth that HIV can be cured and 18.5% (n=17) reported that a traditional healer can cure HIV.

With regard to risky behaviour, half of the participants at the time of the study (51%; n=47) reported sexual engagement and 20% (n=9) of these respondents did not use condoms. Furthermore, 25% (n=23) had used alcohol before having sex. There were no association

found between the knowledge about HIV/AIDS of participants and their sexual risk behaviour.

In view of these study findings, participants are exposing themselves to high risk sexual behaviour that may increase their chances of acquiring sexually transmitted infections including HIV. Several recommendations were identified, including the strengthening of HIV and STI education linked to sexual risk reduction, open communication and additional information sources, availability of condoms at schools and improved access to HIV testing at schools.

OPSOMMING

Die jeug se sosiale, emosionele en fisiese ontwikkeling word deur die MIV-pandemie gekortwiek. As gevolg van hulle seksuele eksperimentering, word adolessente as 'n hoë risikogroep beskou, sover dit die ontwikkeling van MIV aangaan. Gevolglik speel onderrig 'n belangrike rol in MIV voorkoming. Die beoefening van onveilige seks, en onvoldoende kennis rakende MIV/VIGS-voorkoming, is deur die primêre navorser, 'n kliniese verpleegpraktisyn in die primêre gesondheidsorg omgewing, waargeneem.

Die studie het dit ten doel om te bepaal wat die MIV-kennis vlakke, en die seksuele gedrag risiko van Graad 12 leerders in die Oostelike sub-distrik van die Kaapstadse Metropol is. 'n Beskrywende, nie-eksperimentele navorsingsontwerp is gebruik, met 'n hoofsaaklike kwantitatiewe benadering. Uit die studie populasie van Graad 12 leerders in die Oostelike sub-distrik van die Kaapstadse Metropol hoërskole (N=7940), is 'n steekproef van 92 deelnemers uit vier hoërskole (twee staatskole en twee privaatskole) gekies – die trossteekproefnemingsmetode is gebruik. Data is versamel deur middel van 'n semi-gestruktureerde vraelys wat deur die deelnemers self voltooi is.

Toestemming vir die uitvoer van die studie is verkry van die Etiese Komitee van die Mediese Fakulteit van die Universiteit van Stellenbosch (N11/07/225), asook die Wes-Kaapse Departement van Onderwys.

Die betroubaarheid en geldigheid van die studie is verseker deur die uitvoer van 'n voorstudie, en is verder versterk deur gebruik te maak van kundiges in die veld van statistiek en verpleegnavorsing.

Data is ontleed deur middel van beskrywende statistiese metodes en assosiasies is bepaal deur gebruik te maak van variansie-analise ("ANOVA") en Mann-Whitney U toetse. Die bevindinge is in frekwensie tabelle en histogramme vervat. Die kwalitatiewe data is gekodeer en gekategoriseer, waarna temas geïdentifiseer is.

Alhoewel die studie-bevindinge aangedui het dat die deelnemers 'n gemiddelde MIV/VIGS-kennis telling van 60.73% behaal het, is verskeie leemtes in hulle bestaande kennis geïdentifiseer. Slegs 77.2% (n=71) van die deelnemers het geweet wat MIV beteken, terwyl 80.4% (n=74) nie geweet het hoe MIV oorgedra word nie. Slegs 8.7% (n=8) van die deelnemers het kennis gehad rakende veilige kondoom gebruik. Die meerderheid van die deelnemers (67.4%; n=62) glo dat MIV genees kan word en 18.5% (n=17) het aangedui dat MIV deur 'n tradisionele geneesheer genees kan word.

Hoë-risiko gedrag, spesifiek seksuele aktiwiteit (51%; n=47%) sonder kondome (20%; n=9) is rapporteer. 'n Verdere 25% (n=23) van die deelnemers het rapporteer dat hulle alkohol gebruik voor seks, maar daar was geen assosiasie tussen die vlak van MIV/VIGS-kennis en hoë-risiko gedrag nie.

Die bevindinge dui daarop dat die deelnemers hulself blootstel aan hoë-risiko seksuele gedrag met die gevolg dat hul kans om MIV te kry verhoog. Die aanbevelings, gegrond op die bevindinge, sluit in: 'n groter fokus op onderrig wat verband hou met MIV en seksueel oordraagbare infeksies wat gekoppel is aan 'n verlaging in hoe-risiko seksuele gedrag, openhartige kommunikasie en bykomende inligtingshulpbronne, beskikbaarheid van kondome by skole, asook verbeterde toegang tot MIV toetsing by skole.

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DEDICATION

I dedicate my work done to:

- My Children
- The South African youth

This is a demonstration that nothing is impossible and the sky is the limit.

TABLE OF CONTENTS

DECLARATION.....	i
ABSTRACT.....	ii
OPSOMMING.....	iv
ACKNOWLEDGEMENTS.....	vi
DEDICATION.....	vii
TABLE OF CONTENTS.....	viii
LIST OF ABBREVIATIONS.....	xv
CHAPTER 1: SCIENTIFIC FOUNDATION OF THE STUDY.....	1
1.1 Introduction.....	1
1.2 Rationale and background literature.....	2
1.3 Research problem.....	3
1.4 Significance of the study.....	3
1.5 Research question.....	4
1.6 Research aim.....	4
1.7 Research objectives.....	4
1.8 Research methodology.....	4
1.8.1 Research design.....	4
1.8.2 Population and sampling.....	4
1.8.2.1 Specific sampling criteria.....	5
1.8.2.2 Sample size.....	5
1.8.3 Data collection tool.....	5
1.8.4 Pilot test.....	6
1.8.5 Validity and reliability.....	6
1.8.6 Data collection.....	6
1.9 Data management and analysis.....	7
1.10 Ethical considerations.....	7
1.11 Definitions of terms used in the study.....	8
1.12 Time frame.....	9
1.13 Chapter outline of the thesis.....	9
1.14 Summary.....	10

CHAPTER 2: LITERATURE REVIEW.....	11
2.1 Introduction.....	11
2.2 Selecting and reviewing the literature.....	11
2.3 Framework used to present the findings from the literature.....	11
2.3.1 HIV epidemiology in South Africa.....	12
2.3.2 History of HIV life skills programmes in South African schools.....	13
2.3.3 Adolescent HIV knowledge and sexual risk behaviour.....	13
2.3.3.1 Adolescent HIV knowledge.....	13
2.3.3.2 Sexual risk behaviour.....	14
2.3.3.2.1 Condom use.....	14
2.3.3.2.2 Early sexual debut.....	14
2.3.3.2.3 High-risk sexual relations.....	15
2.3.4 Factors influencing sexual risk behaviour.....	16
2.3.4.1 Alcohol and substance abuse.....	16
2.3.4.2 Peer pressure.....	16
2.3.4.3 HIV knowledge.....	16
2.3.4.4 Social and economic conditions.....	17
2.3.4.5 Awareness of HIV status.....	17
2.3.4.6 Sexually transmitted Infections.....	17
2.3.5 Importance of HIV education.....	17
2.3.6 The effectiveness of HIV prevention programmes in schools.....	19
2.3.7 Barriers to HIV prevention programmes in schools.....	20
2.4 Conceptual framework.....	20
2.4.1 The four major concepts of Henderson’s need theory.....	21
2.4.1.1 Individual.....	21
2.4.1.2 The environment.....	21
2.4.1.3 Health.....	22
2.4.1.4 Nursing.....	22
2.4.2 Bandura’s social cognitive theory.....	22
2.5 Summary.....	23
 CHAPTER 3: RESEARCH METHODOLOGY.....	 25
3.1 Introduction.....	25
3.2 Research aim.....	25

3.3	Research objectives.....	25
3.4	Research approach and design.....	25
3.5	Population and sampling.....	26
	3.5.1 Study population.....	26
	3.5.2 Specific sampling criteria.....	27
	3.5.3 Study sample.....	27
3.6	Data collection tool.....	29
	3.6.1 The demographic data of the participants.....	29
	3.6.2 Multiple choice and closed questions about HIV/AIDS knowledge and sexual behaviour.....	29
	3.6.3 Open-ended questions.....	30
3.7	Pilot test.....	30
3.8	Validity and reliability.....	30
3.9	Data collection.....	31
3.10	Data management and analysis.....	33
	3.10.1 Definitions of tests used in the study.....	33
3.11	Ethical considerations.....	34
3.12	Summary.....	36
CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION.....		38
4.1	Introduction.....	38
4.2	Presentation and discussion of the study findings.....	38
	4.2.1 Demographic data.....	38
	4.2.1.1 Age of participants.....	38
	4.2.1.2 Sex of participants.....	39
	4.2.1.3 Ethnicity of participants.....	39
	4.2.1.4 Living arrangements of participants.....	40
	4.2.1.5 Religion of participants.....	40
	4.2.2 HIV/AIDS and sexual knowledge.....	41
	4.2.2.1 The meaning of HIV.....	41
	4.2.2.2 HIV transmission.....	42
	4.2.2.3 HIV prevention.....	43
	4.2.2.4 Substances for safe condom use.....	43
	4.2.2.5 Definition of an antiretroviral drug.....	44

4.2.2.6 HIV Cure.....	45
4.2.2.7 Traditional cure for HIV.....	46
4.2.2.8 Benefit of knowing HIV status.....	46
4.2.2.9 Relationship between drug and alcohol use and risky sexual behaviour.....	47
4.2.3 HIV/AIDS knowledge score.....	47
4.2.4 HIV/AIDS and sexual education.....	49
4.2.4.1 Frequency of HIV education at school.....	49
4.2.4.2 Frequency of STI education at school.....	50
4.2.4.3 Self-perceived knowledge of STIs.....	51
4.2.4.4 Self-perceived knowledge of HIV.....	51
4.2.4.5 Discussions about sex and HIV at home.....	52
4.2.4.6 Sufficiency of sexual education at school.....	53
4.2.5 Sexual behaviour.....	53
4.2.5.1 Sexual intercourse.....	53
4.2.5.2 HIV Testing.....	54
4.2.5.3 Condom use.....	55
4.2.5.4 Use of “Choice” condoms.....	56
4.2.5.5 Sexually transmitted infections (STI).....	57
4.2.5.6 Alcohol use before sex.....	57
4.2.5.7 Injectable drug use.....	58
4.2.5.8 Needle sharing for drug use.....	58
4.2.5.9 Drug use before having sex.....	59
4.2.6 Relationship between HIV/AIDS and sexual knowledge and sexual risk behaviour.....	59
4.2.7 Emerging themes.....	60
4.2.7.1 Participant recommendations for improved HIV/AIDS and STI and sexual education in schools.....	60
4.2.7.1.1 Increased HIV and STI education.....	60
4.2.7.1.2 Openness.....	60
4.2.7.1.3 Use of external information sources.....	60
4.2.7.2 Reasons for the high HIV prevalence among the youth.....	61
4.2.7.3 Measures for preventing HIV/AIDS.....	61
4.2.7.4 Sexual education needs.....	62

4.3	Summary.....	63
CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS.....		64
5.1	Introduction.....	64
5.2	Achievement of the aim and objectives of the study.....	64
5.2.1	Objective 1: Determine the level of HIV/AIDS knowledge among grade 12 school learners.....	64
5.2.2	Objective 2: Identify risky sexual behaviour among the learners, which may increase their risk of HIV infection.....	65
5.2.3	Objective 3: Determine if knowledge of HIV/AIDS influences the sexual behaviour of grade 12 school learners.....	66
5.2.4	Objective 4: Identify recommendations towards improved strategies for the implementation of HIV/AIDS preventative programs in schools.....	67
5.3	Recommendations.....	67
5.3.1	Strengthening HIV and STI education linked to sexual risk reduction.....	67
5.3.2	Open communication and additional information sources.....	69
5.3.3	Availability of condoms at schools.....	70
5.3.4	Improved access to HIV testing at schools.....	70
5.3.5	Educational needs.....	71
5.4	Further research.....	72
5.5	Limitations.....	72
5.6	Dissemination.....	73
5.7	Summary.....	74
REFERENCES.....		75
APPENDICES.....		81
Appendix A: Data collection tool.....		81
Appendix B: Ethical Committee approval letter.....		88
Appendix C: Permission letter for data collection from the Department of Education.....		90
Appendix D: Participant information consent form.....		91
Appendix E: Stellenbosch University Language Services confirmation of editing.....		95

LIST OF TABLES

Table 3.1: Sampling methods used in the current study.....	28
Table 4.1: Age of participants.....	39
Table 4.2: Sex of participants.....	39
Table 4.3: Ethnicity of the participants.....	40
Table 4.4: Living arrangements.....	40
Table 4.5: Religion.....	41
Table 4.6: The meaning of HIV.....	41
Table 4.7: HIV transmission.....	42
Table 4.8: HIV prevention.....	43
Table 4.9: Substances for safe condom use.....	44
Table 4.10: Definition an antiretroviral drug.....	45
Table 4.11: HIV cure.....	46
Table 4.12: Traditional cure for HIV.....	46
Table 4.13: Benefit of knowing HIV status.....	47
Table 4.14: Relationship between drug and alcohol use and risky sexual behaviour.....	47
Table 4.15: Summary of HIV/AIDS and sexual knowledge questions.....	48
Table 4.16: Frequency of HIV education at school.....	50
Table 4.17: Frequency of STI education at school.....	51
Table 4.18: Self-perceived knowledge of STI.....	51
Table 4.19: Self-perceived knowledge of HIV.....	52
Table 4.20: Discussions about sex and HIV at home.....	52
Table 4.21: Sufficiency of sexual education at school.....	53
Table 4.22: Sexual intercourse.....	54
Table 4.23: HIV testing.....	55
Table 4.24: Condom use.....	56
Table 4.25: Use of "Choice" condoms.....	57
Table 4.26: Sexual transmitted infections (STI).....	57
Table 4.27: Alcohol use before sex.....	57
Table 4.28: Injectable drug use.....	58
Table 4.29: Needle sharing for drug use.....	58
Table 4.30: Drug use before having sex.....	59
Table 4.31: Sexual education needs.....	62

LIST OF FIGURES

Figure 2.1: The conceptual framework of the current study.....	23
Figure 4.1: Histogram of HIV and sexual knowledge score.....	49

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ARV	Antiretroviral (drugs)
DoE	Department of Education
DoH	Department of Health
HCT	HIV counselling and testing
HIV	Human immunodeficiency virus
HSRC	Human Sciences Research Council
MDG	Millennium Development Goals
PI	Principal Investigator
STI	Sexually Transmitted Infections
UNAIDS	Joint United Nations Program on HIV/AIDS
WHO	World Health Organization

CHAPTER 1

SCIENTIFIC FOUNDATION OF THE STUDY

1.1 Introduction

The transmission of the human immunodeficiency virus (HIV) is one of the biggest challenges in the public health care system and is currently a significant threat in Africa and around the world (UNAIDS, 2011:5). The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that 34 million people are living with HIV around the world, and that there were 2.7 million newly infected people in 2010 (UNAIDS, 2011:4).

The HIV pandemic threatens the social, emotional, and physical development of all persons and especially the youth in every country. The findings from a survey in South Africa indicate that adolescents are at high risk of contracting HIV, because their lifestyle often involves sexual exploration, experimentation, and rebellion (George, 2005:22). There is a reported high prevalence (29%) of HIV among people between the ages of 15 and 29 in South Africa (Statistics South Africa, 2010:6). HIV awareness and prevention can therefore contribute to lower incidents of HIV infection by promoting behavioural changes in relation to risky sexual behaviour (Visser, 2005:204).

The World Health Organisation (WHO) report that one of the key prevention strategies is to ensure that people have enough knowledge of the prevention of the transmission of HIV in order to encourage behavioural change and in order to decrease the risk of HIV infection (Visser, 2005:204). Knowledge of HIV prevention among the youth is a priority and should be established from a young age.

HIV is a major risk that is faced by many school learners in South Africa and that needs urgent intervention to prevent transmission (Jemmott et al., 2010:164). Educational programmes about sexual risk behaviour have shown a reduction in risky sexual behaviour among school learners and have led to positive behavioural changes (Jemmott *et al.*, 2010:164). However, a paucity of evidence exists with regard to the effectiveness of educational programmes about HIV/AIDS and sexual risk behaviour in South Africa. This indicates the need to investigate the level of HIV knowledge and sexual behaviour of school learners in order to identify risky sexual behaviours and practices. Recommendations towards improved school-based HIV prevention programmes for, and reduced risky sexual behaviour among, school learners will be made.

1.2 Rationale and background literature

Sub-Saharan Africa had the highest global HIV infection rate in 2010, and remains the region that is worst affected by the HIV/AIDS pandemic (UNAIDS, 2011:5). It is estimated that 5.24 million people in South Africa are infected with HIV/AIDS, and that 17.3 % of the population between the ages of 15 and 49 is HIV infected (Statistics South Africa, 2010:6). According to UNAIDS, the prevention of HIV/AIDS remains the key focus to reduce the incidence of HIV. Information on how to prevent the contraction of HIV has proven to reduce new infections (UNAIDS, 2011:8). Furthermore, UNAIDS and WHO have released five-year strategies (2011–2015), aimed at building on the progress that has been made to date and establishing new targets for 2015, such as zero new infections, zero discrimination and zero AIDS-related deaths (UNAIDS, 2011:8). One of the strategies focuses on optimising HIV prevention, with the key indicator being to provide knowledge of the prevention of HIV/AIDS among young people to reduce HIV infection (UNAIDS, 2012:10). According to the Global HIV Prevention Organisation, fewer than 40% of schools in 62 developing countries provided life skills-based HIV education in 2007, and only 40% of females between the ages of 15 and 24 had an accurate knowledge of HIV (Global HIV Prevention, 2009:2).

HIV/AIDS life skills educational programmes were introduced into the curriculum of South African schools during 1998 and 1999. The purpose of the programmes was to increase HIV/AIDS knowledge, and to prevent and reduce HIV infection among school learners (Visser, 2005:203).

A study among secondary school learners in South Africa has shown that the provision of education about sexually transmitted infections (STIs) and HIV/AIDS has resulted in a significant increase of knowledge among the learners. The increase in knowledge, furthermore, has led to some positive attitude change, related to condom use and to intention to practise safe sex (James, Reddy, Ruiters, Taylor, Van Empelen & Van Den Borne, 2006:157). The implementation of HIV/AIDS prevention and life skills programmes in secondary schools in KwaZulu-Natal has resulted in increased HIV/AIDS knowledge among learners, and, further, it has been shown that learners who participated in the programmes had more positive attitudes towards HIV/AIDS, with their participation having impacted on their sexual behaviour (James *et al.*, 2006:281).

In some areas of the community, HIV/AIDS programmes did not have positive results. The evaluative results of the implementation of HIV/AIDS prevention interventions in 24 schools in two educational districts in Gauteng in 2004 suggested that the programmes were not implemented as had been planned in the schools, due to resource constraints, organisational problems, and the lack of commitment of the teachers concerned. Furthermore, a post-test

revealed that learners were sexually active, and that the implementation of the HIV prevention programme in the school curriculum did not reduce the high-risk sexual behaviour of school-going children (Visser, 2005:203–216).

According to UNAIDS, the incidence of HIV/AIDS was significantly reduced in people who had knowledge of HIV prevention (UNAIDS, 2009:25). A comparative study of high-risk sexual behaviour among people who were aware of their HIV status, compared with those who were unaware, showed that such behaviour was substantially reduced after people became aware of their HIV status. It was recommended that HIV prevention programmes focus on HIV testing and counselling (HCT) to improve HIV awareness (UNAIDS, 2009:25).

The importance of providing knowledge and awareness about HIV prevention among senior secondary school learners was highlighted in a study undertaken in Delhi. It was reported that, although 72% of the participants were aware that HIV/AIDS is a preventable disease, students had little knowledge about HIV/AIDS prevention. The study concluded that there is a need to reinforce HIV/AIDS education in the schools (Lal, Nath, Badham & Ingle, 2008:190). HIV/AIDS prevention programmes remain one of the key strategies for the prevention of HIV among school-going children. Furthermore, HIV awareness that focuses on delaying sexual activity and on promoting safe sexual practices among the youth remains a primary prevention strategy (Lal *et al.*, 2008:190).

In the light of the reported high prevalence of HIV/AIDS among South African youth, the prevention of HIV/AIDS among school-going youth remains a priority (Lal *et al.*, 2008:190). The literature findings demonstrate the need to investigate the level of HIV knowledge among school learners and the impact of such knowledge on their sexual behaviour.

1.3 Research problem

While working as a clinical nurse practitioner in a primary health care (PHC) facility in the Eastern Sub-District of the Cape Metropole, Cape Town, the principal investigator (PI) observed an increasing number of high school learners diagnosed with sexually transmitted infections, including HIV. The learners reported failure in practising safer sex and demonstrated little knowledge about HIV/AIDS prevention. Based on the findings from the literature review, the topic has never before been investigated in these schools. The extent of these problems remains unexplored.

1.4 Significance of the study

The study contributes towards the understanding of the HIV knowledge and sexual behaviour of Grade 12 learners in secondary schools in the Eastern Sub-District of the Cape Metropole, Cape Town. Furthermore, the study offers an understanding of current shortfalls in HIV

prevention programmes at schools. Recommendations based on the scientific evidence obtained through the study will be made to the Department of Education, the participating schools and the Department of Health towards improving school-based HIV/AIDS prevention programmes.

1.5 Research question

The questions explored in the study were: “*What are the levels of HIV knowledge and sexual risk behaviour among Grade 12 learners?*”

1.6 Research aim

The aim of the study was to investigate the reported level of HIV knowledge and sexual risk behaviour of Grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town.

1.7 Research objectives

The specific objectives of the study were to:

- determine the level of HIV/AIDS knowledge among the school learners;
- identify risky sexual behaviour for HIV infection among the school learners;
- determine whether knowledge of HIV/AIDS influences the sexual behaviour of the school learners; and
- identify recommendations from the perspectives of the study participants towards improved strategies for the implementation of HIV/AIDS preventative programmes in schools.

1.8 Research methodology

This section offers a brief description of the research methodology applied in the study, with a more in-depth discussion following in Chapter 3.

1.8.1 Research design

A descriptive, non-experimental research design was employed, using a predominantly quantitative approach.

1.8.2 Population and sampling

The study purposively focused on Grade 12 learners, who were at the stage of early youth and the end of the high school period. Accordingly, the study population comprised Grade 12 learners from high schools in the Eastern Sub-District of the Cape Metropole in Cape Town. Both the geographical position and the study population were accessible to the principle

investigator (PI). The study population were in their final year of high school education and could give their consent without having to obtain a guardian's permission. The learners were exposed to the HIV/AIDS life skills programme at their school for at least four years, and therefore should have been very familiar with the topic under investigation.

1.8.2.1 Specific sampling criteria

The study sampled all Grade 12 learners who: (a) attended high schools in the Eastern Sub-District of the Cape Metropole that offered HIV/AIDS and sexual education as part of the school curriculum, and who (b) received HIV/AIDS sexual education since Grade 8 at their current high school, as part of the life skills programme.

1.8.2.2 Sample size

According to the database of the Department of Education, there were 7 940 learners registered for Grade 12 at 59 schools in the Eastern Sub-District during 2011 (Siziba, 2011:1). The required sample size of 100 learners was determined with the support of a statistician, Professor Martin Kidd, at Stellenbosch University. The study made use of a random cluster sampling method. Accordingly, a total of 120 learners, from two public and two private schools, were approached to participate in the study. Following the information sessions, 106 participants gave written informed consent to participate and questionnaires were distributed. Ninety-two questionnaires were completed correctly and 14 questionnaires were incomplete. From the 92 completed questionnaires, 32 were from private schools and 60 from public schools.

1.8.3 Data collection tool

The PI developed a self-completion questionnaire that was based on the findings from the literature and on recommendations from experts in the field of HIV/AIDS and nursing research, including Ms Talitha Crowley, Dr Frederick Marais, and Dr Shaheed Mathee from Stellenbosch University. The statistician, Prof. Kidd, was consulted to assist with the design of the questionnaire in order to improve the statistical analysis.

The questionnaire consisted of three main sections: (a) demographic data; (b) multiple choice and closed questions about HIV/AIDS knowledge and sexual behaviour; and (c) open-ended questions to allow learners to express themselves freely about their HIV/AIDS knowledge and sexual behaviour, and to allow for the proposal of recommendations towards improved HIV/AIDS education in schools.

1.8.4 Pilot test

A pilot test was completed to determine the appropriateness of the study, and if the need for doing so was indicated, to refine the methodology and the data collection tool. One school was conveniently selected by the PI for the pilot test, which used nine learners, representing 9% of the proposed study sample (N=100). The participants in, and the data obtained from, the pilot test were excluded from the main study. No adjustments were required of the methodology or the data collection tool.

1.8.5 Validity and reliability

Reliability refers to the consistency of the measures obtained in the use of a particular instrument, and indicates the extent of random error present in the measurement method (Burns & Grove, 2009:377). Reliability was assured by conducting a pilot study before the data collection. The validity testing evaluated the use of the instrument for a specific group or purpose, rather than the instrument itself (Burns & Grove, 2007:365).

The content validity was evaluated by experts in the field of HIV/AIDS and nursing research, including Ms T Crowley, Dr F Marais and Dr S Mathee. A pilot test was completed to ensure face validity, as well as to ensure that the questionnaire was feasible and could produce valid data that were sufficient for the purposes of the statistical analysis. The statistician, Professor Kidd, was consulted about the statistical feasibility of the instrument, and assisted the PI with the data analysis. The PI and one trained fieldworker, Ms Anna Lord, a qualified teacher by profession, collected the data personally and were available to answer questions during the completion of the questionnaires. Data quality was maintained by the PI through the on-going training of the fieldworker, following a rigid research process and included the sealing of questionnaires in an envelope after data collection. The questionnaires were collected by the PI on the day of data collection.

1.8.6 Data collection

The PI obtained written informed consent (Appendix D) from each participant prior to the data collection, and distributed and collected the self-completion questionnaires.. The questionnaires were completed during the life skills period, and learners were granted approximately 45 minutes to complete them. The signed consent forms were kept separately from the completed questionnaires, and stored in a locked cabinet at the PI's place of work. The PI was present at three of the four schools to supervise the data collection process, in order to ensure the reliability of the study. No language barrier was identified. The data collection took place over a one-month period from 1 August to 31 September 2010.

The trained fieldworker, Ms Lord, was present to supervise the research process at one school, and reported directly to the PI, who supervised the whole process. The field worker was trained by the PI.

1.9 Data management and analysis

The data were captured electronically in MS Excel (Version 2007) and verified by the PI. Following data cleaning, a random sample of 20% of the captured data was cross-checked for accuracy against the completed questionnaires. The statistical analyses were conducted using STATISTICA (Version 8.1), with the support of the statistician, Prof. Kidd. The primarily descriptive data were expressed in frequency tables, means, standard deviation, proportions, and measures of relationships. The Chi-square, ANOVA and Levene's Test for homogeneity of variances, including the Mann-Whitney U test, were used as measures of the strength of the relationship between variables. A significance level of 5% ($p \leq 0.05$) was used as a guideline for determining the statistically significant relationships.

The qualitative data yielded from open-ended questions were analysed using a thematic approach (Burns & Grove, 2007:540). The qualitative data, as made available within the identified themes, were quantified, based on the approach developed by Culp and Pilat (1998:3).

1.10 Ethical considerations

The PI acknowledges the sensitivity of the topic, and followed strict ethical procedure before, during, and after the study. Ethical approval (reference number N11/07/225) for the study was obtained from the Committee for Human Science Research of the Faculty of Medicine and Health Sciences, Stellenbosch University (Appendix B). Additional permission was obtained from the Western Cape Department of Education (Appendix C), and arrangements were made with the principals of the selected schools that written informed consent could be obtained from all participants during an information session that was held prior to distributing the questionnaires. Currently the South African law that was implemented in March 2012 mandates active consent from parents or legal guardians for all research conducted with research participants under the age of 18 years but this study was conducted in 2011 prior to the active implementation of this legislation (NDOH,2003:55). The participants were informed that their confidentiality and anonymity would be honoured at all times both during and after the study. Participation in the study was voluntary, and the participants were informed that they were free to withdraw from the study during any phase without being penalised. The questionnaires were anonymous and codes were used for the different schools and learners to disguise their true identity. Furthermore, privacy and confidentiality were ensured by the

completion of the questionnaires in a classroom setting. Referral arrangements were in place should a participant display distress or recall events during the data collection process. Learners were provided with the telephone numbers of the head social worker from the Department of Education, Eastern Sub-District and the PI, should they have required psychological counselling or any additional information or advice during the study. However, such assistance was not required.

1.11 Definitions of terms used in the study

The following terms were used in the study, necessitating their definition below:

- **Adolescent:** An adolescent is a young person who has undergone puberty, but who has not yet reached full maturity (Mosby's Medical, Nursing, and Allied Health Dictionary, 2002). For the purpose of the current study, the Grade 12 school learners were regarded as adolescents.
- **Acquired immune deficiency syndrome (AIDS):** AIDS is a syndrome involving a defect in cell-mediated immunity that has a long incubation period, follows a protracted and debilitating course, is manifested by various opportunistic infections, and, without treatment, has a poor prognosis (Anderson, Keith, Novak & Elliot, 2002:22).
- **Fieldworker:** A fieldworker is a researcher who is responsible for data collection in the field (Mosby's Medical, Nursing, and Allied Health Dictionary, 2002).
- **HIV life skills programme:** In conformance with the requirements of the Further Education and Training Act 98 of 1998 (Republic of South Africa, 1998), the programme provides information on HIV/AIDS and is aimed at developing the life skills that are necessary for the prevention of HIV transmission.
- **HIV prevalence:** The HIV prevalence consists of the estimates of the total number of people living with HIV, which are normally expressed a fraction, as a percentage or as the number of cases per 100 000 of the population (Mosby's Medical, Nursing, and Allied Health Dictionary, 2002).
- **Human immunodeficiency virus (HIV):** A retrovirus that causes acquired immunodeficiency syndrome (Anderson et al., 2002:830).
- **Life skills:** According to the Further Education and Training Act 98 of 1998 (Republic of South Africa, 1998), the subject of life skills is central to the holistic development of the learners. It is concerned with the social, personal, intellectual, emotional and physical growth of the learners, and with the way in which aspects of the above are integrated with one another.

- **Private school:** According to the South African School Act 84 of 1996 (Republic of South Africa, 1996), a private school is a fee-charging, independent school that is registered with the Department of Education.
- **Public school:** According to the South African School Act 84 of 1996 (Republic of South Africa, 1996:84), a public school is a publicly administered school.
- **Sex education:** Sex education is education about human sexual anatomy, reproduction, and intercourse, as well as other human sexual behaviour (Mosby's Medical, Nursing and Allied Health Dictionary, 2002)
- **Sexually transmitted infection (STI):** An STI is a contagious disease that is usually acquired by means of sexual intercourse or genital contact (Mosby's Medical, Nursing and Allied Health Dictionary, 2002).

1.12 Time frame

Data collection across all four schools took up six weeks between 1 August and 31 September 2011. The overall time frame for the study was 18 months.

1.13 Chapter outline of the thesis

Chapter 1: Scientific foundation of the study

Chapter 1 briefly describes the scientific foundation of the study, including the rationale for the study and the research methodology.

Chapter 2: Literature review

Chapter 2 presents the findings of the literature review pertinent to HIV knowledge and sexual behaviour among Grade 12 learners. The importance of HIV knowledge, and how it relates to sexual behaviour, is discussed.

Chapter 3: Research methodology

Chapter 3 describes the research methodology applied in the study.

Chapter 4: Data analysis, interpretation, and discussion

Chapter 4 presents and discusses the results of the study.

Chapter 5: Conclusion and recommendations

Chapter 5 concludes with an overview of the findings according to the study outcomes, the limitations of the study, and the final study conclusions. Recommendations are made based on the scientific evidence obtained.

1.14 Summary

HIV is killing the youth in South Africa. Chapter 1 revealed that there is a need to improve prevention strategies to combat HIV in schools and to reduce risky sexual behaviour among learners. Empowering the youth is the key to the future development of every country. The reinforcement and the further development of HIV/AIDS educational programmes in schools must remain a priority until the HIV pandemic is under control. HIV education is the most powerful and cheapest HIV prevention tool, but it needs to be implemented correctly in order to ensure that it is an effective HIV preventative strategy among school learners.

Based on the literature findings, there is no recently reported study undertaken to investigate HIV knowledge and sexual risk behaviour among Grade 12 learners in South Africa. The present study explores HIV knowledge and sexual behaviour among Grade 12 learners in order to improve strategies for the implementation of HIV/AIDS preventative programmes in schools.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Chapter 2 presents the findings of the literature review on the topic under investigation. A review of literature is aimed at contributing towards a clearer understanding of the nature and meaning of the problem that has been identified (De Vos, Strydom & Delpont, 2007:123). Chapter 2 also describes the conceptual framework developed for, and employed in, the study.

2.2 Selecting and reviewing the literature

The literature review for the current study was on going for a period of 18 months. The purpose of a literature review is to convey what is currently known about a specific topic and to obtain a broad understanding of what is already known about the problem under investigation and the gaps that exist in the knowledge (Burns & Grove, 2009:91). The review included literature that was not older than ten years and which was mostly based on South African, English printed and online journal articles, to give a clear understanding of the African context of the study. Furthermore, material was selected from several electronic databases; including Pub Med, the Cochrane Library, and the Stellenbosch University library information site. Key words used in the search included 'HIV knowledge', 'sexual behaviour' and 'youth' or 'adolescence'. Statistics and other research findings from periodicals, journals, and different monographs in the field of HIV knowledge and sexual behaviour among school-going youth were reviewed. The review of grey literature included documents from the South African Department of Health and other relevant policies and unpublished studies.

The literature gives a background of HIV knowledge and sexual behaviour among school learners and evaluates the content and effectiveness of the current sexual education programmes in South African schools.

2.3 Framework used to present the findings from the literature

The findings from the literature review are described under the following headings:

- HIV epidemiology in South Africa;
- the history of HIV life skills programmes in South African schools;
- adolescent HIV knowledge and sexual risk behaviour;
- factors influencing sexual risk behaviour;

- the importance of HIV education;
- the effectiveness of HIV prevention programmes in schools; and
- barriers to HIV prevention programmes in schools.

2.3.1 HIV epidemiology in South Africa

The 2009 antenatal HIV sero-prevalence survey reported that the national overall HIV prevalence amongst pregnant women between the ages of 15 and 49 served by the public service was 29.4 % (DOH, 2010:3). The estimated HIV prevalence among women in their reproductive age (15–24 year-old women) was 21.7% in 2009 (DOH, 2010:3). Furthermore, South Africa remains the highest affected single country in the world with the highest HIV infection rate in 2009 (UNAIDS, 2009:7). In a South African survey, the HIV prevalence in the age group 15–49 years had increased from 15.6% in 2002 to 16.2% in 2005 and 16.9% in 2008 (Human Sciences Research Council, 2009:63).

The number of new HIV infections among people aged 15 and above in South Africa has been reported to have increased to 370 000 in 2010 (Stats SA, 2010:6). Furthermore, the total number of persons living with HIV in South Africa increased from an estimated 4.10 million in 2001 to 5.24 million in 2010 (Stats SA, 2010:6). For 2010, an estimated 10.5% of the total population in South Africa was HIV positive (Stats SA, 2010:6). Approximately one-fifth of South African women in their reproductive ages are HIV-positive. The total number of people living with HIV is increasing yearly, and this deadly virus is making an impact on the development and life expectancy of South African youth. Life expectancy at birth is estimated at 53.3 years for men and 55.2 years for women in South Africa (Stats SA, 2010:1).

In addition, women and certain ethnic groups are at a higher risk of acquiring HIV infection. It has been reported that, within the age group of 15–24 year-old South Africans, one in ten people was found to be HIV-positive, of whom 77% were women and 95% were black people (RHRU, 2003:1). In addition, HIV prevalence among teenagers in intergenerational sexual relationships was found to be higher than among those who had sexual partners from their age group, owing to unequal power dynamics and vulnerability in terms of the ability to negotiate safe sex (Ntuli, 2010:20).

The South African HIV prevalence statistics, therefore, indicate that the HIV epidemic is still one of the major threats to socio-economic development in South Africa, and that it continues to threaten the development of the youth.

2.3.2 History of HIV life skills programmes in South African schools

In South African schools, HIV education forms part of the wider Life Orientation curriculum which was implemented in 1998–1999 (Visser, 2005:203). In 2009, it was reported that all South African schools provide life skills-based HIV education (DOH, 2010:41). The South African government has worked hard to integrate life skills-based education into all learning areas in schools, with the aim of reducing HIV incidence by 50% by 2011 (DOH, 2010:34-41).

In the Western Cape, South Africa, a peer education programme, among Grade 10 learners (aged 15–16 years) was introduced in 2006. The programme is coordinated and funded through the Global Fund by the provincial Department of Education and by the National Government, and it is being implemented in schools by a number of non-governmental and faith-based organisations. In addition, the Department of Education, South Africa, has introduced life orientation as a compulsory learning area from Grade 1–12. The life orientation programme includes health promotion, wellness and well-being as core learning outcomes and accommodates the Department of Health's life skills and HIV/AIDS education programme (Wegner, Flisher, Caldwell, Vergnani & Smith, 2007:1087). The aims of these programs are to delay sexual debut, and to increase the use of condoms among those who have already started having sexual relations (Mason-Jones, Mathews & Flisher, 2011:160-161).

2.3.3 Adolescent HIV knowledge and sexual risk behaviour

South Africa has the largest burden of HIV/AIDS, and is currently implementing the largest antiretroviral treatment (ART) programme in the world (HSRC, 2009:1). Young adults, particularly women, are at greatest risk of acquiring HIV (HSRC, 2009:1). Furthermore, high-risk behaviour, like drug and alcohol abuse, multiple sexual partners and unprotected sex, increases the risk of contracting HIV (HSRC, 2009:4).

2.3.3.1 Adolescent HIV knowledge

In 2009 it was found that in Eastern and Southern Africa, school learners had “low levels of knowledge” (Avert HIV/AIDS, 2011:1) regarding HIV/AIDS. This was attributed to, among other factors, a lack of teacher training, and a lack of examination for students on the topic.

A study investigating HIV knowledge and sexual behaviour among school children in South Africa found that knowledge of HIV/AIDS was poor in some areas, and generally not satisfactory enough to sustain an adequate HIV/AIDS response in a context of high and widespread HIV/AIDS prevalence (Peltzer & Promtussananon, 2005:1-8).

2.3.3.2 Sexual risk behaviour

Sexual transmission of HIV is a major risk faced by adolescents in sub-Saharan Africa (HSRC, 2009:1). Several sexual risk behaviours, as identified in the literature, are discussed below.

2.3.3.2.1 Condom use

Condoms provide some barrier to HIV transmission, and, according to the Human Sciences Research Council, condom use has risen markedly in South Africa (HSRC, 2009:75). However, it is of concern that condom use at last sexual encounter was lowest in the Western Cape, in comparison with all other provinces (HSRC, 2009:75). A study on inconsistent condom use among South African school-going youth concluded that there was a low rate of condom use amongst school learners (Taylor, Dlamini, Nyawo, Huver, Jinabhai & De Vries, 2006:286).

Visser and Moleko (2008:1-2) conducted a study on risk behaviour among primary school learners in South Africa, and reported the urgent need to address the high risk of unprotected sexual behaviour among school learners. The study concluded that 24% of primary school learners were sexually active, and that only 40% of the sexually active learners used condoms.

A lack of condom use by the youth poses a leading risk of contracting HIV. It was reported that only 52% of the participants who reported having had sexual intercourse said that they had used a condom during their last sexual encounter (RHRU 2003:9). Furthermore, the prevention of the spread of the HIV/AIDS pandemic is influenced by learners' condom use self-efficacy and therefore the need for skills training should be emphasised (Taylor *et al.*, 2006:286).

2.3.3.2.2 Early sexual debut

A South African study found high levels of sexual activity among children 15–18 years of age. The results have concluded that 10% of adolescents aged 12–14 years also reported that they were sexually active (HSRC, 2009:25). Furthermore, among children 12–14 years of age, 10.8% of boys and 14.5% of girls were sexually active in the year prior to the study. Among the sexually active population for the study, nearly all boys 12–18 years of age had had sex, while a significant percentage of girls (26.4%) in the same age group had had sex with boys or men who were five years or more older than themselves. Among the learners who reported having been sexually active in the group 15–18 years of age, more boys (29.2%) reported having had more than two sexual partners in the 12 months prior to the study than did girls (9.5%) (HSRC, 2009:22).

In addition, it has been reported that, in South Africa, 47% of high school learners had begun sexual intercourse at an early age, with 7.4% having started to engage in sexual intercourse before the age of 13 (CDC, 2008:np).

There is, therefore, a need to highlight the dangers posed by early sexual debut to a child's sexual health, as well as the risk of HIV infection, particularly when someone is engaged in multiple concurrent sexual partnerships (HSRC, 2009:25). Schools should continue to promote sexual abstinence among children 12–18 years of age as a major prevention approach (HSRC, 2009:25). It is recommended that HIV/AIDS education needs to take place at a very young age to prevent risky sexual behaviour that can put young people at risk of HIV infection (CDC, 2008:np).

2.3.3.2.3 *High-risk sexual relations*

A study investigating HIV knowledge and risky sexual behaviour among students in Nigeria revealed that most respondents were sexually active, and were engaged in high-risk sexual encounters, such as those that were casual, consisted of men having sex with men or multiple sex partners, and in which money was exchanged in return for sexual favours (Bimbol & Florence, 2008:81).

Heterosexual HIV transmission contributes to the high incidence of HIV among young females, with the incidence of HIV being greater amongst girls and women than amongst boys and men globally (CDC, 2008: np).

A youth survey has reported that men having sex with men are at higher risk to contract and spread HIV (CDC, 2008: np). Prevention strategies amongst this group are complicated, since boys and men between the ages of 15 and 22 rarely reveal their sexual orientation, are less likely to seek an HIV test, and will often have one or more female partners (CDC, 2008: np). Such individuals are likely to transmit the HIV virus to all their sexual partners without even knowing that they are doing so (CDC, 2008: np). HIV prevalence among men who have sex with men is substantially higher than it is among the general male population (UNAIDS, 2009:33). One-third of men who has sex with men surveyed in Cape Town, Durban and Pretoria, South Africa, tested HIV-positive (UNAIDS, 2009:33). In a 2008 study of 378 men who have sex with men in Soweto, South Africa, researchers found an overall HIV prevalence of 13.2%, increasing to 33.9% among gay-identified men (UNAIDS, 2009:33).

Intergenerational sex also contributes to a high number of HIV infections among school-going youth. School children in such relationships are relatively easy to manipulate and, due to the age difference concerned, usually not being in a position to negotiate safe sex (DOH, 2010:20). In addition, intergenerational sex has been found to be a big risk factor, and has

increased substantively among female teenagers aged 15–19 years of age. This is a risk factor for HIV infection, as it facilitates exposure to a higher HIV-prevalent age group (HSRC, 2009:74).

Multiple sexual partnerships substantially increase the chances of HIV transmission through sexual networks that facilitate the transmitting of HIV. When groups of people are linked in a sexual network, a new infection has the potential to move rapidly between people, as a product of high viral load in the early phase of infection, during which transmission is up to ten times more likely to occur than during the latent phase of HIV infection (HSRC, 2009:41).

On-going findings have been made that risky sexual behaviour is one of the contributing factors to the high HIV infection rates among school learners. Prevention efforts in schools need to be re-examined since South African youth are at an increasing risk of contracting HIV/AIDS, due to their sexual behaviour (Frank, Esterhuizen, Jinabhai, Sullivan & Tailor, and 2008:394).

2.3.4 Factors influencing sexual risk behaviour

Many factors, such as (a) alcohol and substance abuse, (b) peer pressure, (c) HIV knowledge, (d) social and economic conditions, and (e) awareness of HIV status influence sexual risk behaviour among adolescents that might lead to HIV infection.

2.3.4.1 Alcohol and substance abuse

High-risk behaviour of adolescents due to alcohol and substance abuse, and unprotected sexual activities, is a major concern in South Africa (Visser & Moleko, 2008:1-2). Visser and Moleko (2008:1-2) identified that substance abuse and alcohol use among school learners is between 34% and 55%.

2.3.4.2 Peer pressure

Peer pressure influences sexual risk behaviour among school learners. Visser and Moleko (2008:1-2) report that 46% of school learners reported having experienced being sexually active as part of the group norm.

2.3.4.3 HIV knowledge

HIV knowledge plays an important role in preventative education, and has a major influence on sexual risk behaviour. A study done on school going youth in South Africa reported that knowledge of HIV transmission and prevention is low among learners (Visser & Moleko, 2008:1-2). Furthermore, learners are at serious risk of contracting HIV if no intervention occurs (Visser & Moleko, 2008:1-2).

Bimbo and Florence (2008:81) emphasise that clear and effective information should be given to school learners to eradicate the myths that can contribute to risky sexual behaviour. A South African study found that the number of people who could correctly identify ways in which to prevent the sexual transmission of HIV has declined among 15–49-year-olds at national level, from 64.4% in 2005 to 44.8% in 2008 (HSRC, 2009:75).

2.3.4.4 Social and economic conditions

Poor economic conditions and the behaviours and attitudes of adults in the community are strong influences on young people's sexual behaviours (Stephenson, 2009:102). Young women from poor households are at particular risk of sexual risk-taking, with their economic status motivating them to partake in transactional sex, and it serving as another limitation on their negotiating power with respect to condom use (Stephenson, 2009:102). Therefore, a focus should be placed on community-level influences, as an intervention point for behavioural change (Stephenson, 2009:102-109).

2.3.4.5 Awareness of HIV status

A lack of HIV awareness, including young people thinking that “it’s not going to happen to me”, leads to participation in uninformed behaviour, which might lead to HIV infection (CDC, 2008). A comparative study of high-risk sexual behaviour among people who were aware of their HIV status, compared with those who were unaware of it, showed that such behaviour was substantially reduced after people became aware of their own HIV status (UNAIDS, 2009:25-26). It was recommended that HIV prevention programmes should focus on HIV counselling and testing (HCT) in order to improve HIV awareness.

2.3.4.6 Sexually transmitted Infections

The presence of an STI greatly increases a person’s likelihood of acquiring or of transmitting HIV (Stephenson, 2009:102-109).

2.3.5 Importance of HIV education

HIV/AIDS education remains the key focus to reducing HIV incidence amongst the youth. Educating the youth about HIV/AIDS can contribute to improved sexual behaviour and to reduced risk behaviour (UNAIDS, 2009:7).

Studies conducted in the Ukraine have shown that school-based HIV prevention interventions have resulted in significantly improved knowledge, attitudes, and self-efficacy among learners (Pavlo, Kohler & Nalini, 2006:900).

Behavioural interventions have been found to be effective for reducing sexual risk behaviour, by providing skills training and theory-based interventions that focus on behavioural theory

and safer sex skills (Noar, 2007:392-402). In addition, UNAIDS (2011:14) reports that the decline in new HIV infections across the world has been spurred by changes in behaviour among young people.

A study conducted in Mongolia, which was based on a 3-year-long HIV educational programme in secondary schools, provided evidence that students of schools offering the HIV educational programme were, in terms of statistics, significantly more knowledgeable, had less traditional attitudes, and had greater awareness of their self-efficacy with regard to HIV and sexual health (Rosario *et al.*, 2006:10-11). The researchers concluded that students from schools with the peer HIV education programme were more likely to practise safe sex than were those who did not have the programme at their school (Rosario *et al.*, 2006:10-11).

The need for more effective HIV and sexual education programmes was further highlighted in a study undertaken in the North West Province of South Africa (Peu, Napoles, Wenhold & Mostert-Wentzel, 2010:33). The study concluded that there is a need for more effective educational programmes in schools, and emphasised the need to train teachers in using more effective ways to teach learners about HIV prevention and to provide sex education (Peu *et al.*, 2010:33). Furthermore, a study conducted in rural Limpopo, South Africa, concluded that parents should become involved in HIV prevention programmes in schools (Davhana-Maselesele, Lalendle & Useh, 2007:15-22).

A study in Nigeria revealed that learners had high knowledge of HIV/AIDS, but still believed myths and had misconceptions about the cure for HIV/AIDS. The researchers recommended that policies and programmes that can transform the sexual life of youth, with an emphasis on risk reduction and consistent efforts to clear up myths and unreliable sources, should be implemented in schools. Furthermore, the preventive message should be clear (Bimbol & Florence, 2008:81).

Providing young people with basic HIV/AIDS education empowers them with knowledge, which enables them to protect themselves from infection, and skills to reduce risk behaviour. HIV/AIDS education, furthermore, helps to reduce stigma and discrimination, by giving clear information and eliminating myths (Avert HIV/AIDS, 2011:1).

The importance of HIV life skills education was witnessed in Kenya, which experienced a 6.3% decline in HIV prevalence during 2009 (Maticka-Tyndale, Wildish & Gichuru, 2007:172-186). The decline has been attributed to Kenya's education sector having taken on an active role in the country's response to the HIV/AIDS pandemic. The Kenya government has integrated HIV/AIDS education into all subjects at school, and has introduced a compulsory

HIV/AIDS lesson into the primary and secondary school curriculum, as well as ensuring continuous evaluation of the program (Maticka-Tyndale et al., 2007:172-186).

The school environment plays a pivotal role in providing HIV/AIDS education for young people. Not only do schools have the capacity to reach a large number of young people, but school learners are particularly receptive to learning new information. Therefore, schools are well-established points of contact, through which young people can receive HIV/AIDS education (Avert HIV/AIDS, 2011:1). A study conducted among secondary school learners in South Africa has shown that providing education about STIs and HIV/AIDS has resulted in an increase in the knowledge of school learners regarding such illnesses. Furthermore, increased knowledge has been shown to lead to a change in attitude regarding the use of condoms and to an increase in the practice of safe sex (James *et al.*, 2006:281). HIV health education activities should, therefore, be advocated both in schools and in the community (HSRC, 2009:25).

2.3.6 The effectiveness of HIV prevention programmes in schools

A study conducted in Malaysia provided evidence that school learners have moderate knowledge about STI, even though they are sexually active (Anwar *et al.*, 2010:1). Interventions, such as those addressing the link between STI and HIV/AIDS and the need to reinforce sexual education in schools, were recommended to improve the knowledge of the learners (Anwar *et al.*, 2010:1). Immediately after implementing HIV prevention sexual education programmes at the school, the sexual knowledge of students at the school improved, and they became more knowledgeable about HIV prevention. The study concluded that HIV preventative programmes in schools might be effective, if they are provided as part of the school curriculum (Anwar *et al.*, 2010:1).

A South African study suggests that peer education can contribute to the delayed onset of sexual activity, and can contribute to the prevention of HIV/AIDS amongst adolescents (Paul-Ebhohimhen, Poobalan & Van Teijlingen, 2008:1). Furthermore, Jemmott *et al.* (2010:164) provide evidence that a theory-based, contextually appropriate intervention can reduce sexual risk behaviours, particularly in the form of unprotected vaginal intercourse and multiple partners among young South African adolescents in the earliest stage of their sexual life. Such intervention serves as a basis to reinforce current HIV/AIDS life skills programmes in South African schools.

Teachers should play an important role in HIV education and in preventative programmes in schools (Visser, 2005:203-216), and the training of teachers is fundamental to the successful and effective delivering of HIV/AIDS education (Avert HIV/AIDS, 2011:1). A study conducted

in South Africa to investigate how teachers perceive and incorporate their role regarding HIV and sex education has found that many teachers are conflicted about the two issues, as they perceive such instruction as contradicting their values and beliefs. The overwhelming majority were in support of promoting abstinence, but felt personally challenged by having to teach safe sex practices (Ahmed, Flisher, Mathews, Mukoma & Jansen, 2009:48-54). However, a study done to investigate how confident and comfortable teachers at Tanzanian and South African urban and rural schools are in teaching HIV/AIDS and sexuality concluded that teachers were fairly confident to do so. Further strengthening of their confidence levels could, however, be an important measure in improving the implementation of the programmes concerned (Helleve, Flisher, Onya, Kaaya, Mukoma, Swai & Klepp, 2009:55-64).

2.3.7 Barriers to HIV prevention programmes in schools

Multiple barriers exist in terms of the provision and quality of sex education in South African schools (Visser, 2005:203-216). A lack of training of teachers, and unwillingness on the part of teachers and schools to provide sex education, has been reported (Avert HIV/AIDS, 2011:1). Furthermore, HIV/AIDS life skills programmes depend heavily on school-based resources and organisational structures (Campbell & MacPhail, 2002:336).

A study done to evaluate the implementation of HIV/AIDS life skills programmes in South Africa found that programmes were not implemented as planned in schools, due to organisational problems in the schools, the lack of commitment of the teachers and the principal, the existence of non-trusting relationships between teachers and learners, the lack of resources, and the presence of conflicting goals within the educational system (Visser, 2005:203-216).

The high dropout rate in schools could also have an impact on effective HIV and sex education. It is, therefore, all the more necessary to direct prevention programmes towards younger children than in the past, while more of them are in the education system, and before they become sexually active (DOH, 2010:41).

2.4 Conceptual framework

A conceptual framework, which is the scientific theory on which the current study is based, is seen as the description of the phenomena of interest in terms of the abstract relationship between concepts or constructs (Burns & Grove, 2007:534). The conceptual framework for this study was based on two theories: the need theory of Virginia Henderson (George, 2002:89), and Bandura's social cognitive theory (Bandura, 1986:1-75). These theories were adopted to guide the study, because Grade 12 school learners, as the target participants of

this study, are faced with many challenges, and need the ability to function independently when making sexual choices.

2.4.1 The four major concepts of Henderson's need theory

Henderson's theory relates the health of a person to the individual's ability to function independently (George, 2002:89). The theory consists of four major concepts: the individual; the environment; health; and the nurse. The emphasis is on basic human needs as the central focus of nursing practice, and on how nursing can assist in meeting the needs (George, 2002:86-106).

2.4.1.1 Individual

Individual risk factors influence a person's ability to function independently. A person's ability to make independent, individual decisions is influenced by many factors, including age, sex, the socio-economic situation, community influences and level of education (George, 2002:86-106). The PI identified, through the literature reviewed, that the HIV knowledge of the individual might influence sexual behaviour. The nurse's role is to help the individual reach independence by providing health education to help him/her build up personal knowledge to make individual choices that will not influence his/her health negatively. The literature findings identified risky sexual behaviour among school learners that might increase their risk of HIV infection. The nurse has the ability to provide health education, based on the risks identified, and to empower the individual to make individually healthy sexual decisions, which might lead to the making of personal, independent healthy sexual choices (George, 2002:86-106).

2.4.1.2 The environment

The environment is the settings in which an individual learns unique patterns for living. External conditions like poverty, stigma, community perceptions, family, role modelling and peer influences have an effect on the life and development of an individual (George, 2002:86-106).

The school environment can be used to reinforce health education, focusing on sexual education and HIV, as school learners spend most of their time in school and are greatly influenced by the knowledge that they learn there (Anwar *et al.*, 2010:1). An environment in which students receive HIV/AIDS and sexual education increases their knowledge and leads to a change in attitude to use condoms and to an increase in the practice of safe sex (James *et al.*, 2006:281). Furthermore, peer education has been found to reduce the onset of early sexual activity (Paul-Ebhohimhen *et al.*, 2008:1).

2.4.1.3 Health

The definition of health is based on an individual's ability to function independently (George, 2002:86). This relates to the need to target the youth, so that they can reach their full potential not only physically, but also mentally and spiritually. The individual needs to be empowered to take responsibility for their own health, including for making their own sexual health decisions. Health education might be one of the tools that can be used to empower individuals to take responsibility for their own health, and to make healthy, independent sexual health choices. The making of such choices might lead to decreased HIV infection, and promoting HIV and sexual health education is the most powerful HIV prevention strategy available (George, 2002:86-106).

2.4.1.4 Nursing

Nurses serve to make patients 'complete', 'whole', or 'independent' (George, 2002:86-106). The PI identified the high number of HIV infections amongst the youth and the need to reinforce HIV life skills in schools. The lack of HIV knowledge amongst school learners about risky sexual behaviour is very alarming. Recommendations towards improved HIV preventative interventions, based on the study findings, will be made available with the intention of improving knowledge among school learners.

2.4.2 Bandura's social cognitive theory

While Henderson's need theory suggests a unidirectional model of human behaviour that is influenced by either personal or environmental factors, and the ability to function independently, social cognitive theory favours a model of reciprocal causation (as cited in George 2002:86-106) and Bandura (1989:1-75). Social cognitive theory provides a model to explain the basic causes and mechanisms of human behaviour and motivation (Bandura, 1989:4). Behaviour, cognition and other personal factors, and environmental influences all operate as interacting determinants that influence one another bi-directionally (Bandura, 1989:3). According to Bandura (1989:4), environmental factors represent situational influences and the environment in which behaviour is performed, while personal factors include instincts, drives, traits, and other individual motivational forces. Because of the bi-directionality of influence among behaviour, personal factors and environmental circumstances, people are both products and producers of their environment (Bandura, 1989:4). The social cognitive theory, therefore, illustrates the complexity of human behaviour.

Corresponding with the nursing theory of Henderson (George, 2002:93-95), the study aimed to investigate the level of HIV knowledge and sexual risk behaviour of Grade 12 school learners, in order to identify their problems and needs, and to make recommendations for

changes regarding sexual health education and HIV/AIDS knowledge. George (2002:89) noted Henderson's view on the responsibility of nurses for identifying problems, in which they continuously validated their function, by improving the applied methods in order to measure the effect of nursing care.

However, in the light of Bandura's social cognitive theory, the PI acknowledges that many other factors might influence the behaviour and, consequently, the health of school learners. The multifaceted and bidirectional determinants of human behaviour and health, consisting of environmental and personal factors, as described by both Henderson (as cited in George 2002:86-106) and Bandura (1989:1-75), are illustrated in Figure 2.1 below.

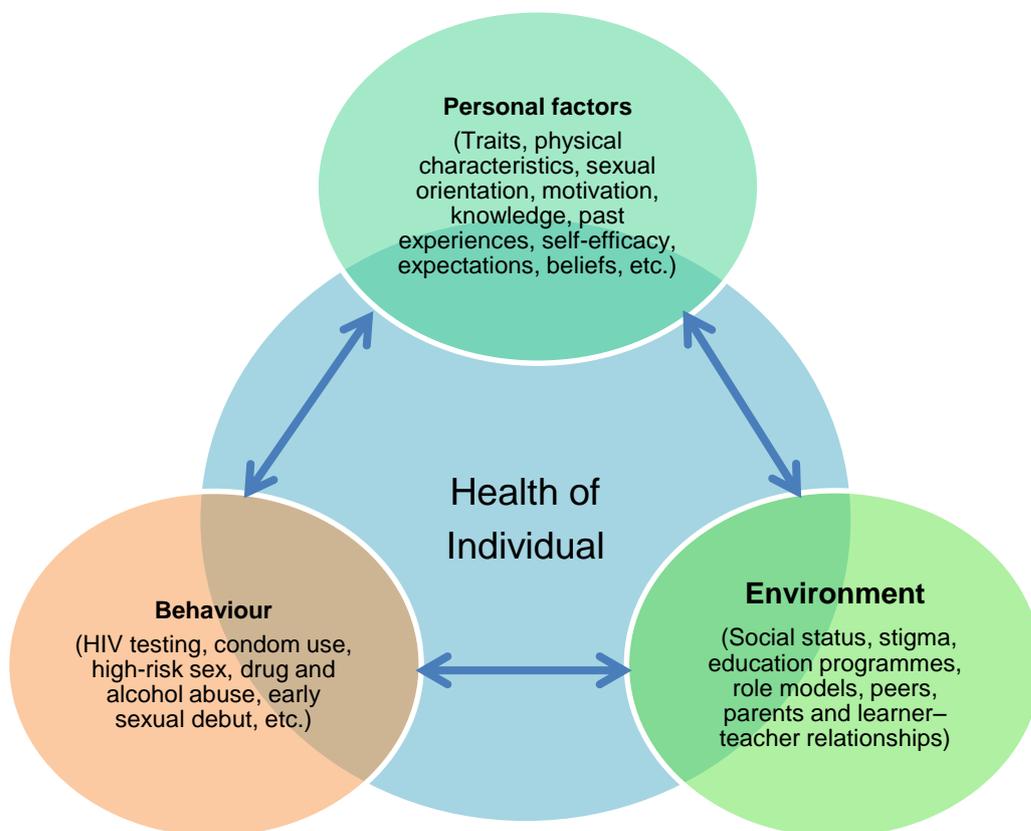


Figure 2.1: The conceptual framework of the current study

2.5 Summary

Chapter 2 presents the findings from the literature review, providing an overview of the history of HIV life skills programmes in schools, HIV knowledge, sexual risk behaviour and risk factors in adolescents that might lead to HIV infection. Furthermore, the literature provided an overview of the influence of HIV knowledge on the sexual behaviour of school

learners, of the effectiveness of HIV life skills programmes in schools, and of the importance of reinforcing the programmes. In addition, the literature review emphasised the importance of effective HIV education and highlighted the barriers to HIV education. The conceptual framework, as applied in the study, was explained, based on the theories of Virginia Henderson, who relates the health of a person to the ability to function independently, and of Albert Bandura, who illustrates the complex nature of human behaviour and the impact of environmental factors.

Chapter 3 discusses the research methodology that was applied to investigate the level of HIV knowledge and sexual risk behaviour of Grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology refers to the research plan and structure of the study planned by the researcher (Babbie, Mouton, Vorster & Prozesky, 2006:647). Chapter 3 provides a detailed description of the research methodology applied in the study. Included is a discussion of the research design, the research problem, the study population, the sampling, the data collection methods, and the data analysis of the study.

3.2 Research aim

The aim of the current study was to investigate the reported level of HIV knowledge and sexual risk behaviour of Grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town.

3.3 Research objectives

Specific objectives were formulated to address the research question concerned. According to Burns and Grove (2007:553), research objectives are formulated to direct the PI in identifying variables and the relationship between them.

The specific objectives of the study were to:

- determine the level of HIV/AIDS knowledge among Grade 12 school learners;
- identify risky sexual behaviour for HIV infection among the school learners;
- determine whether knowledge of HIV/AIDS influences the sexual behaviour of Grade 12 school learners; and
- identify recommendations from the perspectives of the study participants towards improved strategies for the implementation of HIV/AIDS preventative programmes in schools.

3.4 Research approach and design

A research design is a blueprint for the conduct of a study that includes the process that the PI follows in operationalising the study, and which ensures that the research is conducted in an organised and logical manner (Burns & Grove, 2007:38). Furthermore, according to Babbie et al. (2006:74), a research design is a plan or structured framework of how one intends to conduct the research in order to address the research problem.

The study employed a descriptive, non-experimental research design, using a predominantly quantitative approach to determine the HIV knowledge and sexual risk behaviour among Grade 12 learners. Descriptive research is used to examine real-life situations, in order to determine and describe the factors influencing those situations (Burns & Grove, 2007:24). According to Brink (2006:104), a descriptive research design searches for accurate information about the characteristics of a single sample, such as subjects, groups, institutions, situations, or the frequency of a phenomenon's occurrence.

The intention of the current study was to describe the HIV knowledge of, and the sexual risk behaviour among, Grade 12 learners as it occurs naturally. In keeping with the descriptive design, variables were not manipulated. However, one of the objectives of the study was to determine whether the HIV/AIDS knowledge of Grade 12 learners influences their sexual behaviour. Therefore, some effort was made to determine the relationship between the variables concerned, although doing so was not the primary objective of the study.

The selection of the descriptive design was based on the following assumptions, as described by Brink, Van der Walt and Van Rensburg (2012:113): (a) the variables (HIV knowledge and sexual behaviour) exist in the study population, and are amenable to description; (b) the existing literature is insufficient in describing the HIV knowledge and sexual behaviour of Grade 12 learners; and (c) the design supports the conceptual framework, as discussed in section 2.4, by means of considering the complexity of human behaviour and the bidirectional influences of environmental and personal cognitive factors.

3.5 Population and sampling

A study population can be described as the entire set of individuals or objects having some of the same characteristics (Polit & Beck, 2008:761).

3.5.1 Study population

The study population comprised Grade 12 learners (N=7940) from high schools in the Eastern Sub-District of the Cape Metropole in Cape Town. The selected Sub-District was easily accessible to the researcher since the researcher worked as a clinical nurse practitioner in a primary health care facility in the Sub District. The learners were in their final year of high school education, and could give their consent without having to ask for their guardian's permission. They were also exposed to the HIV/AIDS life skills programme at their respective schools for at least four years, and it was assumed that they would be very familiar with the topic under investigation.

3.5.2 Specific sampling criteria

The study sampled all grade 12 learners who:

- attended high schools in the Eastern Sub-District of the Cape Metropole that offered HIV/AIDS and sexual education as part of the school curriculum; and
- had received HIV/AIDS sexual education since Grade 8 at their current high school as part of the life skills programme offered.

3.5.3 Study sample

A study sample is a subset of participants who are selected from the study population for purposes of the research (Burns & Grove, 2007:495). The study used a random cluster sampling technique for selecting the schools. Using random sampling, each Grade 12 school learner theoretically stood an equal chance of being selected for the sample population (De Vos *et al.*, 2007:200).

According to the database of the South African Department of Education, 7 940 learners were registered for Grade 12 at 49 schools in the Eastern Sub-District (Siziba, 2011:1). The Department of Education, at the time of the study, had two types of high schools registered on their database: private (N=12) and public (N=37). The study made use of a cluster sampling method and a total of four schools (two per public and two per private high school cluster) were selected randomly from the available list of registered schools that provided life skills-based HIV/AIDS and sexual education, according to the requirements of the Department of Education. Each school had a number assigned to their name, which was written on a piece of paper and drawn from two small boxes, with one box including the slips of paper, each bearing the name of one of the 12 private schools and the other including the slips of paper, each bearing the name of one of the 37 public schools. Two slips of paper were drawn from each box, providing an equal chance of any of the schools concerned being included in the study.

The required sample size of 100 learners was determined with the support of a statistician, Professor Martin Kidd, at Stellenbosch University as has been previously mentioned. In addition, the required sample size was further confirmed by consulting the writings of Cohen (1992:158) on the subject. The study made use of a random cluster sampling method. Accordingly, a total of 120 learners, 30 learners per school, from two public and two private schools, were approached to participate in the study. Following information sessions, 106 participants gave written consent to participate in the study and questionnaires were distributed. Ninety-two questionnaires were completed correctly and 14 questionnaires were

incomplete. From 92 completed questionnaires, 32 were from private schools and 60 from public schools as explained in 1.8.2.2.

Sampling was conducted through information sessions that were held by the PI and the fieldworker. The fieldworker Ms Lord, who supervised the research process at one school, reported directly to the PI, who supervised the whole process, as explained in Table 3.1. Information leaflets (Appendix D) were made available to the learners on the day of data collection.

The study sample was randomly selected, as is described in Table 3.1 below.

Table 3.1: Sampling methods used in the study

1	The PI arranged appointments with each school principal before sampling. Schools were contacted to arrange convenient times for information sessions, sampling, and data collection undertaken by the PI. The trained fieldworker, Ms Lord, collected the data from one school.
2	Research days were selected that were suitable for school management, as well as for the PI, with the PI having no prior knowledge of specific class times, schedules or student attendance. The students used for data collection were those who were available on the specific day in question.
3	The actual class time availability for research purposes was determined before the arrival of the PI, at which time the principal selected those students who would participate in the study.
4	Access to classes and students was determined by the school principal, in the absence of influence from the PI.
5	The inclusion of any particular participant was determined before the arrival of the PI, as was discussed in subsection 3.5.2.
6	From the four schools selected, 120 learners were approach to participate in the study. Following information sessions, 106 questionnaires were distributed, with 92 questionnaires ultimately having been completed correctly. From 92 completed questionnaires 32 were from private schools and 60 from public schools Fourteen questionnaires were incomplete. Accordingly, the response rate was 86.7%. According to the statistician, Professor Kidd, the response rate was sufficient for the purpose of the study. In addition, the sufficiency of the response rate was further confirmed by consulting the writings of Cohen (1992:158) on the subject.

3.6 Data collection tool

The data collection methods that are frequently used in descriptive studies are structured observation, questionnaires and interviews, or surveys (Brink *et al.*, 2012:113). Due to the sensitive nature of the topic under investigation, the PI wanted to use a data collection method that would help to ensure the anonymity and confidentiality of the participants involved. Accordingly, the PI developed a self-completion questionnaire (Appendix A), based on the findings from the literature and on recommendations from Stellenbosch University experts in the field of HIV/AIDS and nursing research, including Ms T Crowley, Dr F Marais and Dr S Mathee. The statistician, Prof Kidd, was consulted to assist with the design of the questionnaire, in order to improve the quality of the statistical analysis.

According to De Vos *et al.* (2007:166), the basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed with regards to the particular issue. The research objectives of the study were used to guide the development of the questionnaire. The questionnaire consisted of three main sections: (a) demographic data; (b) multiple choice and closed questions about HIV/AIDS knowledge and sexual behaviour; and (c) open-ended questions to allow the learners to express themselves freely about their HIV/AIDS knowledge and sexual behaviour, and to allow for the proposing of recommendations towards improved HIV/AIDS preventative programmes in schools.

The questionnaire investigated the following key domains:

3.6.1 The demographic data of the participants

Information was gathered about the age, gender, race, living conditions, and religious affiliation of the participants concerned.

3.6.2 Multiple choice and closed questions about HIV/AIDS knowledge and sexual behaviour

The multiple choice and closed questions about HIV/AIDS knowledge and sexual behaviour were intended to investigate the following:

- **HIV and sexual knowledge of the participants**

Several questions explored the HIV/AIDS knowledge of the participants, who were also asked to indicate whether they thought that they had enough knowledge about HIV/AIDS.

- **Sexual risk behaviour of participants**

This domain explored the self-reported sexual risk behaviour of participants, including their condom use, the type(s) of sexual intercourse in which they engaged, their high-risk sexual activity, and their alcohol and substance abuse patterns.

- **HIV and sexual education of participants**

The questions in this domain explored how often participants received HIV/AIDS and sexual education and if they perceived it to be sufficient. Some of the questions also related to HIV/AIDS and sexual education at home.

3.6.3 Open-ended questions

The last section of the questionnaire consisted of open-ended questions, giving the participants the opportunity to offer any further information, suggestions, and recommendations for the improvement of HIV/AIDS preventative programmes in schools.

The questionnaire was provided in English only, since that was the main medium of instruction at all schools within the Eastern Sub-District of the Cape Metropole in Cape Town.

3.7 Pilot test

A pilot test is a small-scale version of the major study, and is conducted to test the instrument and to assess the feasibility of the study (Brink *et al.*, 2012:57). Mouton (2008:103) further states that a pilot test is helpful to eliminate problems regarding the interpretation of language, any double-barrelled or leading questions, and the fictitious construction of questions.

A pilot test was completed to determine the appropriateness and feasibility of the study and, if indicated, to refine the methodology and the data collection tool used. One school was conveniently selected by the PI for the pilot test, using 9 learners, representing 9% of the propose study sample (N=100). Participants in, and the data obtained from, the pilot test were excluded from the main study. Based on the findings from the pilot test, no adjustments were required to the methodology or to the questionnaire.

3.8 Validity and reliability

Validity refers to the extent to which an empirical measure accurately reflects the concept that it is intended to measure (De Vos *et al.*, 2007:160). The validity of an instrument determines the extent to which it actually reflects the abstract construct being examined (Burns & Grove, 2009:381) and the face validity verifies that the instrument appears to be valid and gives the appearance of measuring what it is supposed to measure (Burns &

Grove, 2009:381). A pilot test was conducted in order to test for face validity. The self-completion questionnaire was presented to the participants in the study as a professionally typed document, which was simple to complete, and it was made sure that the participants could easily understand what information was required of them. Participants of the pilot test understood the questionnaire and consequently no adjustments were made.

Validity also refers to the measurement process measuring the variables that it claims to measure (De Vos *et al.*, 2007:160). Content validity examines the extent to which the measurement tool includes all the major elements relevant to the construct being measured (Burns & Grove, 2009:381). The questionnaire was designed after an extensive literature review was conducted on the various aspects of the subject, and in keeping with the conceptual framework of the current study. The content validity was validated by the following experts in the field of research methodology and HIV/AIDS: Ms T Crowley, Dr F Marais and Dr S Mathee. The questionnaire was also reviewed by a statistician, Prof. Kidd, to ensure the suitability of the questionnaire for data analysis. The questionnaire and data proved to be reliable and valid by means of the successfully completed pilot test.

Reliability addresses such characteristics as dependability, consistency, accuracy, and comparability (Burns & Grove, 2007:365). Reliability is seen as the consistency with which an instrument measures the same variable with each application thereof (De Vos *et al.*, 2007:163). Determining the reliability of the new data collection tool was challenging, especially due to the sensitive nature of the topic under investigation. The PI, therefore, conducted a pilot study and followed strict data collection procedures.

In order to reduce bias in the study, all the students were approached in the same way, participation in the study was voluntary, and the students were made aware of their ethical right to withdraw at any time from the study. The research process was explained to them, and the questions raised were answered by the PI and the fieldworker. The participants were not allowed to talk to one another while completing the questionnaire, in order to prevent them from influencing one another. The entire research process was documented systematically.

3.9 Data collection

Data collection is the precise, systematic gathering of information in a study (Burns & Groves, 2007:41). The selected schools were contacted by the PI to establish convenient dates and times for data collection. Data collection took place over a one-month period from 1 August to 31 September 2010. The PI undertook data collection between one to two hours per day per school, depending on the students' study and examination times. Information

sessions were held at each school prior to the data collection to inform the school management and Grade 12 learners of the study aim, objectives and data collection method. The PI and the field worker explained the study aim and the structure of the questionnaire to the participants.

The PI obtained written informed consent (Appendix D) from each participant prior to the data collection. All the participants matched the inclusion criteria of the study. Students that did not want to participate were excused from the classroom. According to Burns and Grove (2007:41), in order to obtain data, the researcher must first obtain permission from the setting or agency where the study is to be conducted. Following their written completion of the consent form (Appendix A); the participants were issued with the study questionnaire independently of the consent form. The PI answered the participants' questions regarding the study. The questionnaires (Appendix A) were completed during the life skills period. School teachers were present but were not involved in the distribution or collection of questionnaires and therefore could not read any of the participants' responses. The participants were asked to complete the questionnaire independently, while seated at their desks. Privacy and confidentiality were ensured by the completion of the questionnaires in a classroom setting. The participants were given as much time as they needed in which to complete the questionnaire. Most participants completed their questionnaire within 30 minutes. The questionnaires were returned to the PI or to the trained fieldworker after completion. The fieldworker followed a rigid research process as trained and sealed questionnaires in an envelope after data collection as discussed in sub section 1.8.5 and participants were informed about this process before data collection and assured of confidentiality. Said sealed envelopes were picked up by PI on the same day as the data collection took place. No language barrier to participation in the study was identified in any of the schools. The signed consent forms were kept separately from the completed questionnaires, and stored in a locked cabinet at the PI's place of work. The PI is the only person who has access to the raw data. The PI was present at three of the four schools surveyed to supervise the data collection process, in order to ensure the reliability of the data collection. The fieldworker was present to supervise the research process at one school, and reported directly to the PI, who supervised the entire process. Data collection was done during an assessment period of the Grade 12 examinations, as the PI was only given one month by the Department of Education in which to complete the required data collection (Appendix C). The PI used the fieldworker to ensure that the data collection took place within the specific time frame assigned by the Department of Education. Data quality was maintained by the PI through the on-going training of the fieldworker as explained previously.

3.10 Data management and analysis

Data analysis is conducted to reduce, to organise, and to give meaning to data (Burns & Groves, 2007:41). The data were captured electronically in Excel (Version 2007) and verified by the PI. Following data cleaning, a random sample of 20% of the captured data was cross-checked for accuracy against the completed questionnaires by the PI and no discrepancies were found.

The statistical analyses were conducted using STATISTICA (Version 8.1) software, with the assistance of the statistician, Professor Kidd.

The study was primarily descriptive in nature. Accordingly, the focus of the analysis was more on descriptive statistics, which included frequency tables, means, standard deviation, proportions, and measures of relationships. Nominal variables were compared (cross-tabulated) to other such variables by means of the use of contingency tables. The maximum likelihood Chi-square, ANOVA and Levene's test for homogeneity of variances, including the Mann-Whitney U test, were used as a measure of the strength of the relationship between variables. A significance level of 5% ($p < 0.05$) was used for hypotheses testing.

A thematic approach with content analysis was used to analyse the qualitative data yielded in response to the open-ended questions. The PI searched for emerging themes and trends within all the responses, in order to identify the issues raised by the participants (Burns & Grove, 2007:540). Subsequently, the qualitative data, within the identified themes, were quantified, based on the approach developed by Culp and Pilat (1998:3). The data obtained in this way could then be entered as quantitative data (with the number of suggestions in each category having been counted), and subjected to descriptive analysis. The data analysis results and findings will be further discussed in Chapter 4.

3.10.1 Definitions of tests used in the study

The tests used in the study are defined below:

- **Analysis of variance (ANOVA):** An ANOVA is a statistical test that is used to examine the differences among two or more groups, by comparing the variability between groups with the variability within each group (Burns *et al.*, 2007:530).
- **Chi-square test of independence:** Said test is used to analyse nominal data, in order to determine the significant differences between observed frequencies within the data and frequencies that were expected at the outset of the study (Burns *et al.*, 2007:532).

- **Levene's Test for homogeneity of variances:** Said test is used to test whether k samples have equal variances. Equal variances across samples are called homogeneity of variance (*Engineering Statistics E-Handbook*, 2006).
- **Mann-Whitney U test:** The Mann-Whitney U test is used to analyse ordinal data (with 95% of the power of the *t*-test) to detect differences between groups of normally distributed population (Burns *et al.*, 2007:545).

3.11 Ethical considerations

The PI acknowledges the sensitivity of the topic surveyed, and followed strict ethical procedure before, during, and after the study. Ethical approval (reference number N11/07/225) was obtained for the study from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University (Appendix B). Additional permission was obtained from the Western Cape Department of Education (Appendix C), and arrangements were made with the principals of the selected schools.

Written informed consent was obtained from all participants during an information session on the day of data collection. Currently the South African law that was implemented in March 2012 mandates active consent from parents or legal guardians for all research conducted with research participants under the age of 18 years. However, this study was conducted in 2011 prior to the active implementation of this legislation (NDOH,2003:55). No student was allowed to participate in the study if they did not complete the voluntary consent form (Appendix D). The consent forms were completed and collected separately from the questionnaires. Furthermore, the completed consent forms and completed questionnaires were stored separately at the PI's workplace. The participants were informed that they could decline to give their consent to participate in the study, and that they could withdraw from the study at any time. Consent and data collection were obtained under strict examination conditions. Participants were informed that their confidentiality and anonymity would be honoured at all times both during and after the study.

The confidentiality of the students was ensured by making certain that each student completed their questionnaire privately, under strict examination conditions. The questionnaires were anonymous, with no identifying details regarding personal or study site being recorded on them. Codes were used for the different schools and learners. Participation in the study was voluntary, and the participants were informed that they were free to withdraw from the study during any phase thereof without being penalised.

Referral arrangements were made with the head social worker from the Department of Education Eastern Sub-District, should any student participant have displayed distress or recalled disturbing events during the data collection process, and needed psychological counselling. However, no participants needed to be referred for psychological counselling in connection with the study.

In addition, the PI adopted the following eight benchmarks for conducting ethical research in the developing world, as described by Emmanuel, Wendler, Killen and Grady (2004:188-189):

- Collaborative partnerships: The PI worked closely with the Metro East Sub-District Department of Education and with each school principal concerned, as well as with the life skills teachers at each school, in completing the study.
- Social value: The PI believed that the study would generate valuable data to identify contextually appropriate recommendations towards the provision of improved sexual health education for school learners.
- Scientific merit: The research study addresses a gap in the current body of scientific knowledge about HIV knowledge and sexual risk behaviour amongst school learners. The data obtained for the study were conducted in a scientifically sound manner, as explained in Chapter 3, so as to produce reliable and interpretable data. The research study was done under the supervision of experts in the field of research, with the assistance of a statistician.
- Fair selection of subjects: Schools were selected randomly from a list of schools obtained from the Department of Education, using a cluster sample of two schools from each group (private and public). Each school had an equal chance of participating in the study. The participants in the study were selected, based on the scientific objectives of the study. The students participated in the study voluntarily, being neither forced nor manipulated by the PI or by the school authorities to participate in the study.
- Favourable risk benefit assessment: The study posed limited risks to the participants, and the benefits of the study exceeded the potential risk. The PI was fully aware of the sensitivity of the topic, and arranged for psychological counselling, should any participant need any counselling, during or after data collection.
- Informed consent: Written informed consent was obtained from all participants in the study. The students were informed about the study aim, by means of information sessions that were conducted on the day of the data collection. The students were only

allowed to participate in the study if their consent had been obtained beforehand. Information leaflets (Appendix A) were distributed to all the participants, and information sessions were held at each school before the data collection took place.

- Independent ethical review: Ethical approval for the study was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University (Appendix B).
- Respect for participants: The participants were informed that their confidentiality and anonymity would be honoured at all times, both during and after the study. Each student completed their questionnaire in privacy, and each questionnaire was coded to ensure the confidentiality and anonymity of the participant concerned. Furthermore, no school names or school learners' names have been, or will be, made available. The completed questionnaires were kept by the PI in a locked cupboard. The results of study were to be made available in the form of a research report.

3.12 Summary

In this chapter, a detailed description of the research methodology applied in the study was described, depicting the various steps taken in the research process. A descriptive, non-experimental research design with a predominantly quantitative approach was applied to investigate the level of HIV knowledge and sexual risk behaviour of Grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town. A study sample of 92 participants (N=92), sampled by means of random cluster sampling, was used. A pilot test was conducted with students (9 %; n=9) prior to the data collection, in order to ensure the validity and reliability of the questionnaire used for the data collection. The data from the pilot test were not included in the main study. After the written informed consent of the participants had been obtained, the study participants completed a questionnaire in privacy. Written permission to conduct the study was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University, as well as from the Provincial Department of Education.

The data from the completed questionnaires were captured electronically by means of Microsoft Excel, and validated for accuracy by the PI. The quantitative data were analysed with the use of the statistical programme, Statistica Version 8.1, and with the assistance of a statistician. The qualitative data yielded in response to the open-ended question were, first, analysed thematically, and then quantified. The chapter included a discussion of the key

ethical issues taken into consideration prior to, during and following the study. The results of the current study will be discussed in Chapter 4.

CHAPTER 4

DATA ANALYSIS, INTERPRETATION, AND DISCUSSION

4.1 Introduction

Chapter 4 presents interprets and discusses the results of the data analysis. The study was primarily quantitative and descriptive in nature. The analysis focuses on descriptive statistics, which included frequency tables, proportions, and measures of relationships. Nominal variables were compared (cross-tabulated) to other such variables by means of contingency tables. The maximum likelihood Chi-square test was used as a measure of the strength of the relationship between variables. A significance level of 5% ($p \leq 0.05$) was used to determine statistically significant relationships. Furthermore only statistically significant associations will be reported.

Qualitative data yielded from the open-ended questions were analysed using a thematic approach (Burns & Grove, 2007:540). The qualitative data was coded and placed into categories and themes were identified from the code categories. Codes categories within each theme were then quantified based on the approach developed by Culp and Pilat (1998:3).

4.2 Presentation and discussion of the study findings

The results of the study are presented and discussed sequentially under the following sections: demographic data, HIV/AIDS and sexual knowledge, HIV/AIDS and sexual education, risky sexual behaviour, the relationship between HIV/AIDS and sexual knowledge and risky sexual behaviour, and emerging themes. The category “invalid response” or “missing” as indicated in the tables, tabulates the number of participants who either did not provide a valid answer or did not answer the specific question. All percentages were rounded off to the first decimal.

4.2.1 Demographic data

The responses to questions related to the demographic characteristics of the study sample are reported below.

4.2.1.1 Age of participants

The response rate to this question was 100% ($n=92$). The age of participants varied from 16 to 20 years. The majority of the participants (81.5%; $n=75$) were between the ages 17 and 18 as shown in Table 4.1. Although all the participants were in grade 12, 17.4% ($n=16$) were

older than the expected age (18 years) for grade 12 learners. The mean age for public schools was 18 and the mean age for private schools was 17.

Table 4.1: Age of participants

Age	Total (n) N = 92	%
18	60	65.2
17	15	16.3
19	13	14.1
20	3	3.3
16	1	1.1

4.2.1.2 Sex of participants

The sex distribution of the study is comparable, consisting of 53.3% (n=49) female and 46.7% (n=43) male (see Table 4.2). The distribution reflects that of the student population as confirmed by the database of the Eastern Sub-District Department of Education (Siziba, 2011:1). Vulnerability to HIV infection is also considerably higher among females in spite of prevention programs addressing both sexes (HSRC, 2009:3).

Table 4.2: Sex of participants

Sex	Total (n) N=92	%
Female	49	53.3
Male	43	46.7

4.2.1.3 Ethnicity of participants

The ethnic distribution of the sample was not comparable, with 84.8% (n=78) of the participants being Coloured as shown in Table 4.3. The probable explanation for the observed ethnic distribution can be due to the composition of the Cape Town Metropole consisting of 51% Coloured people (Provincial Government of the Western Cape, 2007: a).

Table 4.3: Ethnicity of the participants

Ethnic group	Total (n) N=92	%
Coloured	78	84.8
White	12	13.0
Black	2	2.2

4.2.1.4 Living arrangements of participants

Most of the participants (55.4%; n=51) reported that they lived with both parents, as indicated in Table 4.4. A further 28.3% (n=26) reported that they lived with a single parent and 9.8% (n=9) with grandparents. A small percentage lived with others that could mean they lived by themselves or with non-family members (4.3%; n=4) or with siblings (2.2%; n=2). Living arrangements and the presence of caregivers in the household could have an impact on HIV knowledge and infection as one study reported that open sexuality communication between caregiver and child has protective benefits for adolescent sexual and reproductive health, including HIV infection (Bastien, Kajula & Muhwezi, 2011:1).

Table 4.4: Living arrangements

Living with	Total (n) N=92	%
Both Parents	51	55.4
Single Parents	26	28.3
Grand Parents	9	9.8
Other	4	4.3
Siblings	2	2.2
Relatives	0	0

4.2.1.5 Religion of participants

The majority of the participants (93.5%; n=86) indicated that they were Christian (see Table 4.5).

Table 4.5: Religion

Religion	Total (n) N=92	%
Christian	86	93.5
Other	5	5.4
Muslim	1	1
Hindu	0	0

4.2.2 HIV/AIDS and sexual knowledge

The questionnaire contained multiple choice questions related to HIV/AIDS and sexual health knowledge. Certain questions allowed the participants to choose as many answers as perceived applicable.

4.2.2.1 The meaning of HIV

The majority of the participants (77.2%; n=71) knew the meaning of HIV as shown in Table 4.6. This finding may suggest that participants were familiar with the term HIV. However, 7.6% (n=7) indicated that the abbreviation "HIV" stands for AIDS. Furthermore, 5.4% (n=5) selected more than one answer or did not answer the question and their responses were therefore invalid. Only 4.3% (n=4) responded that HIV stands for an immune infection disease. HIV is a well-known term and all participants should have been familiar with the term. A survey done in 2009 indicates that 90% of South Africans aged 16-65 have been reached through HIV prevention mass media campaigns (DOH, 2012:19). However, these findings indicate that there are still misinterpretations of the meaning of HIV.

Table 4.6: The meaning of HIV

Meanings	Total (n) N = 92	%
Human immune deficiency virus	71	77.2
AIDS	7	7.6
Invalid responses	5	5.4
Immune infection disease	4	4.3
All of the above	2	2.2
I don't know	2	2.2

4.2.2.2 HIV transmission

The question on HIV transmission was answered by all the participants. They could select as many answers as they agreed with. The responses to this question are enumerated in Table 4.7.

The knowledge of the participants with regard to the ways in which HIV can be transmitted was generally poor. The majority (89.1%; n=82) reported that blood is how HIV is transmitted, 66.3% (n=61) reported that vaginal intercourse is how HIV is transmitted, and 64.1% (n=59) indicated that sharing needles is how HIV is transmitted. Furthermore, 53.3% (n=49) reported that HIV can be transmitted from an HIV positive mother to her child and 40.2% (n=37) that anal intercourse is a way of HIV transmission. In addition, 2.2% (n=2) reported that HIV can be transmitted by sharing toilets, kissing, drinking from the same cup, and 1.1% (n=1) reported that they do not know the ways in which HIV can be transmitted.

The responses to this question suggest that there is a need to reinforce HIV/AIDS and sexual education among school learners in the study setting. An HIV prevention study among senior secondary school learners reported that although 72% of learners were aware that HIV/AIDS is a preventable disease, they had little knowledge on how the transmission of HIV/AIDS can be prevented (Lal, Nath, Badham & Ingle, 2008:190). Furthermore, an understanding of how HIV spreads is the first step to avoiding infection (United Nations, 2011:38).

Table 4.7: HIV transmission

Routes of transmission	Total (n) N=92	%
Blood	82	89.1
Vaginal intercourse	61	66.3
Sharing needles.	59	64.1
From an HIV positive mother to her child	49	53.3
Anal intercourse	37	40.2
Oral intercourse	31	33.7
By sharing toilets, kissing, drinking from the same cup	2	2.2
I don't know	1	1.1
Through touching people who are HIV positive	0	0

4.2.2.3 HIV prevention

The majority of participants had adequate knowledge on how to minimize the risk of contracting HIV through sexual intercourse. As shown in Table 4.8, all of the participants (100%; n=92) reported that condom use minimises their chances of contracting HIV, while 97.9% (n=90) reported that having one sexual partner at a time minimises the chance of HIV infection. However, 7.6% (n=7) incorrectly responded that the use of oral contraceptives minimize their chances of becoming HIV infected.

A fifth (20.7%; n=19) of the participants responded to the open ended question in which they were asked to explain their response. These participants emphasised that one sexual partner and using condoms minimises the chance of contracting HIV through sexual intercourse. Multiple sexual partnerships increase the risk of HIV transmission (HSRC, 2009:41). According to the 2011 Millennium Development Goals Report, knowledge of the methods that can be used to avoid HIV transmission has improved and is generally widespread among young people. Data from population-based surveys in sub-Saharan African countries indicate that the proportion of young people who know that using condoms can prevent HIV transmission ranges from about 50 per cent to almost 90 per cent (United Nations, 2011:39).

Table 4.8: HIV prevention

Minimizing the risk for contracting HIV through sexual intercourse	Total (n) N = 92	%
Using a condom every time when having sexual intercourse	92	100
Having only one sexual partner at a time	90	97.9
Using oral or injectable contraceptives	7	7.6
Having sex with a good and neat looking person	0	0
I do not know	0	0

4.2.2.4 Substances for safe condom use

Condoms can be safely used with a water based lubricant during sexual intercourse. Oil-based lubricants (petroleum jelly, shortening, mineral oil, massage oils, body lotions, and cooking oil) should not be used because they can weaken latex, causing breakage (CDC, 2011:np; WHO/UNFPA, 2010:35).

School learners showed poor knowledge of the substances with which condoms can be safely used (see Table 4.9). Condoms are one of the most effective methods to prevent the

transmission of HIV (Stephenson, 2009:102-109). High-risk sexual behaviour has been found to be directly associated with adolescents and the promotion of safe condoms use should be advocated (Stephenson, 2009:102-109).

More than half of the participants (53.3%; n=49) reported that oil based lubricant such as Vaseline© is safe to use with condoms, 38% (n=35) did not know with which substances condoms can be safely used. Only 22.8% (n=21) correctly indicated that a water-based lubricant such as KY© jelly is safe. There were eight participants (8.7%) who indicated that there are other substances with which condoms can be used safely. A further 4.3% (n=4) indicated that butter is safe to use with condoms.

In response to the question to explain their answer, only 5.4% (n=5) of the participants responded. These respondents indicated that an oil base lubricant makes sexual intercourse easier as indicated by one participant: *"...I'm not sure but I heard of Vaseline and baby oil"* Another participant commented: *"...an oil base lubricant makes my job easier - condoms don't get dry, it keeps the value of the condom"*.

Table 4.9: Substances for safe condom use

Substance	Total (n) N=92	%
Oil-based lubricant like Vaseline	49	53.3
I don't know	35	38.0
Water-based lubricant like KY jelly	21	22.8
Others	8	8.7
Butter	4	4.3
Yoghurt	0	0

4.2.2.5 Definition of an antiretroviral drug

Antiretroviral drugs can effectively suppress HIV if taken correctly (Avert HIV/AIDS, 2012:1). Antiretroviral drugs have been shown to reduce mortality amongst those infected with HIV as well as the risk of mother-to-child transmission of HIV (UNAIDS, 2012:60-69). South Africa has the world's largest anti-retroviral treatment programme for people infected with HIV with 1.6 million people receiving antiretroviral treatment (DOH, 2012:15).

More than half of the participants (60.9%; n=56) reported that antiretroviral drugs can make people with HIV live longer and 60.9 % (n=56) reported that the drugs can prevent HIV

transmission from a mother to her unborn child. A further 20.7% (n=19) reported that they had never heard of antiretroviral drugs and 14.1% (n=13) reported that they did not know what antiretroviral drugs were. Furthermore, 10.9% (n=10) of the participants reported that an antiretroviral drug can cure HIV.

Table 4.10: Definition an antiretroviral drug

Definition	Total (n) N=92	%
Drugs that can make people with HIV live longer	56	60.9
Drugs that can prevent HIV transmission from a mother to her unborn child	56	60.9
I have never heard of antiretroviral drugs	19	20.7
Don't know	13	14.1
Drugs that can cure HIV	10	10.9

4.2.2.6 HIV cure

There is currently no cure for HIV. Antiretroviral drugs can suppress the HIV virus that causes AIDS and can delay illness for many years, but cannot clear the HIV virus (Avert HIV/AIDS, 2012:1). South Africa is a country most severely affected by the AIDS epidemic, with the largest number of HIV infections in the world (DOH, 2010:4).

The majority of participants (67.4%; n=62) reported that there was a cure for HIV and 32.6% (n=30) indicated that there was no cure. Among those who reported that there was a cure for HIV, 5.4% (n=5) gave an explanation for their answer. These answers were related to myths or religious beliefs. One participant wrote: *“Yes HIV can be cured if you take your medication that they give you”* and another commented: *“I say yes, because I believe that God can cure my disease”*.

These findings are consistent with that of a study in Nigeria which revealed that learners still believed myths and had misconceptions about the cure for HIV (Bimbol & Florence, 2008:81).

Table 4.11: HIV cure

Response	Total (n) N=92	%
Yes	62	67.4
No	30	32.6
I don't know	0	0

4.2.2.7 Traditional cure for HIV

A traditional healer is somebody who engages in indigenous medical practice. Such practices are considered indigenous because a practitioner invokes African conceptions of cosmology and cosmogony to affect them (Xaba, 2002:24). A study done in Mozambique found that traditional healers attribute HIV to spiritual etiologies (Audet, Blevins, Moon, Sidat *et al.*, and 2012:1133). A South African study showed that 21% of traditional healers thought that there was a cure for HIV (Peltzera, Mngqundanisob & Petrosb, 2006:608-613).

Participants were asked if they believed that a traditional healer could cure HIV (see Table 4.12). The majority of participants (81.5%; n=75) reported that a traditional leader cannot cure HIV. However, 18.5% (n=17) reported that HIV can be cured by a traditional leader.

Table 4.12: Traditional cure for HIV

Response	Total (n) N=92	%
No	75	81.5
Yes	17	18.5
I don't know	0	0

4.2.2.8 Benefit of knowing HIV status

Almost all the participants 98.9% (n=91) believed that it was good for them to know their HIV status (see Table 4.13). Only one participant responded in the negative, but did not support the answer with an explanation. High-risk sexual behaviour is generally reduced after people become aware of their HIV status. It is recommended, that HIV prevention programmes should focus on HIV counselling and testing (HCT) to improve HIV awareness (UNAIDS, 2009:25).

In a qualitative study among low-income young adult African Americans, many participants expressed that knowledge of one's HIV status, regardless of the result, was a benefit of taking an HIV test. Further benefits are the avoidance of unknowingly spreading the virus, available access to treatment if HIV-positive, and reducing risky sexual behaviours if HIV-negative (Wallace, McLellan-Lemal, Harris, Townsend & Miller, 2011:462).

Table 4.13: Benefit of knowing HIV status

Response	Total (n) N=92	%
Yes	91	98.9
No	1	1.1

4.2.2.9 Relationship between drug and alcohol use and risky sexual behaviour

The majority of participants (89.1%; n=82) indicated that drug and alcohol use increase risky sexual behaviour while 8% (n=7) stated that they do not know if drug and alcohol use increase risky sexual behaviour. Another 3.3% (n=3) reported that drug and alcohol use do not increase sexual risky behaviour (see Table 4.14).

Visser and Moleko (2008:1-2) identified that substance abuse and alcohol use among school learners in South African is between 34-55%. This is a major concern as it could lead to risky behaviour such as unprotected sexual activities.

Table 4.14: Relationship between drug and alcohol use and risky sexual behaviour

Response	Total (n) N=92	%
Yes	82	89.1
No	3	3.3
I don't know	7	7.6

4.2.3 HIV/AIDS knowledge score

As shown in Table 4.15, only 77.2% (n=71) of participants knew the meaning of HIV and 80% (n=74) could not identify all the ways in which HIV can be transmitted. The majority

(91.3%; n=84) did not know with which substance a condom can be safely lubricated and 32.7% (n=30) thought that HIV can be cured.

Table 4.15: Summary of HIV/AIDS and sexual knowledge questions

Question		Correct N (%)	Incorrect N (%)
6	Meaning of HIV	71 (77.2)	21 (22.8)
7	HIV Transmission	18 (19.6)	74 (80.4)
8	HIV prevention	79 (85.9)	13 (14.1)
9	Correct condom use	8 (8.7)	84 (91.3)
10	Definition of antiretroviral drug	52 (56.5)	40 (43.5)
11	HIV cure	30 (32.7)	62 (67.4)
12	Traditional cure for HIV	75 (81.5)	17 (18.5)
16	Relationship between drug and alcohol use and risky sexual behaviour	82 (89.1)	10 (10.9)

The average knowledge score of participants was calculated. Questions 6-12 and question 16 was used to calculate the average knowledge score (see Appendix A). The range of the knowledge score for all the participants was between 25-75%, with a mean of 60.73% (see Figure 4.1). The knowledge score for males and females were equally distributed. There was no statistically significant association between the knowledge score and the demographic variables. This HIV/AIDS knowledge score corresponds with the Health Science and Research Council study findings that the average HIV knowledge score for participant's aged 15-49 years of age in Western Cape was between 62.1 and 68.2% (HSRC, 2009:54). Furthermore, there were minimal differences between males and females with regard to their HIV/AIDS knowledge score (HSRC, 2009:53).

The 2011 Millennium Development Goals Report states that only 33% of young men and 20% of young women in developing regions have a comprehensive and correct knowledge of HIV (United Nations, 2011:38).

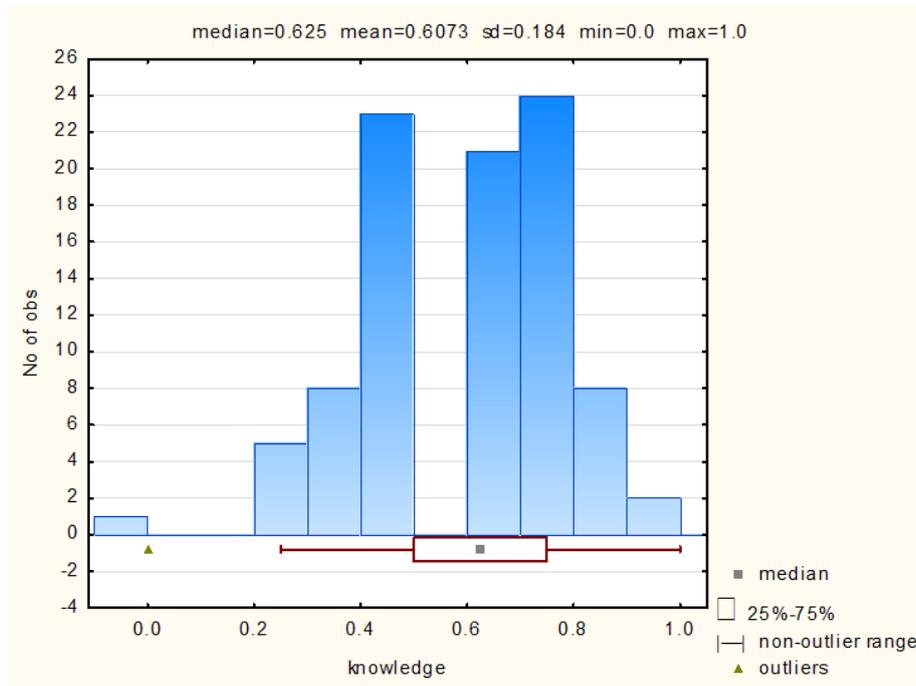


Figure 4.1: Histogram of HIV and sexual knowledge score

4.2.4 HIV/AIDS and sexual education

HIV prevalence among the South African youth is very high and HIV education is one of the key strategies to reduce the incidence of HIV (DOH, 2012:20).

4.2.4.1 Frequency of HIV education at school

HIV awareness can contribute to lower incidents of HIV infection and behavioural changes among school children (Visser, 2005:204). Furthermore, life skills education that includes HIV/AIDS and sexual education is part of the South African Government's comprehensive public health prevention and care package (DOH, 2010:14).

Participants were asked to indicate how often they received HIV education at school. As shown in Table 4.16, 55.4% (n=51) reported that they seldom received HIV education and 13.0% (n=12) that they received HIV education once a week. Furthermore, 13.0% (n=12) reported that they never had HIV education in school, 12.0% (n=11) had received HIV education three times and more a week, and 6.5% (n=6) had received HIV education twice a week.

Educating the youth about HIV/AIDS contributes to improved sexual behaviour and reduced risk behaviour (UNAIDS, 2009:7). The finding that 13% (n=12) of school learners reported that they have never received HIV education at school is contradicting the South African

government's report on HIV life skills in schools. It was reported in 2009 that 100% of South African schools provide life skills based HIV education (DOH 2010:41). This may be an indication that the implementation of HIV/AIDS life skills programs, are not effective. In addition, although schools are offering HIV/AIDS life skills programmes, not all learners are exposed to the programme.

HIV/AIDS life skills programmes depend heavily on school-based resources and organisational structures and if this is not in place, it could lead to poor implementation of HIV educational programs in schools (Campbell & MacPhail, 2002:336).

Table 4.16: Frequency of HIV education at school

Frequency	Total (n) N=92	%
Seldom	51	55.4
Once a week	12	13.0
Never	12	13.0
Three times and more a week	11	12.0
Twice a week	6	6.5

4.2.4.2 Frequency of STI education at school

Sexually transmitted infections (STI) greatly increase a person's likelihood of acquiring or transmitting HIV (Stephenson, 2009:102-109). Therefore, education about sexually transmitted diseases is essential. Many school learners become sexually active at a very young age and reports have indicated that 47% of high school learners had begun sexual intercourse at an early age (Visser & Moleko, 2008:1–2).

When asked how often they received STI education at school, 53.3% (n=49) indicated seldom, 15.2% (n=14) once a week, 15.2% (n=14) twice a week and 10.9% (n=10) three times and more per week (see Table 4.17). Furthermore, 5.4% (n=5) indicated that they never receive STI education in school.

Table 4.17: Frequency of STI education at school

Frequency	Total (n) N=92	%
Seldom	49	53.3
Once a week	14	15.2
Twice a week	14	15.2
Three times and more a week	10	10.9
Never	5	5.4

4.2.4.3 Self-perceived knowledge of STIs

When participants were asked if they had enough knowledge of STIs, 63.1% (n=58) indicated that they had adequate knowledge of STI and 36.9% (n=34) reported that they had inadequate STI knowledge.

Participants who indicated that they had enough knowledge about STI had a significantly higher HIV and sexual average knowledge score (section 4.2.3) than those who indicated that they do not have enough STI knowledge (Mann Whitney U, $p < 0.01$).

Table 4.18: Self-perceived knowledge of STI

Responses	Total (n) N=92	%
Yes	58	63.1
No	34	36.9

4.2.4.4 Self-perceived knowledge of HIV

Participants were asked to report on their self-perceived HIV knowledge. Table 4.18 shows that 78.3% (n=72) of the participants reported that they had enough HIV knowledge and 21.7% (n=20) reported they have inadequate HIV knowledge.

The participants have poor knowledge of several aspects of HIV, including the transmission of HIV as discussed in section 4.2.2.4, and 4.2.2.5. Furthermore, no significant associations were found between how often school learners received sexual education at school and

whether they thought the sexual education given at school is sufficient. Due to the sensitive nature of the study, many such discrepancies beyond the control of the study may be found.

Table 4.19: Self-perceived knowledge of HIV

Responses	Total (n) N=92	%
Yes	72	78.3
No	20	21.7

4.2.4.5 Discussions about sex and HIV at home

Participants were asked if they had discussions about sex and HIV at home with their parents or guardians. Table 4.18 shows that 52.2% (n=48) reported that they had such discussions at home and 47.8% (n=44) did not. A significant association was found between discussions about sex and HIV at home with parents and guardians and the HIV and sexual average knowledge score. Participants who did not have discussions at home with parents or guardians had a higher knowledge score than those who indicated that they had discussions about sex and HIV at home (Mann Whitney U, $p < 0.01$). Parent-child sexuality communication could be a protective factor for adolescent sexual and reproductive health, including HIV infection. However, a review of studies of parent-child communication about sexuality and HIV/AIDS in sub-Saharan Africa found that discussions tend to be authoritarian. A number of barriers to open dialogue, including lack of knowledge and skills, as well as cultural norms and taboos was reported (Bastien, Kajula & Muhwezi, 2011:1). These findings may therefore indicate that the parents of adolescents also need HIV/AIDS education with additional training in communication skills.

Table 4.20: Discussions about sex and HIV at home

Response	Total (n) N=92	%
Yes	48	52.2
No	44	47.8

4.2.4.6 Sufficiency of sexual education at school

The majority of the participants (80.4%; n=74) reported that sexual education at school was sufficient, and 19.6% (n=18) indicated that it was insufficient. Although participants thought they had sufficient sexual education, the average HIV and sexual knowledge score as discussed in section 4.2.3, clearly indicated the opposite.

The Department of Health reports that providing comprehensive sexuality education is considered an important means of addressing adolescent risk behaviours and remains a top priority for the Department. However, more interventions are needed to ensure more effective life skills based education (DOH, 2009:20).

Table 4.21: Sufficiency of sexual education at school

Response	Total (n) N=92	%
Yes	74	80.4
No	18	19.6

4.2.5 Sexual risk behaviour

A South African survey reported that adolescents are at high risk of contracting HIV due to risky sexual behaviour (George, 2005:22). Furthermore, risky sexual behaviour is one of the contributing factors for the high HIV infection rate among school learners (Frank et al., 2008: 394).

4.2.5.1 Sexual intercourse

Participants were asked if they had ever had sexual intercourse (see Table 4.22). Approximately half (51.1%; n=47) indicated that they had never had sexual intercourse, 46.7% (n=43) that they had had sexual intercourse, and 2.2% (n=2) indicated "other." This could possibly mean forced sexual intercourse or sex that they do not regard as sexual intercourse.

Opportunity was given to explain their answers, but only 3.3% (n=3) completed this section. Comments such as: *'It only happened once not by choice'* and *'I only have gay sex'* were made. One participant mentioned abstinence: *'I'm much too young to do these things.....in my house we wait until we married before we have sex'*.

The Human Sciences Research Council reports that the most common mode of HIV transmission in South Africa is through heterosexual sex (HSRC, 2009:38). Furthermore, studies show that early sexual exposure increases vulnerability to HIV infection among young people, especially females (HSRC, 2009:39). In addition, it has been reported that in South Africa, 47% of high school learners begin sexual intercourse at an early age, with 7.4% starting sexual intercourse before the age of 13 (Centre for Disease Control and Prevention, 2008:np).

Table 4.22: Sexual intercourse

Response	Total (n) N=92	%
No	47	51.1
Yes	43	46.7
Other	2	2.2

4.2.5.2 HIV testing

The participants were asked if they have had an HIV test and 71.7% (n=66) indicated that they had, while 28.3% (n=26) had never had an HIV test. Although, 98.9% (n=91) of the participants believed it is good to know their HIV status (section 4.2.2.8), only 71.7% (n=66) reported that they were tested for HIV. A possible explanation for this finding could be poor access to HIV testing at school as one student wrote: *"they should have HIV testing in school"*. A significant association was found between the answer of this question and the average HIV knowledge score of the participants discussed in section 2.2.2.10. Participants who answered that they had not been HIV tested had a higher knowledge score than those who indicated that they had not been tested for HIV (Mann Whitney U, $p < 0.03$). This discrepancy may be attributed to the fact that 51.5% (n=47) of participants reported that they were not sexually active and might have thought that they do not need to be tested.

The UNAIDS reports that the incidence of HIV/AIDS is significantly decreased among people who are aware of their HIV status when compared with those who are unaware of their status. Furthermore, high risk sexual behaviour is reduced substantially after people became aware of their HIV status (UNAIDS, 2009:25-26). It was recommended that HIV prevention programmes should focus on HIV counselling and testing (HCT) to improve HIV awareness (DOH, 2012:12). Participants requested to have HIV testing available at schools, and this is in line with the National Youth Policy that young people should have access to HIV testing (The Presidency Republic of South Africa, 2009:25).

Table 4.23: HIV testing

Response	Total (n) N=92	%
Yes	66	71.7
No	26	28.3

4.2.5.3 Condom use

Consistent and correct condom use is one of the most effective means for preventing HIV infection (HSRC, 2009:44). The Human Sciences Research Council surveys report that there has been an increase in condom use among teenagers in the Western Cape (HSRC, 2009, 44).

Participants were asked for which sexual intercourse activities they have used condoms. A total of 45 participants (100%) responded to this question and 40.0% (n=18) provided multiple answers. Most participants (68.8%, n=31) indicated that they used condoms for vaginal sex and 20.0% (n=9) indicated that they do not use condoms for sexual intercourse. Of the responses, 17.8% (n=8) were invalid responses as these participants indicated that they were not sexually active (see section 4.2.5.1).

Furthermore, 13.3 % (n=6) reported they use condoms for anal sex and 4.4% (n=2) reported they use condoms for oral sex. The 2011 Millennium Development Goals Report indicates that condom use to prevent HIV is still dangerously low in many developing countries, especially in women (United Nations, 2011:39).

Respondents were asked to explain their answers and responses varied. One participant commented: *"I don't have sex without condoms, I need to protect myself."* Another responded in the opposite: *"I don't use condoms, because I trust my partner."*

No association was found between the use of condoms by participants and their knowledge of how to safely use a condom.

Table 4.24: Condom use

Sexual intercourse activity	Total (n) N=45	%
Vaginal	31	68.8
I don't use condoms	9	20.0
Invalid Responses	8	17.8
Anal sex	6	13.3
Oral sex	2	4.4
Other	0	0

4.2.5.4 Use of “Choice” condoms

Participants were asked if they made use of state supplied condoms (Choice). The majority of participants 60.0% (n=33) indicated that they used state supplied condoms and 40.0% (n=22) indicated that they did not use state supplied condoms.

The number of participants who responded to this question (n=55), were more than the number who indicated that they were sexually active (n=45). This may be an indication that more participants are sexually active or that they make use of state supply condoms for other reasons as confirmed by one response to the open-ended question: *“I use choice condoms to clean my shoes.”*

One participant demonstrated reluctance to use condoms: *“those condoms are doggy.”* Others agreed: *“If I'm desperate I will use it”* and *“I sometimes use it if I don't have money to buy other condoms.”*

A study done among school learners reported that 24% of learners were sexually active and that only 40% of the sexually active learners used condoms (Visser & Moleko, 2008:1-2). Participants who indicated that they use state supplied condoms (Choice) had a significantly higher knowledge score than those who indicated that they do not make use of state the supply condoms (Mann Whitney-U, $p < 0.04$). A study by Brown, Sales, DiClemente and Salazar et al. (2012:2-3) found that there are many discrepancies between actual and reported sexual behaviour that may affect the validity of self-reported behaviour amongst participants of surveys.

Table 4.25: Use of “Choice” condoms

Response	Total (n) N = 55	%
Yes	33	60.0
No	22	40.0

4.2.5.5 Sexually transmitted infections (STI)

Participants were asked if they were ever treated for an STI and 92.4% (n=85) indicated that they were never treated for an STI while 7.6% (n=7) indicated that they were treated for an STI. Sexually transmitted infections (STI) greatly increase a person’s likelihood of acquiring or transmitting HIV (Stephenson, 2009:102-109).

Table 4.26: Sexual transmitted infections (STI)

Response	Total (n) N=92	%
No	85	92.4
Yes	7	7.6

4.2.5.6 Alcohol use before sex

Participants were asked if they had ever used alcohol before having sex. The majority (75.0%; n=69) indicated that they have never used alcohol before having sex and 25.0% (n=23) had used alcohol before having sex. A South African study found that alcohol abuse may cause high risk sexual behaviour in adolescents (Visser & Moleko, 2008:1-2). Furthermore, alcohol and recreational drugs work through similar mechanisms in which there is an impairment in both judgement and decision-making, which leads the users to risky sexual behaviour (HSRC, 2009:4).

Table 4.27: Alcohol use before sex

Response	Total (n) N=92	%
No	69	75.0
Yes	23	25.0

4.2.5.7 Injectable drug use

Participants were asked if they have ever used injectable drugs and 97.8% (n=90) reported that they had not used such drugs, while 2.2% (n=2) reported that they had used injectable drugs. Substance abuse among adolescence is directly linked to risky sexual behaviour such as unprotected sex (Visser & Moleko, 2008:1-2). Furthermore, according to the Department of Health UNAIDS Progress Report (2012:27), there is no data available on injectable drug use and HIV prevalence among the youth in South Africa

Table 4.28: Injectable drug use

Response	Total (n) N=92	%
No	90	97.8
Yes	2	2.2

4.2.5.8 Needle sharing for drug use

Participants were asked if they had ever shared needles when using injectable drugs. Although 2.2% (n=2) reported injectable drug use (see section 4.2.5.7), none of the participants (n=92/100%) reported to have ever shared a needle for injectable drugs.

The UNAIDS has reported that there are approximately 16 million injecting drug users worldwide, with an estimated 3 million being infected with HIV (UNAIDS, 2009:4-6). There has been an increase in injectable drug users in Sub-Saharan Africa, which could contribute to the high HIV epidemic (UNAIDS, 2009:4-6). A South African study reported that the HIV prevalence among injectable drug users ranges from 11% to 20%. Furthermore, 86% of South Africans who use injectable drugs, share needles and 65% engage in unsafe sex practice (UNAIDS, 2009:4-6).

Table 4.29: Needle sharing for drug use

Response	Total (n) N=92	%
No	92	100
Yes	0	0

4.2.5.9 Recreational drug use before having sex

Participants were asked if they have ever used recreational drugs before sexual activity. The majority (94.6%; n=87) indicated that they have not used drugs before sexual activity and 5.4% (n=5) indicated that they have. Several studies in sub-Saharan Africa have suggested strong links between substance use and risky sexual behaviour such as having multiple sex partners and having unprotected sex (HSRC, 2009:4). Risky sexual behaviour increases the risk of HIV infection among substance abusers (HSRC, 2009:4).

Table 4.30: Recreational drug use before having sex

Response	Total (n) N=92	%
No	87	94.6
Yes	5	5.4

4.2.6 Relationship between HIV and sexual knowledge and sexual risk behaviour

Correlations were made between participants' knowledge score and reported sexual risk behaviour. One of the objectives of the study was to determine if participants HIV knowledge had an influence on their sexual behaviour. No significant associations were found between participant's knowledge score and reported sexual risk behaviour such as condom use, sexual intercourse, STIs, alcohol use before sex activity, injectable drug use, needle-sharing when using injectable drugs and drug use before sex activity. Only some associations that were difficult to explain were found, for example: participants who indicated that they make use of the state supplied condoms (Choice) had a significantly higher knowledge score than those who indicated that they did not make use of state the supply condoms (Mann Whitney-U, $p < 0.04$) section 4.2.5.4. Furthermore, participants who reported that they had not been tested for HIV had a higher knowledge score than those who indicated that they had been tested (Mann Whitney-U, $p < 0.03$) section 4.2.5.2.

These results support findings from a South African HIV/AIDS sexual education intervention done in a South African school. Participants had increased HIV/AIDS and sexual knowledge after an educational intervention but the intervention did not influence sexual risk behaviour (Visser, 2005:203-216). Furthermore, these findings lend support for the theory of Bandura (1989) that many other factors may influence sexual risk behaviour, and consequently, the health of the participants (Bandura, 1989:1-75), and that knowledge of HIV is not the only factor that influences sexual risk behaviour.

4.2.7 Emerging themes

The questionnaire ended with four open-ended questions, offering participants the opportunity to add further information, comments, or recommendations regarding the topic under investigation. During the interpretation of the data yielded in response to the question, the researcher searched for emerging themes and trends, using a thematic approach within all the responses (Burns & Grove 2007:540) as explained in section 3.10. Emerging response categories were identified by topical analysis and then coded using key words. These categories were quantified, using the approach suggested by Culp and Pilat (1998:1). The data obtained in this way could then be entered as quantitative data (number of suggestions in each category counted), and subjected to descriptive analysis.

4.2.7.1 Participant recommendations for improved HIV/AIDS and STI and sexual education in schools

Three themes were identified from this question. These themes were: increased HIV and STI education, openness and the use of external information sources.

4.2.7.1.1 *Increased HIV and STI education*

Increased HIV/AIDS and STI and sexual health education within the schooling system was requested by 87% (n=80) of the participants. They reported that a limited amount of time was spent on HIV education and that the education was of a low quality. One participant commented: *"Life skills teacher should include more HIV/STI and sexual education in their subject."* Another commented *"HIV/AIDS education should be a bigger part of the life skill orientation lesson"*. Another commented: *"they should spend more time on HIV/AIDS education."*

4.2.7.1.2 *Openness*

Participants (4.3%; n=4) commented that teachers should talk more openly about HIV/AIDS and STI with school learners. One participant commented: *"talking directly with learners about sex and HIV, and make sure that learners have a clear and good understanding of HIV and how it can be prevented"*.

4.2.7.1.3 *Use of external information sources*

Real-life experiences and audio visuals as a teaching tools in schools was recommended by 15.2% (n=14) of participants. In addition, they suggested that the school should make use of additional or external information sources such as a school nurse. One student commented:

“Teachers should use videos of people that are infected to us so we can see.” Another commented: *“A doctor or school nurse should come around to help educate us.”*

4.2.7.2 Reasons for the high HIV prevalence among the youth

The participants were asked why they think HIV infection is increasing among the youth. A total number of 83 participants (90%) answered the question. Participants reported that high risk sexual behaviour, alcohol abuse, unprotected sex and poor knowledge of HIV/AIDS amongst the youth as the main causes for the increase in the number of HIV infections amongst the youth. Unprotected sex, including peer pressure and irresponsible behaviour were reported by 54% (n=45), as demonstrated by one response: *“they are not using condoms and are unaware of the risk.”* Alcohol abuse that leads to reckless behaviour such as unprotected sex or multiple sexual partners were listed by 16.9 % (n=14). Poor or inadequate HIV/AIDS knowledge was reported by 29% (n=24) as a reason why HIV/AIDS infection is increasing among the youth.

4.2.7.3 Measures for preventing HIV/AIDS

All the participants (100%; n=92) answered the question. Most participants (60%; n=55), reported that protected sex (with a condom) will help prevent the spread of HIV as illustrated by these quotes: *“By using condoms and getting more information about HIV/AIDS”* and *“Abstain from sex till you married”* and *“Use condoms and don’t get involve with people who have HIV/AIDS.”*

Many participants (60%; n=55) mentioned that condoms should be made more available at schools and handed out on a regular basis. Some participants (26%; n=24) felt strongly that if participants were provided with more knowledge and information about HIV, they can prevent the spread of HIV and can also prevent themselves from contracting HIV. However 16% (n=15) responded that the spread of HIV/AIDS can also be prevented by abstaining and 14% (n=13) reported that staying faithful to one sexual partner can also prevent the spread of HIV. It was also reported that HIV testing on a regular basis can prevent a person from spreading HIV, and that some participants (8.7%; n=8) indicated that HIV testing should be made available to participants on a regular basis. One participant requested that *“HIV testing should be made available at school.”* Another commented: *“know your status.”*

Furthermore, not sharing injectable needles as a means of HIV prevention was reported by 6.5 % (n= 6) of participants.

4.2.7.4 Sexual education needs

Participants were asked to list topics that they need more information on (n=52) participants responded. The majority, (73.1%; n= 38) of school learners felt that they need more information on sex, 40.4% (n=21) indicated that they want more information on HIV prevention, 25.0% (n=13) specified that they want more information on oral sex and 23.1% (n=12) specified that they want more information on anal sex. Furthermore, 19.2 % (n=10) indicated that they would like more information on STI, 5.8% (n=3) that they wanted more information on ARV'S and 5.8% (n=3) on drugs. In addition, 3.8% (n=2) indicated they wanted more information on abortion, 3.8% (n=2) on teenage pregnancy and 1.9% (n=1) on family planning. Table 4.30 provides a summary of the sexual education needs of the participants.

Table 4.31: Sexual education needs

Response	Total (n) N=52	%
Sex	38	73.1
HIV prevention	21	40.4
Oral sex	13	25.0
Anal sex	12	23.1
STI	10	19.2
ARV'S	3	5.8
Drugs	3	5.8
Teenage pregnancies	2	3.8
Abortions	2	3.8
Family planning	1	1.9

4.3 Summary

Chapter 4 presented and discussed the results of the study. The objectives were successfully identified and examined. The level of HIV/AIDS knowledge of participants was identified through establishing that the participants had a mean knowledge score of 60.73% as discussed in section 4.2.2.10. This indicates the need for further educational interventions. Recommendations for improved and more HIV/AIDS and sexual education

were suggested by 87% (n=80) of participants. Many participants indicated the need for more information on HIV/AIDS and even suggested that it may reduce the spread of HIV. As shown in the chapter, many gaps exist in the current HIV/AIDS and sexual life skills education programme at school, as some participants even indicated that they never received any HIV/AIDS or sexual life skills training and the majority of school learners indicated that they seldom received HIV/AIDS and sexual life skills training.

The second objective was to identify risky sexual behaviour which may increase the risk of HIV infection among the school learners. Findings indicate that many school learners are sexually active and are still involved in high risk sexual behaviour. Even though all the participants (n=92) indicated that condoms can help prevent the spread of HIV, there are still school learners who did not practice safe sex. The continued increase in the rate of HIV infection in South African youth coupled with the findings from the study, suggest an on-going failure to improve the HIV/AIDS prevention and sexual life skills training in schools.

The third objective was to determine if knowledge of HIV/AIDS influences the sexual behaviour of the school learners. Knowledge of HIV/AIDS and STI was not associated with sexual behaviour. This supports the conceptual framework that many other factors other than knowledge may influence the behaviour, and consequently, the health of the participants.

The fourth objective was to identify recommendations towards improved strategies for the implementation of HIV/AIDS preventative programmes in schools. Participants recommended that more time should be spent on HIV/AIDS and sexual education in school. Furthermore, participants recommended that teachers should be more open and make use of external information sources.

Chapter 5 will provide a succinct overview of the key findings, demonstrating achievement of the study objectives. The chapter will present appropriate recommendations and describe certain limitations of the study and draw together the final conclusions.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 Introduction

Grounded in the study findings, Chapter 5 draws conclusions regarding HIV knowledge and sexual risk behaviour among grade 12 learners. Guided by the study objectives, the conclusions, recommendations and limitations are discussed, which is supported by the empirical evidence and the relevant literature and legislation.

5.2 Achievement of the aim and objectives of the study

The aim of the study was to investigate the level of HIV knowledge and sexual risk behaviour of grade 12 school learners in the Eastern Sub-District of the Cape Metropole, Cape Town. In addition, the study also aimed to identify appropriate recommendations, as identified by school learners, toward improved HIV/AIDS and sexual health education for school learners. The achievement of each study objective will be discussed below.

5.2.1 Objective 1: Determine the level of HIV/AIDS knowledge among grade 12 school learners.

The average HIV/AIDS knowledge score for all participants was 60.73% (see section 4.2.3). This score corresponds with the Human Sciences Research Council study findings that the average knowledge score for participant's age 15-49 years of age in the Western Cape was 62.1–68.2% (HSRC, 2009:54). Although participants' mean knowledge score was 60.73%, there are still many gaps in their level of HIV/AIDS knowledge as shown in Table 4.15. Only 77.2% (n=71) of participants knew the meaning of HIV, a further 80.4% (n=74) of participants did not know the variety of ways HIV is transmitted and only 8.7% (n=8) of participants knew how to safely use a condom.

Participants showed poor knowledge of the correct lubricants for use with condoms. This information is a cause for concern, as condoms are the most effective HIV prevention tool if used correctly. (Stephenson, 2009:102-109). Furthermore, only 56.5% (n=52) of participants knew the definition of an antiretroviral drug. The majority of participants (67.4%; n=62) believed that HIV can be cured and 18.5% (n=17) reported that a traditional healer can cure HIV (see Table 15).

McManus and Dhar (2008:8-12) found that 30% of students believed that HIV/AIDS can be cured, thus highlighting that students still believe in myths. In addition, Bimbol and

Florence (2008:81) found that although participants are knowledgeable about HIV/AIDS, they still believe in myths that HIV can be cured.

The majority of participants (78.3%; n=72) reported that they had enough HIV knowledge (see section 4.2.4.4), yet they requested more HIV/AIDS and sexual education in schools as identified through the qualitative data in section 4.5.1.1. Furthermore, 55.4%; (n=51) of participants indicated that they seldom receive HIV education and that the quality of education was poor (see section 4.2.4.1).

This study shows that the level of HIV/AIDS knowledge among grade 12 learners is inadequate. There are gaps in the knowledge of participants, which calls for action to address shortfalls and strengthen current HIV prevention programs in schools. The study data and literature findings clearly indicate the need to increase HIV/AIDS and sexual education in schools and strengthening the methods in which knowledge is transferred. Furthermore, these findings lend support for Henderson's theory that a person's ability to make independent, individual decisions is influenced by many factors including age, sex, social economic situation, community influences and level of education (George, 2002:86-106).

5.2.2 Objective 2: Identify risky sexual behaviour for HIV infection among the school learners

More than half of the participants (51.1%; n=47) reported sexual engagement (section 4.2.5.1). Sexual transmission of HIV remains one of the common modes of HIV transmission in South Africa and early sexual exposure increases vulnerability to HIV infection among young people, especially females (HSRC, 2009:39).

Although condom use is increasing, according to the Human Sciences Research Council (HSRC, 2009, 44), the 2011 Millennium Development Goals Report states that condom use to prevent HIV is still dangerously low in many developing countries especially among women (United Nations, 2011:39). In this study, 20% (n=9) of the respondents that reported to be sexually active indicated that they do not use condoms (see section 4.2.5.3). This information indicates that participants are practising unsafe sex (HSRC, 2009:44). Furthermore, 91.3% (n=84) did not know with which lubricants condoms can be used safely (see Table 15 and section 4.2.2.4).

As discussed in section 4.2.5.6, 25% (n=23) participants reported having used alcohol before sex. A South African study found that alcohol consumption prior to sex may cause high risk sexual behaviour in adolescents (Visser & Moleko, 2008:1-2). Furthermore 2.2% (n=2) indicated that they use injectable drugs as reported in section 4.2.5.7. In section 4.2.5.9,

5.4% (n=5) indicated they had previously used drugs before having sex. Although none of the participants reported sharing needles, a South African study found that 86% of South Africans who use injectable drugs, share needles and 65% engage in unsafe sex practice (UNAIDS, 2009:4-6). The validity of self-reported sexual behaviour can also be questioned as confirmed by discrepancies found between reported sexual engagement and the presence of sexually transmitted infections in young females in a study by Brown et al. (2012:2-3).

This study has therefore suggests that high risk sexual behaviour amongst grade 12 learners increases their chances of acquiring HIV. This finding is substantiated by George (2005:22) and Frank, Esterhuizen, Jinabhai, Sullivan and Tailor (2008: 394-398) who identified that adolescents are at high risk of contracting HIV due to risky sexual behaviour which is a contributing factor for the high HIV prevalence in school learners.

Henderson's theory emphasises that individual risk factors such as sexual risk behaviour and poor HIV and sexual knowledge can influence a person's ability to function independently and make healthy sexual choices (George, 2002:86-106).

5.2.3 Objective 3: Determine if knowledge of HIV/AIDS influences the sexual behaviour of grade 12 school learners

For the purpose of this objective, correlations were made between participants' average knowledge score calculated in section 4.2.3 and the reported sexual risk behaviour. No significant associations were found between the average knowledge score and between risk behaviour such as condom use, sexual intercourse, sexually transmitted infections, alcohol use before having sex, injectable drug use, needle sharing when using injectable drugs and drug use before sexual activity. The participants' knowledge of HIV/AIDS therefore does not influence their sexual behaviour as discussed in section 4.2.6.

The findings in this study correspond with those in a report on a South African HIV/AIDS sexual education school intervention. It was found that although learners' knowledge of HIV/AIDS increased and their attitudes were more positive, more learners became sexually active and their preventive behaviour did not improve (Visser, 2005: 203- 216).

A limitation of self-completion surveys is that self-reporting of sexual activity might lead to under reporting. The accuracy of self-report data may be impacted by a variety of factors including the cognitive demands of recalling past behaviours and motivational biases that can lead people to miss-report their behaviour (Brown et al., 2012:2-3).

The study findings suggest that the level of HIV/AIDS knowledge did not influence sexual risk behaviours of the grade 12 learners. Behaviour is influenced by both personal and

environmental factors as described by both Henderson (in George, 2002:86-106) and Bandura (Bandura, 1989:1-75). Knowledge of HIV/AIDS, although it might have some influence is therefore not the only factor that influences sexual risk behaviour.

5.2.4 Objective 4: Identify recommendations towards improved strategies for the implementation of HIV/AIDS preventative programs in schools.

The study participants proposed several recommendations towards improved strategies for the implementation of HIV/AIDS prevention programs in schools. Increased HIV/AIDS, STI and sexual health education within the schooling system, was requested by 87% (n=80) of the participants (see section 4.5.1). Some participants (4.3%; n=4) requested that teachers should talk more openly about HIV/AIDS and STI to school learners. Furthermore, the use of use of external information sources such as a school nurse was suggested by 15.2% (n=14). Additional personnel from outside the school setting could be utilised to deliver interventions, thus relieving the burden on teachers. Alternative teaching methods such as role-play and the use of audio-visual material could improve teaching in schools.

The Department of Health reports that the development of effective HIV prevention programs is a top public health and policy priority and more improved HIV prevention strategies is needed (DOH, 2012:20). The National Youth Policy states that the Department of Education should ensure that education around sexuality forms part of the life skills curriculum from an early age to empower youth to prevent risky behaviour that exposes them to HIV infection (United Nations, 2008:25).

5.3 Recommendations

The recommendations, grounded in the findings of the study, are presented under headings, according to the themes that emerged from the data and study findings. These recommendations pose implications for HIV/AIDS and sexual life skills programmes, policy and practice.

5.3.1 Strengthening HIV and STI education linked to sexual risk reduction

The study findings suggest the strengthening of HIV/AIDS life skills education programmes in schools as requested by 87% (n=80) of the participants. Strengthening of comprehensive sexuality education is considered an important means of addressing adolescent risk behaviours and intervention efforts should be at the levels of both school and the individual (DOH, 2012:20). The need for more effective HIV and sexual education programmes was emphasize in a study undertaken in the North West Province of South Africa. The study concluded that there is a need for more effective sexual health educational programmes in

schools and emphasised the need to train teachers in using more effective ways to teach learners about HIV prevention (Peu et al., 2010:33).

Participants had an average knowledge score of 60.73%, yet they still reported their belief in myths that may put them at high risk to contract HIV. Furthermore, a study in Nigeria revealed that learners had high knowledge of HIV/AIDS, but still believed myths and had misconceptions about the cure for HIV/AIDS (Bimbol & Florence, 2008:81). The need for more improved HIV/AIDS programmes that will address myths and which is linked to sexual risk reduction amongst school learners is highlighted in the study findings.

It would perhaps be worthwhile to consider that HIV/AIDS education be integrated throughout the whole curriculum, from a primary school level, and not only limited to the life-skills programme.

This study findings substantiate research findings that there is a need to constantly reevaluate effectiveness of HIV prevention programmes in schools and to look at more comprehensive HIV prevention interventions that includes social/structural risk factors such as gender, poverty and alcohol abuse (DOH, 2012:20). The Human Sciences Research Council recommendations that interventions include HIV communication programmes that take into account epidemiological and socio-cultural factors should be developed and implemented at a provincial level (HSRC, 2009:75).

The Millennium Development Goal number six is to halt and reverse the HIV epidemic by 2015. One of the objectives is to ensure that young people have comprehensive knowledge of HIV and ways to prevent the spread of HIV (United Nations, 2011: 38). This can only be achieved through comprehensive HIV life skills programmes that focus on individual and community needs and school going youth should be actively involved in the implementation and sustainability of these programmes in schools. A South African study found that sexual risk behaviour amongst young people is influenced by personal and social factors that need to be addressed in HIV prevention interventions. The study revealed the relevance of the theory of planned behaviour and socio-ecological theory in understanding risk behaviour (Visser, Panday, Kumalo, Govan, 201:np). Furthermore, the study found that peer education interventions should focus on the following factors to reduce/prevent risk behaviour amongst young people in schools: it should provide accurate HIV knowledge, especially among younger learners; it should promote positive attitudes and skills towards abstinence and condom use. Raised critical awareness is recommended of the influence of cultural, gender and peer group norms and to challenge the social norms that support risk behaviour; address other risk behaviours such as alcohol use and cigarette smoking; support young people and help them to deal with their psycho-social needs. In addition, it found that peer

education should not focus on young people's behaviour in isolation. Parents need to be involved to improve caregiver relationships and to strengthen their position as positive role models (Visser et.al, 2011: np).

These findings support the theory of Bandura (1989) that behaviour, cognition, other personal factors and environmental influences, all operate as interacting determinants that influence each other bi-directionally. Therefore, many other factors may influence sexual risk behaviour, and consequently, the health of the participants (Bandura, 1989:1-75). HIV preventative programs in schools need to be more comprehensive and focus on Individual and socio-ecological factors.

The Henderson theory highlights that the nurse has the ability to provide health education. Based on the risks identified in this study, empowerment of the individual to make healthy sexual decisions can occur through education, which may lead to personal, independent and healthy sexual choices (George, 2002:86-106). Based on these study findings, it is recommended that the strengthening of HIV and STI education linked to sexual risk reduction is prioritised at both the DOH and DOE levels of government. The service collaboration between the two departments might be mutually beneficial in strengthening the programme. A new model of HIV/AIDS and sexual educations at schools is required. The model should focus on Individual needs and socio-ecological factors of school learners. This model should be student centred and be reviewed on an on-going basis to determine effectiveness. This model should focus on HIV prevention and sexual education from the school learners' perspective and should include HIV testing, condom distribution and reproductive health availability in schools. This model needs to be run and implemented through collaboration between the Department of Education and Department of Health and dedicated NGO.

5.3.2 Open communication and additional information sources

Open and active communication is indicated to promote learners understanding of HIV/AIDS and STIs and to address their specific needs and concerns. Many teachers perceive HIV and sex education, as contradictory to their personal values and beliefs and are uncomfortable with talking openly about certain sexual topics (Ahmed et al, 2009:48-54). Teachers therefore need to be equipped to communicate to learners about these sensitive topics on an open platform without limitations and personal beliefs. Training of teachers should focus on the use of more effective ways to teach learners about HIV prevention and sexual education (Peu et al., 2010:33).

The use of additional information sources such as real-life experiences, role-play, messages from role-models and audio visuals as teaching tools in schools could further promote active

participation in HIV/AIDS and sexual life skills programmes. External information sources such as a school nurse would be beneficial. Schools should be open to alternative teaching strategies such as peer education programmes and holiday activity programmes to improve effectiveness of HIV/AIDS and sexual life skills programs.

Collaboration between schools, local primary health care clinics and other private partners or organisations could be undertaken to secure funding to undertake health promotion projects. It is recommended that the creation of youth-oriented activities to raise awareness of HIV/AIDS and other risky behaviour. These projects could also engage parents and the community. A South African study found that HIV prevention programs should not focus on young people's behaviour in isolation. Parents need to be involved and supportive of the school which will improve caregiver relationships and strengthen their position as positive role models (Visser et.al., 2011: np).

5.3.3 Availability of condoms at schools

Studies found that high-risk sexual behaviour can be directly associated with adolescents and the promotion of safe condom use should be advocated (Stephenson, 2009:102-109). A steady supply of condoms should therefore be freely available at all schools. The National Youth Policy emphasise that HIV prevention tools should be made available at schools (The Presidency Republic of South Africa, 2009:25).

The study identified that some participants were concerned about the quality of the state supplied condoms (Choice). Furthermore, the lack of knowledge about the safe use of condoms highlights that information should be made available to learners about the safe use of condoms. Better quality condoms and increased accessibility to condoms are recommended.

Innovative learning activities such as health promotion projects could be undertaken where learners are required to create posters to promote safe condom use. Such projects will engage learners, teachers, parents and the community.

The availability of a school nurse at the school could also promote the safe use of condoms as well as the provision of contraception and treatment for sexually transmitted infections.

5.3.4 Improved access to HIV testing at schools

HIV testing in schools will make learners aware of their HIV status and could be effective as a prevention tool. HIV testing at school was requested by 8.7% (n=8) participants (see section 4.5.3) and 28% (n=26) participants reported that they have never been HIV tested. A study by Wallace et al. (2011:462) found that young adults thought that knowledge of one's

HIV status, regardless of the result, was a benefit of HIV testing. It was indicated by the participants in this study that testing might result in the avoidance of unknowingly spreading the virus, being offered access to treatment if HIV-positive, and reducing risky sexual behaviours if HIV-negative (Wallace et al., 2011:462).

The National Youth Policy of South Africa also provides for young people to have access to HIV testing (The Presidency Republic of South Africa, 2009:25). Any child that is 12 years and older and of sufficient maturity to understand the benefits, risks and social consequences of an HIV test may give permission without the consent of a guardian or parent (Republic of South Africa, 2005: Children's Act No 38, of 2005).

South Africa has the largest global HCT program (DOH, 2012:12) and access to HIV testing in schools should be made available to learners. The benefits of knowing your HIV status was reported in the literature. The UNAIDS reports that the incidence of HIV/AIDS significantly decreases among people who are aware of their HIV status when compared with those who are unaware of their status. Furthermore, high risk sexual behaviour is reduced substantially after people became aware of their HIV status (UNAIDS, 2009:25-26). The UNAIDS recommends that HIV prevention programmes should focus on HIV counselling and testing (HCT) to improve HIV awareness (UNAIDS, 2009:25).

HIV testing should be part of the screening test done by a school nurse. This could promote the early identification of HIV positive learners and timely linkage to education with regard to prevention and treatment. Such a programme could be introduced through collaboration merges between DOH and DOE.

5.3.5 Educational needs

HIV/AIDS and sexual life skills programmes should be focused on the needs of the school learners enabling both the open and clear communication of the relevant facts. The study revealed they need more information on sex (including oral and anal sex), HIV prevention, STIs, ARV'S, teenage pregnancy, abortion, family planning, and drugs.

Regular school surveys about risky behaviour and the educational needs of the students and open communication between teachers and learners could ensure that the needs of students are met. HIV/AIDS and sexual life skills programmes in schools requires re-evaluation on an annual basis to ensure effectiveness and identification of topics for further discussion.

The content and approach of these programmes requires adjustment in order to improve efficacy. Involving the youths in lesson planning and structure could also assist in keeping information fresh and relevant. Furthermore, peer education and support programmes could be utilised to promote behaviour change.

The HIV/AIDS and sexual life skills programme is a part of the school curriculum and needs to be assessed and evaluated like any other subject that is part of the curriculum. Assessments by an external body could further ensure effectiveness and promote the quality of the programme.

HIV preventive efforts therefore need to be aggressively up-scaled and redirected towards specific risky practices (Frank et al, 2008: 394-398). This can only be achieved if high risk sexual behaviour among the youth can be identified and appropriate behavioural interventions implemented. Furthermore, the goal of the South African National Strategic Plan for HIV/AIDS, STIs and TB (2012–2016) is to reach zero new HIV infections amongst school-going youth and therefore requires immediate intervention by DOH, DOE and policy makers. The youth is the future of South Africa and interventions to prevent and reduce HIV infections amongst them, is a priority. Schools serve as a good platform to introduce sustainable and effective HIV prevention programmes.

5.4 Further research

Further research is needed to investigate HIV knowledge and sexual behaviour among school learners in South Africa. UNAIDS reports that South Africa remains the highest HIV infected country and the need for improved methods of prevention of HIV is required (UNAIDS, 2012:27). Furthermore, DOH reports that in South Africa, experience with youth HIV prevention programmes is limited, with evidence regarding effectiveness still emerging (DOH, 2012:20). This statement clearly highlights the need for further research in the effectiveness of HIV/AIDS life skills programmes in schools. Furthermore, this study finding suggests the need for more research on how to provide effective HIV/AIDS life skills programmes at schools that is not only focused on the provision of knowledge, but linked to risk reduction amongst school learners.

5.5 Limitations

According to Burns and Grove (2007:545), limitations are the 'theoretical and methodological restrictions in a study that may decrease the generalisability of the findings.

The study was limited to grade 12 learners from the Eastern Sub District within the Cape Town Metropole. Although the sample represented a diverse section of socioeconomic and cultural backgrounds, generalising the results could be argued as unreasonable, due to the sample size. The study was, however, undertaken by means of simple random sampling. The results and conclusions could potentially be applicable to a broader population of South African school learners.

During the study, several unforeseen circumstances presented operational limitations. Within the timeframe of data collection, grade 12 learners was preparing for final exams. The PI found it challenging to obtain access to schools. Furthermore, due to the sensitivity of the topic, self-reported attitudes and behaviours can be seen as a limitation, therefore a pilot study was done to minimize this inherent limitation. Despite these limitations, the study findings contribute to the understanding of HIV knowledge and sexual risk behaviours among grade 12 learners and thus have important implications for interventions in this population. In addition, these study findings could pose implications for further research, education, health, and policy implementation.

5.6 Dissemination

The Department of Health and the Department of Education as well as participating schools will be informed of the study findings in writing. Furthermore, study results will also be available to study participants electronically through the participating schools. In addition, the results will be disseminated at the South African HIV Clinicians Society and the South African AIDS conferences. An article will be published in an accredited peer reviewed journal.

5.7 Summary

South African youth aged 15-24 are amongst the highest HIV prevalence in the world. The development of effective HIV prevention programmes is a top public health and policy priority (DOH, 2012:20).

In this chapter, the findings were discussed in relation to the objectives set out in the study. The purpose of the study was to investigate the reported level of HIV knowledge and sexual risk behaviour of grade 12 school learners. This chapter showed that the aim was achieved.

The results show that the mean HIV/AIDS knowledge score of participants was of 60.73%. However, many gaps in HIV/AIDS knowledge were identified. Only 77.2% (n=71) of participants knew the meaning of HIV, 80.4% (n=74) of participants did not know how all the ways in which HIV was transmitted and only 8.7% (n=8) of participants knew how to safely use a condom. The majority of participants (67.4%; n=62) believed in the myth that HIV can be cured and 18.5% (n=17) reported that they believe a traditional healer can cure HIV. It was therefore identified that the level of HIV/AIDS knowledge among grade 12 learners is not adequate.

With regard to risky behaviour, half of the participants (51%; n=47) reported sexual engagement and 20% (n=9) of these respondents do not use condoms. Furthermore, 25% (n=23) have used alcohol before having sex. The study therefore found that Grade 12 learners are exposing themselves to high-risk sexual behaviour that may increase their

chances of acquiring HIV. Furthermore the study found that the level of HIV/AIDS knowledge does not influence sexual risk behaviours of grade 12 learners. Sexual risk behaviour is therefore influenced by many factors and not only HIV knowledge.

Several recommendations are identified, including the strengthening of HIV and STI education linked to sexual risk reduction, open communication and additional information sources, availability of condoms at schools and improved access to HIV testing at schools.

These study data and literature findings clearly indicate the need to increase HIV/AIDS and sexual education in schools and strengthening the ways in which knowledge is transferred.

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APPENDICES

Appendix A: Data collection tool

Self-completion Questionnaire

HIV knowledge and sexual behaviour of grade 12 school learners in the Cape Metropole, Cape Town

INSTRUCTIONS

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

DEFINITIONS USED IN THE STUDY

Protected Sex: condom use during vaginal, oral, and/or anal sexual intercourse.

Sexual intercourse: sexual activity between two people, including vaginal, oral, and/or anal penetration.

SECTION A

1. Indicate your age

--

2. Indicate your sex

a	Male	
b	Female	

3. Indicate your race

a	Black	
b	Coloured	
c	White	
d	Other, specify	

4. Indicate your religion

a	Christian	
b	Muslim	
c	Hindu	
d	Other, specify	

5. Indicate with whom you are living in the house

a	Both parents	
b	Single parent	
c	Grandparents	
d	Siblings	
e	Relatives	
f	Other, specify	

SECTION B

6. HIV stands for: (*circle the answer that you agree with most*)

- a. Human immune deficiency virus
- b. Immune infection disease
- c. AIDS
- d. None of the above
- e. All of the above
- f. I don't know

7. HIV is transmitted through:(*circle as many answers as applicable*)

- a. Vaginal intercourse
- b. Anal intercourse
- c. Oral intercourse
- d. Blood
- e. Sharing needles.
- f. By sharing toilets, kissing, drinking from the same cup.
- g. Through touching people who are HIV positive.
- h. From an HIV positive mother to her child
- i. I don't know

8. Which of the following can minimize your chances of contracting HIV through sexual intercourse? (circle as many answers as applicable)

- a. Using a condom every time when having sexual intercourse
- b. Using oral or injectable contraceptives
- c. Having sex with a good and neat looking person
- d. Having only one sexual partner at a time
- e. I don't know

Explain.....
.....
.....

9. Condoms can be safely used with (circle as many answers as applicable)

- a. Oil-based lubricant like Vaseline
- b. Water-based lubricant like K Y-jelly
- c. Yoghurt
- d. Butter
- e. I don't know
- f. Others

Explain.....
.....
.....

10. What is an antiretroviral drug? (circle as many answers as applicable)

- a. Drugs that can cure HIV
- b. Drugs that can make people with HIV live longer
- c. Drugs that can prevent HIV transmission from a mother to a unborn child
- d. I have never heard of antiretroviral drug
- e. Don't Know

Explain.....
.....
.....

11. Is there a cure for HIV? (circle one only)

- a. Yes

Explain.....
.....
.....

- b. No
- c. I don't know

Explain.....
.....
.....

12. Can a traditional healer cure HIV? (circle one only)

a. Yes

Explain.....
.....
.....

b. No

c. I don't know

Explain.....
.....
.....

13. Is it good for a person to know their HIV status? (circle one only)

a. Yes

b. No

Explain.....
.....
.....

14. How often do you receive HIV education at school? (circle one only)

- a. Once a week
- b. Twice a week
- c. Three times and more a week
- d. Seldom
- e. Never

15. How often do you receive sexual education at school (circle one only)

- a. Once a week
- b. Twice a week
- c. Three times and more a week
- d. Seldom
- e. Never

16. Can drug and alcohol use increase risky sexual behaviour? (circle one only)

- a. Yes
- b. No
- c. I don't know

Explain.....
.....
.....

17. Have you ever had sexual intercourse? (circle one only)

- a. Yes
- b. No (go to question 20)
- c. Other

Explain.....
.....
.....

18. For which sexual intercourse activities have you used condoms before? (circle as many answers as applicable)

- a. Anal sex
- b. Vaginal sex
- c. Oral sex
- d. I don't use condoms
- e. Other

Explain.....
.....
.....

19. Do you make use of state supply condoms (choice) for sexual intercourse?

(Circle one only and explain your answer given below)

- a. Yes
- b. No

Explain.....
.....
.....

<i>Please tick the answer that you agree with most</i>	<u>Yes</u>	<u>No</u>
20. Do you think that you have enough knowledge about sexual transmission infection (STI)?		
21. Do you think that you have enough knowledge about HIV?		
22. Do you have discussions about sex and HIV at home with parents or guardians?		
23. Do you think the sexual education given in your school is sufficient?		
24. Have you ever had a HIV test?		
25. Were you ever treated for sexual transmitted infections (STI)?		
26. Have you ever use alcohol before having sex?		
27. Have you ever used injectable drugs (if no, go to question 29)		
28. Have you ever shared needles when using injectable drugs?		
29. Have you ever used drugs before having sex?		

SECTION C

Please answer the following questions in your own words

30. What do you think can be done to improve the education about HIV/AIDS and STIs in your school?

.....

.....

.....

31. Why do you think HIV infection is increasing among the youth?

.....

.....

.....

32. What can you do to prevent the spread of HIV/AIDS?

.....

.....

.....

33. Please list any sexual education topics which you would like to be discussed or need more information about:

.....

.....

.....

Thank you very much for participating in the study

Appendix B: Ethical Committee approval letter



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
jou kennisvennoot • your knowledge partner

03 August 2011

MAILED

Mrs C Jaars
Department of Nursing
2nd Floor
Teaching Block

Dear Mrs Jaars

HIV knowledge and sexual behaviour of grade 12 learners in the Cape Metropole Cape Town.

ETHICS REFERENCE NO: N11/07/225

RE : APPROVAL

It is a pleasure to inform you that a review panel of the Health Research Ethics Committee has approved the above-mentioned project on 2 August 2011, including the ethical aspects involved, for a period of one year from this date.

This project is therefore now registered and you can proceed with the work. Please quote the above-mentioned project number in ALL future correspondence. You may start with the project. Notwithstanding this approval, the Committee can request that work on this project be halted temporarily in anticipation of more information that they might deem necessary.

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly and subjected to an external audit.

Translations of the consent document in the languages applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Please note that for research at primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr H el ene Visser at City Health (Helene.Visser@capetown.gov.za Tel: +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

Approval Date: 2 August 2011

Expiry Date: 2 August 2012

03 August 2011 10:58

Page 1 of 2



Fakulteit Gesondheidswetenskappe • Faculty of Health Sciences



Verbind tot Optimale Gesondheid • Committed to Optimal Health
Afdeling Navorsingsontwikkeling en -steun • Division of Research Development and Support
Posbus/PO Box 19063 • Tygerberg 7505 • Suid-Afrika/South Africa
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Yours faithfully

MS CARLI SAGER

RESEARCH DEVELOPMENT AND SUPPORT

Tel: +27 21 938 9140 / E-mail: carlis@sun.ac.za

Fax: +27 21 931 3352

03 August 2011 10:58

Page 2 of 2



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Appendix C: Permission letter for data collection from the Department of Education



WESTERN CAPE
Education Department

Provincial Government of the Western Cape

METROPOLE EAST EDUCATION DISTRICT
METRO OOS ONDERSWYSDISTRIK
ISITHILI SEMFUNDO IMETRO EAST

jwest@pgwc.gov.za

tel: +27 21 900 7083 fax: 086 602 3669

C/o Belhar & Noolensfontein Road, Kullis River 7580

Private Bag X23, Kullis River 7579

REFERENCE: LETTER Research Approval

ENQUIRIES: J West

ATTENTION: Mrs. C Jaars, Student of University of Stellenbosch

RESEARCH PROPOSAL: HIV Knowledge and sexual behaviour among Grade 12 learners in the Cape Metro in the Western Cape

Dear Mrs Jaars

Your application to conduct the above-mentioned research in schools in the Metro East Education District has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The study is to be conducted before the end of September 2011.
6. No research can be conducted during the fourth term as schools will be preparing and finalizing syllabi for the examinations in October and November.
7. Should you wish to extend the period of the survey, please contact Metro East Education District.
8. The original letter must be presented to the principal of the school where the research is to be conducted and a photocopy of the letter is to be submitted to the principal.
9. The school/s is approved by the District Office.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services, the District Office and the school/s where the research is conducted.
11. The District receives a copy of the completed report/dissertation/thesis addressed to:

The Director: Metro East Education District Office
Private Bag X23,
Kuils River
7579

We wish you success in your research.

Kind regards

Signed: Melvyn Caroline
District Director

DATE: 10 August 2011

Appendix D: Participant information consent form

PARTICIPANT INFORMATION CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

HIV knowledge and sexual behaviour among grade 12 learners in the Cape Metropole Western Cape

REFERENCE NUMBER: [N11/07/225](#)

PRINCIPAL INVESTIGATOR: Cleopatra Jaars

ADDRESS:

63 Goldbell Street
Hillcrest
Blue Downs
7100

CONTACT NUMBER: [0738479362](tel:0738479362)

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Committee for Human Research at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- This study is being conducted in the Eastern sub District Cape Metro Pole among grade 12 learners. A cluster sampling method will be used which include private and public high schools. The researcher will select two schools randomly from each cluster private and public high schools.
- This study is being conducted to determine HIV knowledge and sexual behaviour among grade 12 learners.
- Schools that are selected will be visited on an agreed date and the necessary information obtained. School principals will be asked to assist the researcher to obtain the necessary information.

Why have you been invited to participate?

- This school has been randomly selected to participate in the research project. No information regarding individual school will be made known and schools names will not be recorded. All information will be handled in a strictly confidential manner.

What will your responsibilities be?

- As participant your responsibility will be to answer the questionnaire provided to the best of your abilities and as truthfully as possible for researcher to obtain the needed statistical information.

Will you benefit from taking part in this research?

- There are no personal benefits to you for participating in this study. The study will however be of benefit to future school learners and HIV educational programmes as recommendations will be made as how to improve HIV knowledge and how to reduce risky sexual behaviour among grade 12 learners.

Are there in risks involved in your taking part in this research?

- The study and its procedures involve no foreseeable risks or harm to you. All information obtained will be handled in a strictly confidential manner and your identity or that of the school will not be revealed while the study is being conducted or when the study is reported or published. If any further support is needed by any school learner or any problem arise the school social worker and their team will assist the researcher.

If you do not agree to take part, what alternatives do you have?

- Your participation in this study is voluntary and you are under no obligation to participate. You have the right to withdraw at any time and your relationship with the researcher or school authorities will not be affected by this.

Who will have access to information?

- All information collected will be treated as confidential and protected. The identity of the individual schools and respondents will remain anonymous in the publication of the study.

Is there any thing else that you should know or do?

- You can contact the Committee for Human Research at [021-938 9207](tel:021-938-9207) if you have any concerns or complaints that have not been adequately answered by the researcher.
- You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I agree to take part in a research study entitled "HIV KNOWLEDGE AND SEXUAL BEHAVIOR AMONG GRADE 12 LEARNERS"

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (*place*) On (*date*) 2010.

.....
Signature of participant

.....
Signature of witness

Declaration by investigator

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a translator. (*If a translator is used then the translator must sign the declaration below.*)

Signed at (*place*) on (*date*) 2010.

.....
Signature of investigator

.....
Signature of witness

Declaration by translator

I (*name*) declare that:

- I assisted the investigator (*name*) to explain the information in this document to (*name of participant*) Using the language medium of Afrikaans/English.
- We encouraged him/her to ask questions and took adequate time to answer them.
- I conveyed a factually correct version of what was related to me.
- I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (*place*) On (*date*) 2010.

.....
Signature of translator

.....
Signature of witness

Appendix E: Stellenbosch University Language Services confirmation of editing.



TAALSENTRUM
LANGUAGE CENTRE
IZIKO LEELWIMI



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

10 December 2012

To Whom It May Concern:

We hereby confirm that chapter one to three of the thesis entitled *HIV Knowledge and sexual behavior among Grade 12 learners* by Cleopatra Jaars has been edited by the Language Service.

The document has been delivered electronically to the client on 14 November 2012.

Please contact me should you have any enquiries.

Regards

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