HIGH SCHOOL LEARNERS' PERCEPTION OF HIV/AIDS PREVENTIVE STRATEGIES

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ABSTRACT

This study investigated the perceptions of high school learners about HIV/AIDS preventive strategies. The study reveals that the age of the learner, their gender, grade level, and the school they attend influences their perceptions. The study also reveals that the learners hold positive perceptions about abstaining from sex, delaying sex until marriage as well as knowing the HIV/AIDS status of potential partners as of paramount importance while those who do not hold positive perceptions about abstinence hold positive perception about practicing safe sex. The study reveals that there was no relationship between religion and the acceptance of circumcision as a cultural practice through which infection could be avoided; but racial grouping and age greatly influence the acceptance of this alternative strategy.

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God bless you all.

DECLARATION

This is to declare that this dissertation represents my own work both in conception and in execution and has not been submitted to any other institution for any purpose.

Ibidayo Ebun Kolawole

LIST OF ABBREVIATIONS

HIV: Human Immunodeficiency Virus

AIDS: Acquired Immune Deficiency Syndrome

STIs: Sexually transmitted infections

STDs: Sexually transmitted diseases

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CHAPTER ONE

CHAPTER 1

MOTIVATION FOR THE STUDY

1.1 Introduction

Acquired Immune Deficiency Syndrome (AIDS) was first identified in 1981 in the USA among homosexuals and drug users (Brown & Turner, 1989:1) and has been recognised as the final stage of a viral infection caused by the Human Immunodeficiency Virus (HIV). AIDS, therefore, is indicative of an underlying cellular immune deficiency (Birchall & Murphy, 1992:3). Two strains are recognised by Medical experts: HIV-1 (discovered in 1983) and HIV-2 (discovered in 1986). HIV-1 is generally accepted as the cause of most AIDS cases throughout the world while HIV-2 was first discovered in West Africa and later in some Portuguese colonies and Europe (Stine, 1995:110).
Some controversies have generated about the origin of AIDS. Some claims (Hooper, 1999; Curtis, 1992) have linked AIDS with the development of polio vaccine from chimp kidney in Congo in the 1950s. However, the researchers who worked on the vaccines refuted the polio vaccine theory (Marin, Gomez & Tscann, 1993). Their refutal was recently confirmed from further laboratory investigation published in Washington Post (Brown, 2001).

HIV infected persons develop AIDS symptoms within 10 years or earlier. A person diagnosed of AIDS usually dies within a year or two thereafter. Infants generally die more rapidly. Most people infected with HIV progress to AIDS and eventually die. Drug intervention that aims at blocking the progression of HIV to AIDS has been very useful in prolonging the life of infected persons. This has been met with considerable success in rich nations, where infection rate is less than 0.3%, but medication remains expensive and unaffordable in most African nations, where infection rate is between 5 and 25%, leading to devastating fatality (UNAIDS, 2000; Kaiser, 2001).

Three modes of transmission are generally identified: sexual, blood contact and mother-to-child.

Sexual transmission could arise from heterosexual (man-to-woman or woman-to-man) and homosexual (man-to-man) relationship. Consequently having unprotected sex (vaginal, anal or oral) with an infected person could lead to exchange of body fluids. Multiple sex partners is the predominant avoidable risk factor.

HIV is easily transmitted by direct introduction of the virus into the blood stream. This could be achieved through transfusion of infected blood, sharing of injection needles (e.g. by drug injectors) or accidental contact with infected blood or bruises during sex with infected partner(s). If a pregnant woman is infected there are clear risks of transmitting the virus to the baby during pregnancy during the delivery process or from breast milk feeding.

A study of monogamous couples in Rakai, Uganda (Quinn, Wawer, Sewankambo, & Wabwire-Mangen, 2000:921) in which one partner had HIV and the other did not, having sex nine to ten times a month, over a period of 30 months, revealed that none of the 50 circumcised men in the study caught HIV whereas 40 out of 137 uncircumcised men became infected during this time. An earlier study (Halperin and Bailey, 1999:1813) carried out by European and African researchers on cities drawn from a West African country, Cameroon, (where circumcision is a traditional practice) and Kenya revealed that uncircumcised men were at least three times more likely than circumcised men to contact HIV infection. Consequently some specialists have raised the possibility of promoting circumcision as a way to control the epidemic. It has been suggested that male circumcision should be considered as an additional means of preventing HIV infection in all countries with a high prevalence of infection (Szabo, 2000:1592).

There are now compelling epidemiological evidence from several studies that shows that male circumcision provides significant protection against HIV infection (Halperin and Bailey, 1999:1813) and that circumcision of boys seems to lower the risk for a number of infections and diseases and as early as first year of life uncircumcised boys suffer from higher level of urinary-tract infections. Sexually transmitted diseases like genital herpes, syphilis, invasive penile cancer and other STIs are found to be more common in uncircumcised men (Cook, Koutsky and Holmes, 1994:197; Moses, Bailey and Ronald, 1998:368). It was speculated that since people who have a sexually transmitted infection are two to five times more likely to become infected with HIV (Haperin and Bailey, 1999:1813) circumcision might be even more protective against infection. Both Philippines and Thailand have lots in common, including prostitution and bias against the use of condoms. However, the rate of infection in Thailand is reported to be 40 times higher than in the Philippines. This has been explained to be due to circumcision, which is the rule in Philippines whereas it is rare in Thailand (Kolawole, 2000).

It is, however, surprising that despite the fact that about 70% of men who are HIV positive have been infected through the penis (and only a small number from insertive anal intercourse) (UNAIDS, 1996) and despite the evidence that circumcision could be an effective way of reducing infection significantly, the issue of circumcision has never featured in most HIV prevention programmes. Fauci (1999) did not mention male circumcision in his excellent review of the AIDS epidemic in the 21st century.

AIDS has gone a long way since its discovery, among gays, in 1981 and has now become endemic in the USA and pandemic in Africa, Asia and Latin America (UNAIDS, 2000). Of the 36.1 million people living with AIDS at the end of 1999, 25.3 million are from sub-Saharan Africa and of the 5.3 million new infections in 1999 3.8 million are from sub-Saharan Africa. While sub-Saharan countries contain about 10% of the world's population, 80% of the 2.8 million who died of AIDS in 1999 came from the sub-Saharan countries. Recent studies (UNAIDS, 2000) have revealed that in most of sub-Saharan countries one third of today's 15-year-olds would die of AIDS and ten years from now life expectancy is predicted to be between 30 and 35 years in Botswana, Namibia, South Africa and Zimbabwe.

A recent publication (Stephenson, 2000) circulated by "loveLife" under the sponsorship of Henry Kaiser Foundation provided some update on HIV/AIDS epidemic in South Africa. The projection for the future is frightening. It is estimated that 3.5 million of South Africans are infected with HIV. About 60% of these people are between the ages of 15 and 25. The management of AIDS pandemic in Africa has overwhelmed African Governments whose resources to provide basic infrastructure for their citizens are grossly inadequate.

The level of infection in Africa, particularly South Africa, is such that the provision of anti-retroviral treatment for the enormous number of infected people and the development of necessary infrastructure and expertise to provide the treatment would be expensive to be sustained by the Government only (Kaiser, 2000).

In USA and Canada there is widespread access to anti-retroviral therapy that has decreased mortality but new infections have not decreased significantly, with HIV prevalence still increasing (UNAIDS, 2000). This works in the Americas because the number of infected persons is very small compared with the level of infection in Africa, particularly South Africa. The large number of infected persons in Africa and the cost of procuring the anti-retroviral drugs are overwhelming such that there is hardly any African country that can cope with providing these drugs for the number of persons infected. The level of poverty of many of the infected people is such that most of them can hardly bear the cost of treatment (Kaiser, 2000).

The provision of therapy should not displace prevention efforts. The most effective way of cutting down HIV-related sickness and death is still to cut down on HIV infection itself, which is only possible through prevention. In this respect "focussed intervention" has been suggested (Stephenson, 2000). In this respect attention is focussed on the most vulnerable youths and the pregnant women to delay the onset of sex, promote safe sex practice, and encourage staying off sex before marriage and to prevent mother-to-child transmission. The ultimate goal should be to set up effective prevention programmes, which evidently will be cheaper to manage and reduce the rate of infection within the two most vulnerable groups identified above.

1.2 STATEMENT OF THE PROBLEM

Time is running out for Africa on the fight against HIV/AIDS. The devastation of the epidemic on all sectors of African life has been highlighted in many forums. With poverty ravaging Africa and the army of orphans growing by the minutes there is an urgent need for Africa to intensify efforts to lower the rate of infection. As it has been mentioned above, prevention is a cheaper option. It calls for a change of sexual behaviour among Africans. This is not an easy proposition, particularly for adults who have formed their sex habit. However, prevention intervention targeting the youths is an urgent proposition to avoid a total mortgage of the African future.

Government publicity may not have reached rural settlements in many parts of Africa because of the limited access to radio and television, the main organs of publicity. Most of the vulnerable groups, except probably the city dwellers, may not have benefited from the enlightenment programmes of Government. The wide publicity given to the use of condom has not helped the need for a fundamental change in our attitude to sex. Recent publications in the newspapers emanating from the Catholic Bishops of South Africa and the recent rebuttals that condom may not be 100% safe in preventing infection calls for the need to examine other available options. The study on the effect of circumcision mentioned earlier further revealed that 89% of the men targeted in the study never used condoms and condom use did not seem to influence the rate of transmission of HIV (Szabo, 2000:1592). The pre-eminent premium placed on the use of condoms, therefore, appears misplaced and misleading. There are critical moral issues and traditional African values, which are on trial with the over-concentration of efforts on the use of condoms to the detriment of restoring traditional values of preservation of the chastity of the African youths and adults.

An option, which is not particularly popular with the press, is abstinence from sex outside marriage or before marriage. The issue of circumcision is a bit contentious but if studies have shown that it reduces, not just HIV infection but also STIs, isn't it time to sell it as a very viable option to the traditional leaders if traditional constraints could be relaxed to accommodate this practice in South Africa and other African Countries where circumcision is not the practice? The positive efforts of some groups to restore the traditional value of the Zulus of preserving the virginity of Zulu girls before marriage have been criticised in the newspapers recently as against the constitution because such an open parade of virgins amounted to the evasion of the privacy of the girls (Cullinan, 2001).

The high level of HIV infection in South Africa and the high cost of treatment mean that the rates of infection will increase unless effective prevention measures are employed. To create effective and culturally appropriate promotion campaign for any preventive measure, the beliefs, attitudes and behaviours that are associated with consistent adoption of any measure (e.g. condom use or circumcision) need to be better identified and understood. It has also been suggested that any prevention measure would require proper identification of the complex psychological mechanisms that could improve the understanding and effectiveness of prevention efforts (Marin, Gomez & Tschan, 1993:743).

A study of this nature, therefore, should examine the interplay of behavioural factors, social environment, culture, social economic status, and the African cultural attitude towards "open" discussion of sexual issues, and psychological factors which may affect learners' attitude to sex and safe sex practices, *vis-à-vis* prevention against HIV infection.

1.3 THE RESEARCH QUESTIONS

The research questions this project attempts to unravel are:

1.3.1 To what extent, respondents' characteristics influence knowledge about HIV/AIDS?

1.3.2 How much do the learners know about preventive measures that are available?

1.3.3 How far do cultural practices and attitudes influence learners' perception of prevention against HIV/AIDS infection, i.e.

1.3.3.1 To what extent will learners accept measures which are not popular to the South African society like abstinence from sex before marriage and keeping to one sexual partner?

1.3.3.2 Would learners accept measures which are against traditional practice, like circumcision, to reduce the risk of infection?

1.4 AIMS OF THE STUDY

1.4.1 To determine how learners' characteristics influence perceptions of the nature of HIV/AIDS.

1.4.2 To relate respondents' age, sex, family size and locality to their perceptions of the nature of HIV/AIDS and prevention of infection.

1.4.3 To find out about learners' perception of preventive strategies.

1.4.4 To find out if learners will accept alternative measures of prevention which are not necessarily popular in South Africa, i.e.:

1.4.4.1 To assess the influence of cultural background, social environment, etc on learners' perceptions of prevention of HIV/AIDS infection.

1.4.4.2 To examine learners' perceptions of alternative methods of reducing the risk of infection.

1.5 HYPOTHESES

Appropriate hypotheses will be formulated, based on the above aims.

1.6 METHOD OF INVESTIGATION

1.6.1 Literature Review

The available literature related to the aims/research questions will be reviewed.

1.6.2 Field Work

A descriptive study will be conducted using mainly structured questionnaire. Interview of some learners may be carried out for the purpose of strengthening the validity of the responses to the questionnaire. The assistance of teachers will be sought in the administration of the instrument.

1.6.3 Sampling

The population will be drawn from High Schools within uMhmulatuze Municipality of Zululand. High Schools in rural and semi-urban locations will be covered. Sampling will be done from Grades 10 and 12. The sample size from each school is anticipated to be a minimum of 50 and a maximum of 100. It should be possible to randomly select ±50 from each of five schools for analysis. A sample size of ±250 is anticipated.

The spread of the population will cover the most vulnerable age bracket of 14-20 years. The instrument will include data on biography of each respondent (age, sex, school, grade, religion, race and locations of school), and their knowledge of preventive strategies against HIV/AIDS infection and the prioritization of some of the selected preventive strategies

1.7 INSTRUMENT FOR DATA COLLECTION

A questionnaire will be developed. The instrument will be divided into sections covering each aspect of the aims set out in paragraph 4 above. The following format is proposed:

Section A: Questions about the respondent; his/her age, school, grade, race, religion and location of school.

Section B: The main instrument will cover extracting information about the capacity of each respondent to take decisions on safe sex relationship, and the risks of premature sex activities and perception about preventive strategies.

The questionnaire in Section B will contain five-point scale items measuring:

Aim number 1.4.1: Questions will centre on how a respondent perceives different aspects preventive strategies against HIV/AIDS infection, including abstinence, delay of onset of sex until marriage, seeking parental guidance before going into any relationship, what strategies to adopt if he/she has to be involved in any pre-marital sex.

Aim numbers 1.4.2: Questions will elicit the knowledge of the respondent on how HIV/AIDS can be contacted and how the respondents will handle different sex overtures to them.

Aim number 1.4.3: Questions will centre on knowledge of the different methods on prevention, particularly the use of condoms, which is the most popular. Abstinence would also be covered.

Aim number 1.4.4:

1.4.4.1: Issues pertaining to circumcision will be covered here.

Section C: The issue of prioritizing the various strategies covered in Section B will be examined here. Each strategy would be ranked by the respondents on a five-point scale.

1.8 METHOD OF SCORING

Some data will be generated about the background (age, sex, locality, nature of school) from the information supplied in Section A for use in correlation analysis.

The five-point scale in Section B will be weighted **5** for the most positive response to **1** for the least positive response. The higher the cumulative score in this Section the more positive the perception of the respondent about sex and the preventive measures against HIV/AIDS.

The ranking of the preventive strategies in Section C would help in prioritizing the different strategies and therefore arrive at a scale of emphasis, if a prevention programme is to be developed for adolescent learners within the locality covered by this study.

1.9. METHOD OF DATA ANALYSIS

Basic descriptive statistics will be used and presented in charts or tables. Inferential statistics would be used to compare responses between respondents' characteristics and knowledge of preventive strategies against HIV/AIDS infection.

1.10 PLAN OF STUDY

The work will be organised as follows:

CHAPTER 1

This is an introduction chapter where the motivation for the project will be highlighted. It will also contain a statement for the problem being investigated, the aims/objectives of the study and an outlay of the whole report.

CHAPTER 2

This will be mainly literature review covering the theoretical framework of the study, adolescents' peculiarities (to enable one to appreciate the unique adolescents' sexuality) and the extent of work that has been done on preventive strategies and perceptions of such strategies. This will enable us to appreciate the outcomes of this study relative to similar published work and within the general concept of adolescents' biological, social, and psychological developmental processes.

CHAPTER 3

This will be on research design and methodology of the study.

The instrument design and validation, sampling technique and a plan for organisation and analysis of data will be discussed in detail. The research hypothesis will be spelt out here as well.

CHAPTER 4

This chapter concerns the actual fieldwork, administration of instrument, data presentation and the discussion of the results.

CHAPTER 5

The main findings of the study and suggestions for using the findings to formulate prevention strategies to suit local needs will be discussed.

Conclusions and recommendations for further work will be given.

CHAPTER TWO

CHAPTER 2

FRAMEWORK FOR PREVENTION

2.1 Introduction

The concept of prevention has been taken seriously in public health, initially in mental health (Caplan, 1964) which has developed into what is now referred to as *prevention science* (Coie, Watt, West, Hawkins, Asarnow, Markman, Ramey, Shure & Long, 1993:1013). The goal of prevention science is to prevent or moderate major human dysfunction, i.e., to eliminate or mitigate the causes of disorder. Prevention efforts are geared towards identifying potential precursors of dysfunction or health, called *risk factors* and *protective factors* (Coie, *et al.*, 1993:1013). Risk factors are variables that measure the probability of onset, greater severity, and longer duration of major health problems whereas protective factors refer to conditions that improve people's resistance to risk factors and disorder. Preventive interventions aim at counteracting risk factors and reinforce protective factors in order to disrupt processes that contribute to human dysfunction.

The purpose of research in prevention should generate preventive interventions, which on field trials should yield insights into causes of disorder and the developmental processes that contribute to risk or recovery.

Some of the frequently cited generic risk factors (Hawkins, Jenson, Catalano & Lishner, 1988:258; Watt & Saiz, 1991:157) that are relevant to this study are:

- Family circumstances: low social class, family conflicts, large family size, poor bonding to parents, family disorganisation and community defiance.
- Emotional difficulties: child abuse, apathy or emotional blunting, emotional immaturity, stressful life events, low self-esteem and emotional dyscontrol.
- Ecological context: neighbourhood disorganisation, racial injustice, unemployment, and extreme poverty.

Within the context of the study at hand, peer influence, which may have positive or negative impact on an adolescent, is important and can also constitute a major risk factor. While our intention is not to elaborate on the science of prevention the highlights set out above define some framework on which any research on prevention should be built.

The current study targets adolescents in some selected High Schools. The goal is to identify risk conditions associated with adolescents, identify intervention strategies or propose protective strategies that are adaptable to local needs.

In a broad sense, the prevention of HIV infection can be thought of as applying a variety of methods to reduce risk of infection. Risk-reducing behaviours and attitudes can include practicing safer, protected sex, abstaining from sexual activity, using safer practices in intravenous (IV) drug use, abstaining from or improving the safety of other practices that may involve the exchange of blood (e.g., ear piercing, tattooing, circumcising, or even blood transfusing) (Flora & Thorensen, 1988).

2.2 Theoretical framework

One of the major problems with studies on prevention has to do with the conceptualisation. Historically research in adolescent health has focused on epidemiological concepts or *ad hoc* operationally defined descriptions. Some of the limitations identified are the lack of theories that provide integrating frameworks, tolerate complex relationships and help researchers account for often simultaneous and multiple sources of influence. Flora and Thorensen (1988) identified lack of "comprehensive theories of change that provide guidance in better understanding the processes involved in designing effective programmes" as a major flaw. The authors suggested that the epidemiologic and psychiatric concepts of primary, secondary, and tertiary prevention, in combination with a comprehensive theory of change, would be a better option.

With respect to HIV/AIDS prevention in adolescents, primary prevention should be conceived as helping the adolescents to refrain from sexual intercourse, thus delaying the onset of sexual activity in teens. Secondary prevention could then, for example, be by teaching adolescents to use condoms, femidoms, and spermicides during intercourse or keeping to one partner. An example of tertiary prevention is the use of certain medications and other health practices to manage or slow the progress of disease in adolescents with HIV.

2.2.1 Minimisation, insulation and delay of onset strategy

Jessor (1982) has suggested three alternate strategies within a prevention approach: minimisation, insulation, and delay of onset. The goals of minimisation are to develop strategies that limit or confine participation in health-endangering behaviour at a controlled or moderate level. When applied specifically to HIV/AIDS-relevant education, minimisation could involve teaching learners to limit and control any behaviours that might put them at risk. Increased probability of having sex may be associated with a variety of social situations (i.e., certain times, places, or people). Helping learners identify such situations and limiting their exploration of them would help minimise risk.

Insulation strategies are devised to cut off exploring and experimenting experiences and to reduce habitual actions that can endanger health. For example, there are some evidences that link initial sexual experiences with alcohol consumption. Supporting adolescents reduce their excessive consumption of alcohol and other drugs could serve to lower the likelihood of having unprotected sex under the influence of alcohol or drugs. Delay of sexual onset strategy is one of the primary recommendations of the Panel on Adolescent Pregnancy and Childbearing (Hayes, 1987) for reducing the rate and incidence of unintended pregnancies among adolescents.

The delay-of onset perspective for the prevention of HIV/AIDS is evidently a strong recommendation. Under this strategy adolescents are taught various ways to understand their sexual feelings and urges as well as pleasure of having personally and socially intimate experiences short of sexual intercourse. Flora and Thorensen (1988) affirmed that in order to know which strategies or combination of strategies may be appropriate for adolescents, it was necessary to know a great deal more about the antecedents of sexually related behaviours as well as the situational correlates and consequences of sex. A "behavioural ecology" of sex for adolescents should be documented and the knowledge used in developing intervention strategies. The data gathered from studies of ethnic and gender samples could offer the basis for different intervention programmes tailored to primary and secondary prevention for various ethnic as well as socio-economic groups. In addition, information on parental attitudes, beliefs, and behaviours, combined with institutional policies and resources in the context of cultural and community expectancies and norms are important considerations in designing intervention programmes.

The knowledge previously gained from research to reduce teenage pregnancy, educate youths about sex, and change other health behaviour in youth (e.g., smoking, drug, or alcohol abuse) are invaluable in formulating prevention programmes against HIV/AIDS infection.

Such experiences can help clarify our understanding of the value of (a) focussing on specific behaviours and contexts; (b) selecting cognitions and emotions that influence targeted behaviours; (c) considering promising or productive theories; and (d) understanding how different units of analysis and levels of intervention may be used in designing more effective HIV/AIDS prevention programmes (Flora & Thorensen, 1988).

2.2.2 Social inoculation theory

A more comprehensive and generally more effective conceptualisation for prevention programmes would include careful consideration of each relevant level of intervention in terms of targeting change of the person, social network, organisation, and community levels (Flora, Jackson, & Moccoby, 1985; Thorenses & Eagleston, 1985).

Considerable successes have been achieved in instances where a focused skills training approach has been adopted in intervention programmes. For example, when sex education is integrated with training focused on specific problem situations, results have shown that learners increased their knowledge about sex and contraception accompanied with improved favourable attitudes. They were also observed to behave more effectively in videotaped simulations, such as how to talk with possible partners about sex and how to use contraceptives (Gilchrist & Schinke, 1983; Schinke, 1984). Similar success has been achieved in smoking prevention (e.g., Bandura, 1986).

Thus an approach, based on social inoculation theory (McGure, 1964) and cognitive-social learning theory (Bandura, 1986), has been proposed for intervention programmes against the spread of HIV/AIDS among adolescents.

2.2.3 Cognitive-social learning theory

The major thrust of cognitive-social learning theory lies in its recognition of the reciprocity among cognitive, behavioural, environmental, and physiological/affective influences. Consequently what a person does in any given situation depends on the interactive effects of these influences, with a primary focus on social cognitive factors.

A cognitive-social learning framework also acknowledges that people learn from a variety of experiences, by observing the actions of others.

Intervention issues concerned with HIV/AIDS prevention call for exploration of alternative ways to best influence the adolescent. It is understood that adolescents share many characteristics, but genuine differences do exist between male and female adolescents, as well as between different ethnic and socioeconomic groups. Each group often differs in their values, attitudes, skills, and information levels, and social contexts with respect to sexually related behaviour. Intervention strategies must carefully consider the type of language used (e.g., formal or informal metaphors), the reading level of printed materials, normative beliefs about sex and HIV/AIDS, salient characteristics of prestigious social models, and perceived vulnerability and explanatory styles (Orlandi, 1986). A further integration of the cognitive social leaving theory with social marketing (Kotler, & Zaltman, 1971) has been suggested as guiding programme development.

2.2.4 Social-marketing strategy

The essential aspects of social marketing include (a) the use of a consumer orientation to develop programme; (b) audience needs analyses and segmentation strategies; (c) the use of formative research to design and pretest programmes; (d) analysis of channels of communication to develop distribution systems, and (e) use of a "marketing mix" that includes a consideration of products, promotion, price, and place. The major focus for HIV/AIDS prevention is on understanding the perspectives of adolescents and document how they differ in attitudes, values, and behaviour. Using a social marketing orientation, therefore, would require a careful tailoring of programmes to different target "consumer" groups (e.g., Black female or white male teenagers). Flora and Thorensen (1988) have suggested such a social marketing perspectives as a useful framework and methodology in the design and deliverance of AIDS prevention programmes. In this perspective adolescents are considered to be active partners and participants in the processes of primary and secondary HIV/AIDS prevention and are viewed as valued consumers who must perceive the "product" (HIV/AIDS prevention programme) as personally valuable and socially desirable.

2.2.5 Integrated approach

Flora and Thorensen (1988) suggested three components of a prototype prevention curriculum for adolescents: messages and materials that are tailored to various population subgroups; outcome objectives for the delay of onset of sexual activity and improving practice of safe behaviours, and matching the level of intervention to the unit of analysis. They suggested that the first step in programme development is to conduct a cognitive-behavioural analysis of the antecedents, concomitant behaviours, and immediate consequences of sexual activity of adolescents. Information is gathered on the behaviours, attitudes, moods, and beliefs of teens as well as on the actions of others in specific physical settings. Data are gathered for specific target groups. Specific behavioural and cognitive events that prompt and reinforce sexual activity, coupled with environmental events (social and physical) that stimulate and reinforce sexual activity are documented. The resulting social learning history leads to an improved understanding of the specific features of current social and physical environment that may be serving as discriminating stimuli for having sex, safe or otherwise.

The second step involves the use of the information from the cognitive-behavioural analysis to identify high risk situations; identify pressures to engage in sex; create role-play situations that are realistic and accurately portray the pressures that teenagers experience; capture the words, phrases, and syntax of teen language, and identify gender, ethnic, and racial similarities and differences.

The third step involves structuring the formative data according to cognitive social learning theory principles, using creative implementation strategies (e.g., peers as trainers, video feedback, structured role-playing). Provision of environmental and social supports for teens through education of parents, teachers, community leaders, and media professionals was considered highly essential. Primary and secondary prevention should be monitored and analysed separately.

2.2.6 Other documented models

Other theoretical models employed in the development of behavioural intervention and the reduction of adolescent pregnancy in the past include the health belief model (Janz and Becker, 1984), the theory of reasoned action (Fishbein, & Ajzen, 1975), and the concept of self-efficacy derived from social leaving theory (Bandura, 1992). These theories postulate that the adoption of preventive behaviour is the result of rational decision-making process that involves the following components: the extent to which HIV/AIDS infection (or pregnancy) is perceived by the individual to be a problem; the individual's belief that specific actions, which are under his/her control will be effective in preventing infection (or pregnancy); the value the individual places on his/her health; and the individual's self-confidence to enact preventive behaviours and the social and community skills required to engage in safe or preventive practices (Swart-Kruger, & Richter, 1997).

The limitations of these theories are hinged on the assumption that there is a logical pattern of decision-making and degree of control which resides in the individual. This assumption is unrealistic within the complexity of sexual relations.

Swart-Kruger & Richter (1997) posit that since most campaigns are essentially individually oriented education and behaviour-modification programmes, apparently developed from an assumption of individual autonomy and control that rely on knowledge and use of condoms on the one hand, and on the other, the rationalisation of sexual encounters through negotiation and joint decision-making about protection, the programmes reflect an implicit acceptance of inequalities in health and a failure to recognise and challenge the social component of disease and behaviour. The primary risk factors of early pregnancy and HIV/AIDS are directly related to poverty, disempowerment, and situational pressures. Consequently for any intervention to work the causes of these conditions must be addressed along provision of information and services. Efforts to combat unwanted pregnancy and HIV/AIDS are working against strong social, cultural, and economic forces. These forces must determine the framework of sexual behaviour among adolescents (Adedokun, Twa-Twa, Ssekibooboo, & Nalwadda, 1995).

2.3 Adolescents

Adolescence is a period of rapid physical, physiological, psychological and social changes in the life of young people (Conger, 1984). Adolescence is a particularly unique period that falls within puberty and young adulthood. It is a very important phase in life marked with unique sexual and behavioural characteristics. Sexual behaviour and/or drug use is often a part of this exploration. Exploration, experimentation and discovery mark the period. However, young people often lack the knowledge, experience and maturity to avoid grave risks that confront them. The term "adolescence" covers a period divisible into two parts: early adolescents and late adolescents (Irene, 1971).

Early adolescents refers to a phase development and maturation during which there is, with reluctance, an abandonment of childhood patterns of adjustment and, with trial and error, an attempt to utilise new patterns of problem solving. Late adolescence is the period in which new patterns become more crystallised with relatively consistent, although not sure of them.

The first phase is thus predominantly the relinquishing of childhood; the second phase, the structuralisation of what will become adulthood. During the latter phase the patterns are subject to modification, but except in extreme cases, not subject to abandonment. It is during the second phase that adult behavioural patterns of adaptation take shape.

The period of adolescent is often a period of mixed messages from adult and environmental interference, which often lead to confusion and contradiction. Adolescents are urged to remain abstinent while surrounded by images on television, movies and magazines of glamorous people having sex, smoking and drinking. Girls are expected to remain virgins while boys are pressured to prove their manhood through sexual activities and aggressiveness. There are cultural, religious or moral restrictions to young people having access to information about their bodies and health risks that can help keep them safe.

Incidentally this 10-year window between childhood and adulthood also correspond to the period of educational development in the High School when young people develop their cognitive abilities to cope with some of the challenges that are imposed on them by the society and their immediate environment. Adolescence is therefore a period of transition and challenge, often considered as a period of turmoil, disturbance and conflict (Offer, 1981).

2.3.1. Physical development during adolescence

The rapid change in adolescence is the final phase in physically becoming an adult and involves far more than simply growing taller. Adolescents develop all the physical characteristics of a mature man or woman, including the capacity to reproduce. These physical transformations are collectively called puberty (Steinberg, 1991:434-441). Marshall (1978) identified five major changes during puberty:

- rapid growth and weight gain,
- further development of the gonads (in males the tastes become able to release sperm; in females the ovaries release ova or egg cells),
- development of secondary sex characteristics (these include changes in the genitals and breasts; the growth of pubic, facial and body hair, breaking of voice in males and further development of the sex organs)
- changes in body composition (including distribution of fats and muscles)

- changes in circulatory and respiratory systems (strength and stamina increase as well).

Hormones, chemical substances that act on specific organs and tissues in the body, trigger all the changes.

Hormones influence physical growth and maturation Nottelmann, Inoff-Germain, Susman, & Chrousos, 1990). Generally sexual behaviour increases with the onset of puberty, influenced by testosterone levels in adolescent males (Udry, 1990). In females adrenal androgens are related to sexual motivation and some aspects of sexuality. However, primarily social processes influence sexual intercourse in females (Udry, Talbert, & Morris, 1986).

It is therefore evident from the foregoing that both biological and social factors affect adolescent sexuality.

2.3.2. Adolescent sexuality

In their book on adolescent sexuality, Gullotta, Adams, and Montemayor (1991) provided a summary of their scan of texts on adolescent development on adolescent sexuality as including: "dating/puberty rituals; hormone fluctuations; individual differences; masturbation; contraception; sexual decision making; sex roles; desired/undesired pregnancy; abortion; adoption; adolescent parents; sex versus degrees of love; sexual orientation; sexual experimentation; maladaptive reactions to sexual experiences; sexual attractiveness; physical/sexual attributes; sex in relation to marital status; sexual victimisation; media- and zeitgeist-driven influences; sexually associated diseases; sex education; the role of socialisers in sexual control and expression; and ethnic, socioeconomic status (SES), religious, and demographic factors affecting adolescent sexual activity".

Puberty causes adolescents to function as "self-motivated sexual actors". It has different characteristics for males and females because the mature phenotypes differ, but there are similarities in the process. The age of onset of puberty also varies because of genetic, environmental and socioeconomic status (Tanner, 1975). Some of the similarities for both sexes are growth to an adult stature and the development of secondary sex characteristics. One difference is the onset of puberty two years later for boys than for girls. Boys end up taller and heavier than girls, with more facial and body hair and a different basic body shape, and develop a mature penis and testicles with sperm production. Girls develop breasts with menstrual cycle of hormone production, including a menstrual flow of blood. Adolescents are therefore fully developed to assume adult sexual relationship.

Due to complex changes in nutrition, social conditions, and public health both boys and girls (in Western countries) may appear to attain puberty much earlier (Tanner, 1962, 1975). It is generally believed that this accelerated maturity could only happen within genetically determined limits for a particular population (Bullough, 1981).

All through the ages the adolescents have been sexually abused. Downs and Hillje (1993) recounted that prostitution was the only form of sexual victimisation occurring in the 1800s. Hall (1904) reported that in 1878 Paris 68.8% of all reported rape cases for the year involved girls under the age of 13, and an additional 27.5% of rape cases involved girls between the age of 13 and 20. The age of consent in Paris was 13. Before 1814 girls could be forced into prostitution before the age of 12 in England. This was lifted to 13 in 1875. The situation in the US in 1881 was worse, when the age of consent was 10.

Adolescent "vice" in the US during 1820-1900 was mainly with sexual behaviour (including premarital sex) associated with living in big cities, where adolescent sexual vices, including both female and male prostitution, thrived (Kett, 1977). What is evident in the preceding paragraphs is that adolescents have always been abused by the society over the centuries and the hot spots have always been cities. This has assumed criminal levels all over the world.

The advent of contraception (the pill) in the 60s and 70s would have contributed to the sexual adventures of youths because the likelihood of unwanted pregnancies seemed lower (Grinder, 1973). The rapidly developing media industry of the last century had contributed dramatically to adolescent sexuality. Numerous scholars have noted the direct influence of radio, film, magazines, and television on adolescents' sexual attitudes and behaviours (e.g., Downs and Hillje, 1993).

The most ominous phenomenon of the 20th century was the detection in early 1980s of the AIDS virus. In 1991 about one third of the 1.5 million AIDS cases worldwide involved children. Given an average exposure to expression lag time of about 10 years, the projection to the 21st century has been devastating. When one considers the apparently high rates of unprotected (i.e., unsafe) sexual behaviours among adolescents (Melchert & Brunett, 1990) and the high incidence of chemical abuse (which may lower sexual decision making abilities) (Adams & Gullotta, 1989) the impact of AIDS on adolescents is most unfathomable.

2.3.3. Adolescent sexual behaviour and interest

A dramatic upsurge in sexual interest, arousal and behaviour at adolescence is well documented. (Miller, Christopherson, & King, 1993). Interest in adolescence sexuality has to do with the normative upsurge observed during the period and also because of potential negative consequences of sexual intercourse, including STDs and AIDS.

Explanations about human sexuality in general and adolescence behaviour in particular are explained in two major paradigms:

Frend (1933, 1953) explained sexual behaviour as largely attributable to the unfolding or emergence of biological urges that begin pressing most urgently for genital expression during adolescence. In contrast a second paradigm explains sexual behaviour as the result of socially shaped and learned patterns that are highly variable across cultural space and time. Consequently cultural elements constrain "the age, gender, legal, and kin relationships between sexual actors, as well as setting limits on the sites of behaviour and the connection between sexual organs" (Gagnon & Simon, 1973:4).

A combination of both biological and social factors is required to understand the timing and variation of adolescent sexual behaviour (Smith, 1989). "A biosocial approach argues that hormonal changes early in adolescents have both a direct biological influence on sexual interest and motivation and an indirect influence on sexual involvement by altering the adolescent's physical appearance and heterosexual attractiveness. In addition, social processes are recognised as facilitating or inhibiting sexual involvement, altering the forms of sexual expression, and defining appropriate sexual partners" (Miller, Christopherson, & King, 1993).

A further elaboration on the biological paradigm, already paraphrased elsewhere in this report, is beyond the scope of this work. However, the social paradigm needs further discussion. Social and cultural contexts play central roles in the timing and form of adolescent sexual expression even though physical changes and sexual motivation are propelled most clearly by biological mechanisms. Heterosexual behaviours, like kissing, petting, and coitus, for example, are influenced to some extent by social processes, expectations, and social controls (DeLamater, 1981).

2.3.4. Family influence

Studies have demonstrated that family characteristics and processes have particularly important influences on the sexual behaviour of adolescents (Miller & Jorgensen, 1988). A summary of family/parental influence on adolescent sexuality follows:

- Parental values, supervision, and modeling are associated with sexual behaviours of their children (Hogan & Kitagawa, 1985; Miller, McCoy, Olson, & Wallace, 1986; Thornton & Camburn, 1987).

- Parents' educational attainment and expectations for their children are related to children's school achievement and educational plans, which are inversely related to adolescent sexual intercourse (Miller & Sneesby, 1989).
- Studies on parent-teen communication and parental values (partitioned according to gender) revealed that daughters of traditional parents who had communicated about sex were found to be less likely to have had sex than daughters of more liberal parents or daughters of conservative parents who had not communicated about sex.

2.3.5. Peer influence

Peer influence is reflected in a variety of ways. In a study by Billy and Udry (1985), it was found that the sexual behaviour of white females was influenced by the behaviour of their best male or female friends. Girls whose best friends are sexually experienced are likely to have intercourse within the period of their relationship. However, male adolescents choose their friends on the basis of sexual activity, rather than such activity being influenced by friends' behaviour. These behaviours were not observed among black American adolescents (Harris & Associates, 1986). The onset of dating appears, therefore, as socially scripted (Dornbusch, Carlsmith, Gross, Martin, Jennings, Rosenberg, & Duke, 1981).

Another study by Smith & Udry (1985) on adolescents engaging in heterosexual behaviours at various stages of dating revealed that white adolescents in the USA aged 12 to 15 engage in intercourse least (of necking, feeling sex organs directly, feeling penis directly and finally intercourse). On the other hand a greater percentage of black teens had had intercourse than being engaged in the unclothed petting of breasts, sex organs, or the penis.

According to Furstenberg, Morgan, Moor, & Peterson (1987) white and black adolescents in the USA have different sets of normative expectations regarding heterosexual behaviour. White teens are more likely than the black teens to engage in a predictable series of noncoital behaviours for a period of time before their first intercourse. In another 1983 survey Hofferth & Hayes (1987) established that in the USA 60% white male adolescents have sexual intercourse by age 18 years and 60% of white female teens at age 19 years. Corresponding ages for Blacks were 16 and 18 respectively. A national survey carried out in the USA on various sexually transmitted diseases revealed that the highest rate of gonorrhea, syphilis, cytomegalovinus, chlamydial cervicitus, and rates of hospitalisation for pelvic inflammatory diseases were found among 15-19-year-olds (Bell & Hein, 1984).

Adolescents' sexual intercourse experience is strongly related to age. Analyses of National samples in the US of young women (Hofferth, Kahn, & Baldwin, 1987) indicated that adolescent females aged 15-19 who reported sexual intercourse experience grew from 47% in 1982 to 53% in 1988. In comparison only about 5% of adolescent males have had sexual intercourse by age 13, compared to over 80% of 19-year-old males (Sonenstein, Pleck, & Ku, 1989). In another survey by Sonestein, Pleck, & Ku (1991), 20% of black males reported age 13 as their first intercourse as against 3% of white and 4% of Hispanic males. It has also been demonstrated that the age of first sexual intercourse is influenced strongly by race, with blacks significantly more likely to report younger age of first intercourse than white or Hispanics (Miller, Christopherson, & King, 1993).

The age of first intercourse has been linked with a number of consequences. Sexually permissive attitudes and expectations among all races/sex subgroups and, among whites, selection of friends who were sexually active, were on the increase. The importance of going to College among white females lowered and school grades depressed among white males (Billy, Landale, Grady, & Zimmerle, 1988). Female teens that begin sexual intercourse earlier were also most likely to form a family through giving birth rather than through marriage.

A positive relationship between the incidence of adolescent sexual activity, delinquency, and drug use/abuse is also documented (Jessor & Jessor, 1977), with sexual involvement following experience with non-normative behaviours (Elliot & Morse, 1989).
Adolescents are more at risk of non-consensual or coercive sexual acts perpetrated against their will, without consent, or in an aggressive, exploitative, or threatening manner. They have been noted to be at risk for sexual victimisation (rape or sexual assault) by various predators, including peers (Ageton, 1981), adult acquaintances (Finkelhor, 1979), family members (Lystad, 1982) and strangers (National Crime Survey, 1981).

Adolescents are readily taken advantage of because of their fear of getting into trouble, their inexperience and lack of information about sexuality, or their own needs (along with other pressures) to enter the adult world of love and romance. Such assault is usually committed during a date by a boyfriend or acquaintance of about the same age (Ageton, 1985), mostly in the victim's home (Renner & Wackett, 1987). An unstable home environment, involvement in delinquent behaviour, and membership in a delinquent network contribute to the risk of being sexually assaulted.

There are culturally transmitted beliefs about sexes, acceptance of violence, and aggression and rape myths that may lead to rape-supportive values in a population (Burt, 1980). Check and Malamuth (1983) established relationships between sex-role stereotyping and arousal to rape, perceptions of favourable response of rape victims, and men's self-supported likelihood of raping or coercive sex. (Recall the cliché: "When a woman says 'No' she means to say 'Yes'!) There are evident misunderstandings about such reactions to a woman resisting sexual advances as a part of her femininity (and not as a statement of her displeasure or discomfort), misrepresentation of another's actions (e.g., the woman initiating the date, going to a man's home, or accepting a ride), or the belief that petting means a woman is ready for sexual intercourse. These may lead to aggression or rape.

In a study involving high school learners, Goodchilds, Zellman, Johnson, and Giarrusso (1988) reported that it was acceptable for a boy to pressure a girl for sex if

- The boy had spent a lot of money on the girl (supported by 12% girls and 39% boys).

- The boy was so aroused that he thought he could not stop (supported by about 33% boys)
- The girl changed her mind about having sexual intercourse (supported by 54% boys).

The above are examples of the dominant sexual and dating values of adolescents.

2.4. HIV/AIDS *infection among adolescents*

Adolescents often engage in high-risk behaviours that make them highly vulnerable to contracting STDs and HIV. One in four new infections occurs in young adults and adolescents under 22 years of age in the USA (Hooker, 1996).

2.4.1. Risk *behaviours of adolescents*

Statistics indicate that contemporary adolescents are sexually active at very young ages. In the US the average age of first sexual intercourse is 16 years (Zelnik & Shah, 1983). An estimated 11.6 million teenagers age 13-19 have had intercourse. This figure includes 5 million females (Shayne & Kaplan, 1988).

Teenagers possess a unique developmental perspective on their behaviour. They frequently act in a rebellious manner to establish autonomy from their parents and to celebrate their individual identity (Stiffman, Earls, Doore, & Cunningham, 1992). Originally, this attitude has been viewed as a necessary step in the achievement of adult status. A behaviour characteristically associated with this age group is risk-taking (Stiffman, Earls, Doore, & Cunningham, 1992). The typical teenager scores higher than an adult on personality measures of risk-taking behaviour (Gardner & Herman, 1990) as well as on measure of sensation seeking (Zuckerman, 1979). The productivity for high-risk situations emerges in specific behaviours. For example, adolescents and young adults are more likely to participate in and be the victims of violent crimes (Johnson, O'Malley, & Bacham, 1987). They also like to experiment with new behaviours, engaging them, for example, in unprotected sexual intercourse.

Adolescents tend to believe that they are invulnerable (Evans & Waseikwski, 1983). This perception of immunity is reflected in their preference for concrete rather than abstract thought, their denial of danger inherent in their actions, and their consistent need for peer approval. As a result of these perceptions of immunity, teenagers may deny or simply ignore the risks associated with sexual intercourse (Rolf, Nanda, Baldwin, Chandra, & Thompson, 1990/1991).

The teenage years are a time of sexual experimentation and many adolescents are pressured by peers to engage in sexual intercourse without using contraception. According to Milstein (1990) adolescents wait an average of 9-14 months after becoming sexually active before seeking contraceptive information.

Evidence of unprotected sex among adolescents may be found in escalating rates of sexually transmitted diseases which are predictive of HIV infection (Hardy, 1987; Kipke, Futterman, & Hein, 1990). Reports indicate that relatively few teenagers use condoms consistently during intercourse, despite evidence that condoms serve as effective barriers against STDs, including HIV (Jaffe, Seehaus, Wagner, & Leadbeater, 198; Zelnik & Shah, 1983).

Stiffman, Earls, Doore and Cunningham (1992) indicated that adolescents at risk of AIDS occasionally increase their risk-taking activity despite programmes alerting them to the consequences of their behaviour. Behaviour such as having acquaintances with an HIV infected person or who had died of AIDS did not lessen their risk behaviour. On the contrary, adolescents who increased their risk taking behaviours were more likely to know more about the danger but to do nothing but heighten their risk as if tempting fate (Hein & Hurst (1988). Fineberg, (1988) and Rolf, Nanda, Baldwin, Chandra, & Thompsom, (1991) attribute some of the behaviour to peer pressure. However, a sense of fatalism may also be prevalent in certain segments of the adolescent community (Gargner & Herman, 1990). Millstein (1990) cites more than one million pregnancies among adolescents each year as evidence of the high rate of unprotected intercourse within this population. Moreover, a substantial percentage of adolescents have more than one sexual partner, further increasing the risk of disease transmission. According to Zelnik and Shah (1983), 19% of sexually active 15-19-year old females report more than four sexual partners. In addition, Millstein (1990) notes that a high percentage of adolescent AIDS cases are associated with homosexual transmission and Remafedi (1987) observes that adolescents with this orientation often engage in unprotected sex with multiple partners.

Intravenous drug use is another behavioural risk common among adolescents, which is the major cause of AIDS among some adolescents (Quackenbush, 1987). Drucker (1986), Johnson, O'Malley, and Bacham (1987), and Weisman, Nathanson, Ensminger, Teitelbaum, Robinson, & Plichta, (1989) associated adolescent alcohol consumption with high-risk behaviour. A study reported that a majority of female teenagers found it easier to have sex if they had been drinking, and many said that they worried less about birth control after consuming alcohol.

The homeless and runaway teenagers are other adolescents that are at risk. Approximately one million teenagers run away from home each year and more than half are chronic runaways (Millstein, 1990). Other vulnerable teens include juvenile offenders and school dropouts. It is generally difficult reach these groups of adolescents for intervention and education since they may not attend schools on a regional basis and have limited access to health are and service-delivery systems.

One reason adolescents continue to adhere to the risk behaviour may be that the long interval between exposure to the virus and the onset of illness militates against preventive behaviours. Another reason may lie in the proclivity for risk-taking and experimentation common in this age group. Investigations have revealed further that adolescents are less apt to actively pursue behaviours that promote health since their immature cognitive capacities lull them into a belief in their own invulnerability and diminish the likelihood that they will focus on alternative behaviours and weigh behavioural outcomes in advance of acting (Gordon, 1990; Stiffman, Earls, Doore, & Cunningham, 1992). Indeed research posits that prominent features of adolescence, such as cognitive immaturity, the struggle for psychological autonomy, susceptibility to peer influences, and the traumas of physical development, heighten the tendency to engage in risk-taking behaviour (Montgomery, Joseph, Becker, Ostrow, Kessler, & Kirscht, 1989)

2.5. Preventive strategies

2.5.1. The use of condoms

The body of research on the effectiveness of latex condoms in preventing sexual transmission of HIV is both comprehensive and conclusive. In fact the ability of latex condoms to prevent transmission of HIV in 'real life' studies of sexually active couples as well as in laboratory studies is also not in contention. Latex condoms cover the penis and provide an effective barrier to exposure from genital secretions such as semen and vagina fluids, blocking the pathway of sexual transmission of HIV infection. It can also prevent the incidence of injuries to the penis and vaginal tracts during sex that can enhance blood contacts.

Traditionally condoms came to limelight as a contraceptive device, a barrier used during heterosexual relationship to prevent unwanted pregnancy. Messersmith, Kane, Odebiyi, & Adewuyi, (1994) also emphasised the use of condom as an important component in the prevention of STDs, including HIV. It is considered to be the most reliable method other than sexual abstinence in the risk-prevention of pregnancy, infections in STDs and HIV. Research carried out on condom use indicated that they provide effective barrier to HIV and other sexually transmitted diseases and also for contraceptive purposes. It was also speculated that the use of spermicide might have virucidal effect if used in conjunction with a condom and may enhance the effectiveness of condoms as a prevention device (Rietmejer, Krebs, Feorino, & Judson, 1988).

In the absence of an effective treatment or vaccine, control of the spread of HIV infection must be accomplished by minimising exposure to the virus. Exposure due to transfusion has been greatly reduced while drug abuse and sexual contacts continue to play major roles in the spread of AIDS among adolescents. Research has further shown that the majority of HIV/AIDS cases all over the world are due to heterosexual transmission and mostly among adolescents (Friedland & Klein, 1987). The 'Safe Sex' guidelines suggest that sexual transmission of HIV can be avoided or reduced if condoms are used consistently and correctly during sexual intercourse (Francis, & Chin, 1987).

Most condom-promotion strategies for the prevention against the spread of HIV infection in sub-Saharan Africa have targeted female sex-workers and truck-drivers. These high-risk groups, including adolescents, are often blamed for the spread of HIV, and individuals who do not self-identify as a member of a high-risk group do not perceive themselves to be at risk of infection (e.g., Elias, 1991).

Looking at the rapid spread of STDs and HIV/AIDS world-wide, especially in Africa and with special reference to South Africa, preventive intervention will be most effective if directed at young people, mostly below the age of 18 years. A survey carried out at a South African township of Khutsong by Macphail and Campbell (2001) revealed that HIV infection was almost non-existent in the 13-16 years age group. There was, however, a sharp increase in the 16-18 years age bracket (19.0%), and much higher infection rate at 21-25 age group (43.1%). In programmes aimed at preventing transmission of HIV, condom use has been emphasised by Clinicians, Public Health agencies and Health organisations as a 'safe sex' method (Stone, Grimes, & Madger, 1986).

Based on laboratory tests, Check (1988) cited latex condoms as more uniform in strength, durable and more effective than animal-skin condoms. They prevent the HIV virus from penetrating. He further suggested that latex condoms should be used consistently and correctly. Stone and Grimes (1986) further corroborated this notion. Latex condoms provide an impermeable barrier to viruses even smaller than HIV, which may indicate that HIV does not permeate the membrane of intact, high-quality condoms.

The use of condoms in Africa, particularly in Nigeria, Ghana and South Africa are limited by cultural and religious constrains because of its association with contraception. A number of Africans also associate condom with a lack of trust between partners.
Even though abstinence is the most effective preventive strategy against the HIV/AIDS virus and other venereal diseases, very few adolescents can keep to this method once they become sexually active. Even then, many adolescents who are sexually active rarely use condoms as well (Le Roux, (1994). Various surveys of knowledge, attitudes, and sexual behaviour have shown that knowledge does not correlate with condom use. A household Ugandan survey by Musagara (1993) has shown high level of risky behaviours despite the fact that participants were well informed about the causes of HIV/AIDS infection.

Forty eight percent of the sexually active participants failed to use condoms consistently despite the knowledge of risk and safer sex counseling. He also discovered that safer sex practices (including condom use) were also not consistent despite the fact that they had been initiated.

A number of studies on adolescents contained records of risky behaviours. For example the average US female adolescents did not take any preventive measures until a year after they became sexually active, thus making genital infections more rampant among young people between the ages 10-19 than in adults. This also pointed to a high occurrence of unprotected sex and multiple partners among adolescents (Fullilove, 1990). Only 15% of these young people reported consistent use of condom while 50% stated that they used condoms only occasionally.

A similar survey of adolescent American males by Ku (1994), however, revealed that the level of condom use increased from 21% -58% over a period of 9 years, even though it was the least used protective method among those at highest risk of HIV transmission.

A survey of homosexual youths below the age of 21 in the UK revealed that only 48% reported consistent condom use for anal sex. Similar survey reported by Hays (1994) in San Francisco revealed 43% of young homosexual youths (18-25 years) engaged in anal sex without any protection. Thus studies of homosexual youths found that even in countries where health education programmes are well established there was a high level of risk behaviour among young gay men and more so among young people in general.

2.5.2. Misconceptions about the use of condoms

Numerous studies have shown the extent and depth of knowledge about condoms varies widely. 32.5% of township studies in Cape Town had no knowledge of what a condom was (Preston-Whyte, 1991; Abdool-Karim, Preston-White, & Sankor, 1992). A serious misconception cited by some of the students was that a woman would get severely ill and die if the condom is left behind in the vagina. This misconception is not limited to this group of students but also to women in Rwanda and Nigeria where such concerns have been expressed. Other misconception held was that used condoms could be washed and re-used. They also believe that condoms restrict the flow of blood to the penis. There is a popular misconception that 'condoms remove the pleasure/enjoyment in sex'. The general notion of 'flesh to flesh' interaction or 'natural sex' is common among heterosexuals, as it is conceived to be satisfying to both partners. This follows a general belief that condoms act as a barrier to physical contact during sexual intercourse (Meyer-Weitz, 1994). Other negative perceptions about the use of condoms are that the use of condoms interrupts the steps of sex, make sex painful for both partners (Abdool-Karim, Preston-White, & Sankor, 1992), and act as a barrier to those adolescents who wish to prove their fertility.

Some South African adolescents have reported some racial coloration as militating against the use of condoms. A research carried out in Gauteng (Williams, Campbell, & MacPhail, 1999) revealed that black teenagers and young adults unanimously stated that they do not like 'white' condoms. They considered it stupid to wear white condoms and referred to condoms (and the packaging) as 'boring' and 'clinical'. They would prefer condoms made in a variety of colours and if possible scented to make for choices, with some fun built into its design.

Further research (Valdisceri, Arena, Proctor, & Bonati, 1989) has also revealed that even though there had been a relatively high level of awareness about condoms and HIV transmission among adolescent females attending family planning clinics in Pennsylvania, a number of misconceptions were reported. These included the use of Vaseline as the best lubricant for condoms and withdrawal of the penis before ejaculation being as safe as using a condom in terms of preventing HIV infection. Condom use was only considered necessary if one's partner was infected. Many adolescents were of the opinion that condoms were unreliable but 'knowing one's partner' or judging one's partner by merely looking at his/her appearance was a more reliable form of protection. This is a misconception that people are able to discriminate between 'safe' and 'unsafe' sex partners and the belief that engaging in condomless sex with a 'safe' partner will not put them at risk of HIV infection (Chapman, & Hodgeson, 1998; Crawford, Turtle, & Kippax, 1990). However, researchers have concluded that 'knowing partners' just by appearance is not valid enough to prevent the risk, rather it is very important to have accurate knowledge about one's partner by inquiring about a partner's past and present concurrent sexual history (Woodcock, Stenner, & Ingham, 1992).

Health-related behaviours such as condom use are determined not only by the individual choice but also by the extent to which social conditions enable such (Gillies, 1999). Within the African setting people who use condoms, particularly young women, are considered to have 'loose morals'. Often young men who use condoms become subjects of ridicule among their peers (MacPhail, & Campbell, 2001). Condom use is associated with casual sex, lack of trust, and thus creates suspicion among two partners (Lear, 1995; Fay, 1999:296). It is usually associated with men with uncontrollable sexual desire, which drive them to having multiple sexual partners. As against polygamy, promiscuity within a polygamous family is not acceptable within the African society. Because of the high premium placed on procreation within the traditional African society, the association of condoms with contraception makes it unpopular among Africans (Campbell & Yoelwa, 2002).

The socioeconomic conditions of many African families encourage young girls to sell their body for money to support the family. In this circumstance it is difficult to negotiate with a client to use condom. For a woman to propose the use of condom to her partner within the male dominated society in Africa is considered to be tantamount to mistrust. Often there is not much communication between two sex partners to warrant negotiating for the use of condom. The initiative for such negotiation does not lie with the woman (McNamara, 1997:125, 129).

Anonymity is a real problem both in Africa and in the West. However, while in the West putting vending machines in public toilets has solved the problem there are negligible African countries that can provide adequate public toilets, more so to provide condoms. Besides most African villages are without modern toilet facilities in the homes as well as in the public. The question about the quality of condoms with respect to lubrication, size, wrapping and so on has generated concerns and corroded confidence in their adoption as a reliable preventive method (Civic, & Wilson, 1996).

Casual sex is often reinforced by anti-AIDS campaigns. When people are advised to be faithful or use condoms, condoms become associated with unfaithfulness! Not using condom is therefore seen as a sign of faithfulness and that one trusts his/her partner (Gausset, 2001).

The unwillingness of Africans not to use condom is routed in tradition. For example the Tonga people of Zambia (Gausset, 2001) it is believed that it is better for a foetus if the pregnant woman has regular sexual intercourse, because the semen gives strength to the baby. They also believe that a woman can only reach orgasm when she receives the man's semen in her womb. They have an unpleasant metaphor for the use of condoms: ('it is like eating a sweet with the paper on'). It is generally believed that condoms remaining in the vagina could make a woman sterile and using condoms makes men sterile as well.

In Tanzania, as in most parts of sub-Saharan Africa, the promotion of condom use in schools is still not allowed, and attempts to introduce it are facing considerable resistance from traditional cultures and religious beliefs. Since adults and children cannot discuss sex openly most school children who are sexually active practise high-risk sex with deleterious consequences.

In Kangera region of Tanzania there is a common saying, similar to that of the Tonga people of Zambia, that 'you cannot enjoy the taste of chewing gum if you don't remove the cover'. For these people sex without condom is considered acceptable. Most youths refer to this as 'flesh-to-flesh is sweeter'. Furglesang (1995) has cited young men in Tanzania as using 'kavu-kavu sex' (sex without additions) if they wanted to maximise sexual pleasure with pretty and fit girls, as both men and women consider this method to be the best form of sex. It is a popular saying in Zambia that 'when you are using condoms, you may as well abstain from sex'.

It is hardly acceptable for couples to use condoms. When one uses condom with one's wife it is a sign that the man slept with a prostitute.

2.5.3. Access to condoms

In developed countries most adolescents have knowledge access to condoms. The situation is different in underdeveloped countries. In countries like Uganda, Tanzania, and South Africa condoms are free for whoever needs them. However, in countries like Zimbabwe and Nigeria condoms are used by those who can afford them. The cost and availability of condoms are some of the problems that limit the access of adolescents to them. Sometimes in the countries that provide free condoms, like in South Africa, hospitals, clinics, and health centres in certain rural areas are situated too far and money is needed for transport to benefit from such facility. It is also known that adolescents sometimes feel embarrassed or shy using condoms or going to the family planning clinic (Friedland, Janlelowitz, De Beer, De Klark, Khoury, Csizmada, Pandayachee, & Levy, 1991; Gold, *et. al.*, 1992). Sometimes the staff of the family planning clinics are hostile and often display uncaring attitudes especially towards adolescents seeking or purchasing condoms (Abdool-Karim, Preston-White, & Sankor, 1992). In some cases clients are discouraged from using condoms by the staff of clinics because, according to them, condoms are secondary, unreliable, and unacceptable forms of contraception.

2.5.4. Instances where condom had been used successfully

Focused intervention has proved very effective in increasing the use of condom in India and Botswana among sex-workers-client contacts. This reduces HIV transmission (and STDs) not only among sex workers and their clients but also in the general population due to the role of these groups in spreading infection (Anderson, & May, 1992). The most popular example is the 100% condom policy in Thailand, which has been linked to a decrease in the numbers of HIV cases and sexually transmitted diseases (Nelson, Celentano, Eiumutrakol, 1996). Similar declines in the prevalence of HIV infection have been observed in Uganda (Richens, Imrie, & Copas, 2000).

2.5.5. Female sex workers intervention in India and Botswana

The objective of this intervention is to increase the use of condoms in contacts between female sex workers and their clients. In India, there are millions of such workers, with a far greater number of clients. Since many men from Botswana often find temporary work in South Africa, their contact with female sex workers is probably even more widespread than that of Indians. In both countries the use of condoms during sex-worker-client contact is generally low.

Many peer-mediated female sex worker intervention programmes in India and Africa have been reported to lead to increase in condom use of 80% or more among the focussed people.

2.5.6. Thailand success story

Condom use and education can dramatically reduce the transmission of HIV, which is significant for a nation like Thailand, with its prominent sex trade industry (Hanenberg, Rojanapithayakom, Kunasol, & Sokal, 1994). In 1991, the government of Thailand instituted the "100% condom" campaign, which was designed to encourage safe sexual practices and reduce the transmission of HIV infection from commercial sex workers. To measure the effectiveness of the HIV prevention programme, Nelson and his colleagues studied the behaviour of 21-year old men from the Royal Thai Army between 1991 and 1998. Soldiers in the Royal Thai Army are selected for service through a random lottery and therefore reflect the general population. All the men were tested for HIV infection and asked questions about their background, sexual habits, medical history, use of condoms, and injection of drugs. The researchers found that the prevalence of HIV infection among the soldiers dropped from a high of 11.9% in 1993 to 2.4% in 1998. Visit to sex workers dropped from 80% in 1993 to 38% by 1998. This study shows that increased public health programmes, such as condom use, are needed to prevent further spread of the HIV pandemic. However, the transmission of the disease through injection of drug increased (Nelson, 2002).

The success of condom use in the fight against HIV/AIDS in Thailand is due to the fact that the prevention programme was initially based on research and evaluation, followed by a high level of commitment to implement and finance by the government. Sexual behaviours have changed significantly, with condom use increasing and visits to sex workers decreasing. In 1991, all government-sponsored STD clinics began to promote condom use in the commercial sex setting. The "100% condom programme" enlisted the cooperation of sex establishment owners and sex workers to encourage their clients to use condoms when obtaining sex. Government, in one year to support this activity, distributed almost 60 million condoms free (Phoolcharoen, 1998). The increased use of condoms by commercial sex workers has been confirmed by a survey in Bangkok in which five cross-sectional studies were conducted from 1993-1996 (Mills, Benjarattanaopom, Bannett, & Pattalung, 1997). The reported condom use in the last sex exposure of direct sex workers increased from 87% in 1993 to 97% in 1996. For the indirect sex workers condom use increased from 56% in 1993 to 89% in 1996. These data demonstrate that changes in sexual behaviour have occurred among vulnerable individuals who act as a bridge between a high-risk group and a general population.

2.5.7. Condom failures

Public health campaign emphasizes the use of condoms as 'safe sex' but little is known about condom failure (Gotzsche, 1988). Condoms indeed have a substantial failure rate. According to Kelly (1996) 13-15% of women whose male partners use condoms as the sole method of contraception became pregnant within a year. Presumably condoms fail because of tears or slippage or because they have not been properly used. Given the failure rate of condoms in family planning, homosexuals who practice anal sex would be at greater risk of HIV infection, even if they use condoms.

A study carried out by Gotzsche (1988) in the Department of infectious diseases, Denmark, 30 female prostitutes and 16 persons from the hospital staff each tested 10 latex condoms by vaginal intercourse. Six dropped out. Condom rupture occurred at least once for 7 in 40 persons. Total condom rupture rate was 5%. Gotzsche (1988) remarked that "although encouragement to use condom is prudent in an epidemiological scale, 'truly safe sex' with HIV-positive partner using condoms is a dangerous venture" The possible consequences of condom failure when one partner is HIV positive are therefore serious enough and the likelihood of failure is sufficiently high that condom use by risk groups should not be described as totally 'safe sex'. Although the use of condom is still the only available method to prevent HIV/STDs infection, the effectiveness of condom in preventing infection is not know with certainty (Weller, 1993). According to Wilde (1994) there are three ways in which a large increase in the use of condom could fail to affect disease transmission:

- condom promotion appeals more strongly to risk-averse individuals who contribute little to HIV infection;
- increases condom use will increase the number of transmission that result from condom failure, and
- there is a risk-compensation mechanism – increases condom use could reflect decisions of individuals to switch from inherently safer strategies of developing or maintaining higher rates of partner change plus reliance on condoms.

In his two studies a Canadian study cited by Wilde (1994) showed that televised AIDS messages from Ontario Ministry of Health made more respondents more inclined to use condoms, and less inclined to avoid casual sexual partners. In the second US study it was shown that women taught to negotiate condom use with their partners had no change in incidence of sexually transmitted diseases compared with controls with a trend to an increase in such diseases.

A survey by a family planning clinic in Manchester of people, who are experienced in using condoms, reported that 52% of respondents had experienced condom bursting or slipping off. People who totally rely on condoms as a method of contraception also report instances of failure. The pregnancy rate was 6 per 100 women of age 25-34. Consequently the findings that slipping off and rupture of sheaths are common even among experienced users are corroborated. A similar study (Gotzsche, 1988) carried out on homosexual couples that used condoms revealed 15% of the condoms slipped off and 11% ruptured

These failure rates have put the people using condoms at a risk of about eight times that of those non-users of developing gonorrhea, trichomoniasis, or chlamydia infection plus a relative risk for the transmission of HIV of 0.4. Another study by a genitourinary clinic in London showed that although use of condoms increased from 4%-21% between 1982 and 1992, condom has failed to control viral sexually transmitted diseases. In an editorial in the New England Journal of Medicine on a study of transmission of HIV published in the journal, Kelly (1996) remarked that "The sample was not large enough to exclude the possibility of a transmission rate of up to 1.5 per 100 persons among the consistent condom users.

2.5.8. Women-applied device facilities: Female condom and microbicides

Women bear the brunt of the HIV/STD burden. All over the world, HIV infections are increasing most rapidly among women, who contract the virus primarily through sex with an infected male partner. The avoidance of infection is often more problematic for women than for men. Women's greater vulnerability to infection with HIV can be attributed to a number of physiological reasons – a more vulnerable genital tract, especially in younger women; significant economic and social disparity between the sexes, that can put women at risk of violence or abandonment if they try to negotiate safer sex. By and large male condoms provide good protection against HIV and other STDs when used correctly and consistently during sexual intercourse. However, condom use often requires the consent and cooperation of the male partner, and women cannot always successfully negotiate their use. As will be seen later, abstinence is the only fail-safe measure against HIV/STD infection. This option again is not always open to women, particularly adolescent females, since non-consensual sex is most often a reality. There is therefore an urgent need for some effective female-controlled strategies to enhance the ability of women to avoid HIV and other STDs.

The female condom is intended to play a dual role, as a contraceptive device and as a protective device against STDs, including HIV. Female condoms are made of a polyurethane plastic that is sturdier than male latex condoms, potentially offering less frequent breakage, improved comfort, and longer shelf life even under unfavourable storage conditions. Unlike male condoms, a female condom can be used with any type of lubricant without compromising its strengths. Studies have also shown that the female condoms are impermeable to various STD organisms, including HIV and other viruses (

Many trial runs of women's acceptability of female condoms have been carried out in Costa Rica (Madrigal, Schifter, & Feldblum, 1998), Thailand (Sinpisut, Chandeying & Skov (1998), Kenya (Ruminjo, Steiner, & Joanis, 1996), Brazil and Kenya (Ankrah & Attika, 1997) which revealed that the use of female condom is low in many countries, increases sexual pleasures more than the male condoms, a number of men and women prefer the female condom to male condom, and many of the women felt that the use was under their control.

2.5.9. Microbicides

A microbicide is a chemical substance in the form of a gel, cream, suppository, or film that kills or neutralises microorganisms (viruses, bacterial, and parasites). When applied directly in the vagina or rectum before sexual intercourse, it should prevent infection with STDs or HIV. A microbicide can be used by women to protect themselves and their partners from infection without necessarily having to secure male cooperation. A number of microbicides, including existing spermicides, are under trial to establish their preventive efficacy, but the device is still at trial stage (e.g., Gagné, Cormier, & Omar, 1999; Watts, Thompson, & Heise, 1998); Rosenthal, Cohen, & Stanberry, 1998) and prior acceptability surveys being undertaken (Elias & Coggins, 2001).

2.5.10. Male circumcision

According to Halperun and Barley (1999) circumcision is a surgical procedure that outside of the USA, Canada, Australia, and South Korea, is restricted mainly to specific cultural and religious groups. A unique feature of circumcision is that it occurs almost exclusively in infancy or early childhood in the United States and most of West Africa. A very small percentage of men require or request the procedure as adults. In certain parts of South Africa a ceremony of initiation to adulthood often accompanies circumcision of young adults (who may not be necessarily virgins).

Perhaps because circumcision is usually imbedded in a complex web of deeply held cultural values and religious beliefs, many health professionals have been hesitant to integrate it into other HIV and STD prevention strategies. Yet these same health professionals have seldom hesitated to promote the use of condoms to attempt other sweeping changes in sexual behaviour-practices that may be equally changed deeply rooted cultural and religious meanings. Although promotion of changes in sexual behaviour and condom use remain two of the three cornerstones of HIV prevention in most developing countries (STD treatment now constitutes the third), male circumcision remains largely unexplored, at least by international public health community. Simeson, Cameron, Gakinya, et al (1988) further concluded that the possible role of male circumcision in the acquisition of sexually transmitted diseases has taken on a new significance with recent evidence that HIV infection in men is associated with uncircumcised status Cook, Koutsky, & Holmes, (1994). Sexually transmitted diseases like syphilis, gonorrhea, and genital herpes infection are linked with uncircumcised status.

In uncircumcised men, trauma of the foreskin or the thin epidermis of the glands during sexual activity can open a passageway of infection for treponemes infections like HIV (Holmes, Mardh, Sparling, & Wiesner, 1990).

The thicker, cornified epithelium on the glands of circumcised male is less susceptible to abrasions and therefore to entry of *T Pallidum*. For gonorrhea, the inner lining of the foreskin might create an environment conducive to the survival or growth of *N. gonorrhoea* and, perhaps to entry into the urethra and enhanced infectivity (Ross, & Reith, 1985).

In their research, "Male circumcision and HIV Infection: 10 years and counting", Halperin & Bailey, (1999) concluded that:

- Lack of male circumcision is one of the main causes of many regional discrepancies in rates of HIV infection
- As increasing numbers of men in some traditionally non-circumcising communities seek safe affordable circumcision to avoid AIDS and other sexually transmitted diseases, it is time for the international health community to add male-circumcision services to the current limited armamentarium of AIDS prevention measures in countries with a high prevalence of heterosexually transmitted HIV/STDs.

Today many observers of the AIDS pandemic are puzzled by the glaring discrepancies in HIV seroprevalence between different countries and regions, despite the presence of what seem to be similar risk factors. For example, the November 1998 UNAIDS/WHO Report on AIDS epidemic concludes, "it is not fully understood why HIV infection rates take off in some countries while remaining stable in neighbouring countries over many years".

In the study of risk factors for HIV infection among 422 men who visited commercial sex workers in Nairobi, Kenya, Cameron and colleagues (1989) found that men who were not circumcised had an 8.2-fold increased risk of seroconversion compared with circumcised men. Subsequently six more prospective studies (Moses, Bailey, & Ronald, 1998) from four countries investigated the relative risk of heterosexual HIV-1 infection in uncircumcised men. Four of the studies reported significant relative risks that ranged from 2.3-4.5 while in the remaining two the risk ratio was 3.0.

- *In another cross sectional study of 2776 heterosexual men attending a sexually* transmitted disease clinic by Cook, Koutsky, & Holmes, (1994) to assess the relationship between circumcision and syphilis, gonorrhea, chlamydial infection, genital herpes and exophytic genital warts, a positive relationship was observed between uncircumcised status and both syphilis and gonorrhea. A negative relationship was found between warts and lack of circumcision and no apparent relationship was noted between uncircumcised status and genital herpes, chlamydial infection, etc. The authors then concluded that:
- uncircumcised men were more likely than the circumcised men to have syphilis and gonorrhea;
- *that circumcision status is related to some, but not all, sexually transmitted diseases.*

These findings were further strengthened by the findings of a study conducted at the Whitechapel Clinic in London, where a comparison of men with culture-confirmed herpes and controls revealed a higher proportion of men with herpes were uncircumcised (Taylor, & Rodin, 1975).

It has been suggested that the foreskin provides a vulnerable portal of entry to HIV and other pathogens (Simeson, Cameron, Gakinya, et al, 1988). It has also been reported that the highly vascularised prepuce contains a high density of Langerhams cells-primary target cells for sexual transmission of HIV- than cervical, vagina, or rectal mucosa (Hussain, & Lehner, 1995). Other workers have noted that the foreskin is more susceptible to traumatic epithelial disruptions during intercourse, which allows additional vulnerability to HIV (Cameron, Simonsen, D'Costa, 1989). An intact skin also exposes a man to greater risk of ulcerative STDs, such as syphilis, herpes, and chanroid that are known co-factors for HIV infection (Moses, Bailey, & Ronald, 1998). The probability of female-to-male transmission of HIV-1 is reported to be very low (as rare as one per 9000 acts of unprotected vaginal intercourse in the absence of facilitating risk factors) hence a widespread heterosexual AIDS epidemic is unlikely. However, where genital ulceration combines with uncircumcised status high STDs are common, providing an ideal situation for an explosive epidemic of HIV infection.

It is proposed that if male circumcision were to be adopted by a substantial proportion of men within customarily non-circumcising societies, a huge impact could be made on the HIV pandemic in developing countries. It is estimated that if the relative risk of HIV-1 infection for uncircumcised men is 2.5 in a country where 20% of men are not circumcised (as is roughly the case in Nigeria and Indonesia) the proportion of heterosexual HIV-1 infections in men attributable to lack of circumcision is 23%. However, if 80% of men are not circumcised (as is roughly the case in Zambia and Thailand), an estimated 55% of HIV-1 infection in men are attributable to lack of circumcision (Halperun & Bailey, 1999).

The awareness about the relative effectiveness of circumcision as a potential weapon to combat HIV infection is growing in East and Southern Africa. Male circumcision is increasingly being recommended by traditional healers (Green, Zokwe, & Dupree, 1993), while a number of private clinics that specialise in male circumcision, run by people with minimum or no medical training, are sprouting up in Tanzania, western Kenya, Rwanda, and Uganda. Many young men and adolescents in east and southern Africa are increasingly opting for circumcision in regions where traditionally they have avoided the practice. 23% of non-Muslim Ugandan men, not belonging to any traditionally circumcising ethnic group, recently reported that they were circumcised. 60% of uncircumcised men from western Kenya stated that they would prefer to be circumcised Bailey, & Poulussen, 1999). Researchers in Tanzania also concluded that "ethnic group or religious denomination are no longer the sole determination of male circumcision" (Urassa, Todd, Boerma, Hayes, & Isingo, 1997). The observation "when tradition and health of our people are in conflict, it is tradition we must sacrifice" was credited to the leader of South African healers' organisation (Green, Zokwe, & Dupree, 1993).

As the number of men and boys turn to circumcision as perceived protection from AIDS, caution should be taken to protect people from harm by untrained and inexperienced practitioners who may use tools that are not properly sterilized or offer unprofessional services. With the compelling evidence that show a significant association between lack of male circumcision and HIV infection, it is time to incorporate male circumcision into primary health care programmes in communities where circumcision has traditionally not been practiced. It should, however, be borne in mind that male-circumcision must not be perceived by individuals or communities as a substitute for HIV/STD prevention strategies but rather as a complement to existing AIDS prevention and reproduction health programmes.

2.5.11. Abstinence, fidelity and faith

In reference to an article in a National periodical, Newsweek, by Noble in 1991 titled "There is no safe sex" the author made reference to the fact that condoms were not foolproof in preventing HIV infection. The author argued that the combination of abstaining from sex until marriage and practicing monogamy thereafter provides our only hope against the further spread of HIV. He posited that abstinence and mutually faithful sexual relationship with uninfected persons are the only guaranteed methods of preventing the sexual transmission of HIV.

This submission agrees with the position of the South African Bishops Conference on July 30, 2001 (Southern Cross) titled "A message of hope". The call from the Bishops was simple: "Abstinence is the only way". The Bishops insisted that the only answer to overcoming AIDS and build up a new, happy, and healthy South Africa, Botswana, and

Swaziland was to abstain from sex before marriage and be faithful to one's spouse in marriage.

The Bishops gave four bases for their position:

- Condoms go against human dignity.
- Condoms change the beautiful act of love into a selfish search for pleasure.
- Condoms do not guarantee 100% protection against HIV/AIDS.
- Condoms may even be one of the main reasons for the spread of HIV/AIDS.

The Catholic Church has always had high ideals. Those ideals cover not just areas of chastity and truth, where each one of us has to strive constantly to line up to a more responsible way of living. The Church has particularly strong teaching on fidelity in marriage and against premarital and extramarital sex. It is important to recognise the connection between this strong teaching and the basic value of family life and the worth of the individual.

One typical project of the Church to combat the spread of HIV is the National campaign against HIV/AIDS launched at St. Ignatius Parish in Cape Town on 27 April 2002 (Southern Cross, 2002). The campaign aimed at encouraging youths to commit themselves to a "change of lifestyle", under the banner "ABCD Lifestyle", where A stands for "abstain" from crime, corruption, substance abuse, littering and irresponsible sexual behaviour; B is for "be faithful" to protect oneself, one's body, family, friends, and community; C stands for "change your lifestyle" by making conscious decisions, developing your conscience, living your African culture, and experiencing a culture of love; D stands for "danger" of not living life to the fullest, of becoming a criminal or a drug addict, spoiling the environment or contacting HIV/AIDS. The campaign operates on the premise that changing sexual behaviour is only one aspect of behavioural reform that would enable young people to live their lives to the fullest.

Closely linked with abstinence is the issue of virginity, which is of cultural value to Africans. The Zulu's have an extant long-standing custom of testing virginity in young girls. The attempt to resuscitate this culture in 2002 was met with criticism from the national press, as constituting the abuse of the rights of the girls. The campaign of abstaining from sex before marriage from the Church is not incongruent with this cultural practice. Maintaining virginity until marriage keeps girls free from contact with people with HIV virus; reduces or restrains the girls from early sex, i.e. abstaining from sex until they are ripe for sex (at marriage); and brings about self esteem and pride to the girls Cullinan, 2001).

CHAPTER THREE

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter details the rationale behind the chosen methodology for this research. These involves methods of data collection, the sampling procedure and research instruments; its nature in relation to the aims and objective of the present study as well as the validity and reliability of the overall research method and the way in which data will be analysed.

3.2 Research Design

Research design dictates the approach and amount of secondary-based and primary research one undertakes as well as the analysis. Three design approaches are available: Exploratory, causal, and descriptive; experimental approach and historical approach, etc. In all cases the main concern is the correct data to use.

Exploratory design is essentially investigatory. It usually occurs at the preliminary stage of any research exercise, especially when a problem, product or service is new. It is used to inform a full research plan. The approach taken is informal, creative and driven step by step in an evaluative way. The design can employ descriptive statistics, intuition, hunches, guesses and judgment. Whatever approaches one selects, it must be defended rationally.

Causal designs seek to establish relationships between the cause and effect of events in a research study. In terms of analysis the technique usually used are hypothesis testing and correlation. The former can utilize the full range of data types; the latter can utilize two data types (ratio data for correlation and ordinal data for rank correlation).

Descriptive design is the most widely used approach. It can be used to profile consumers, customers, or businesses. It can be used to gauge opinion or perceptions. Analyses of data to support such research can be wide and varied, incorporating descriptive measures, *inferences, hypothesis testing and special statistical tests.*

This research is designed to study the perceptions of high school learners about HIV/AIDS preventive strategies. The research design is basically descriptive because certain variables cannot be controlled. These research variables are said to be inherently non-manipulative (Kerlinger, 1973). Another reason for choosing a descriptive design for this study is because the research problem being investigated is a present status of events in a natural setting which can only be reasonably evaluated using a descriptive approach.

Descriptive studies aim at providing accurate quantitative information about certain population characteristics and to ascertain the existence of an association between variables. Also, since most research problems often being investigated cannot be subjected to experimental inquiry, descriptive approach is often preferred. Apart from these, descriptive study is used to identify causes retrospectively. For example, to study individual knowledge and perceptions cannot be done in isolation, but in relation to the perceptions of others within a defined population.

3.3 The Sampling Design, Population and Sample.

The present research is confined to the study of perceptions of preventive strategies of HIV/AIDS among high school learners. The target population is mainly adolescent currently in the high school. In order to have a representative sample among the learners within the uMhlathuze municipality of Zululand, five schools were selected, two from semi-urban setting and attended by learners from different racial groupings and three rural schools attended by predominantly black adolescents. Rather than randomly selecting the subjects, all learners in Grade 11-12 who agreed to participate in the study were used without prejudice to the male/female participants. The distribution of subjects from the five schools is given in Table 3.1.

Table 3.1 DISTRIBUTION OF QUESTIONNAIRES

School	Questionnaires distribution		
	Number supplied	Number completed	% Response
Empangeni High School	211	82	39
St. Catherine's Girls High School, Empangeni	25	25	100
Iniwe High School	60	23	38
Qhakaza High School, Kwadlangezwa	100	78	78
Tsand Technical High School, Eskawini	100	78	78
TOTAL	496	286	58

Table 3.1 lists the schools and the number of participants in each school that completed the questionnaire. The response appears low at Empangeni High School and Iniwe High School. The questionnaires at Empangeni High were administered by the class teachers. On the advice of the Principal only the English steams were selected for the study. Iniwe High School students did not appear to be enthusiastic about completing the questionnaires, even though the questionnaires were administered through one of the teachers. The principal of St Catherine's School, where 100% was recorded, collected 25 for the 25 students in Grades 11 and 12 and took the responsibility to administer them for me. The responses from the other two schools were fair at 78%. A few students from lower grades infiltrated the population in the rural schools. No attempt was made to reject their inputs. About 286 valid questionnaires (58%) were returned out of 498 distributed. Thus the responses could not be generalized on the setting of the schools but rather on willingness of the learners to participate. This imposes inherent limitations of this kind of study which is based on the respondent's willingness to participate rather than on random selection of the population.

3.4 Research Instrument/Data Collection

This type of research is best conducted either through personal interview or questionnaire. Questionnaire was used because of the potential effect of social desirability on responses due to the delicate nature of the research topic. There are still some stigmas that the society attaches to victims of HIV/AIDS infection. Questionnaire method elicits anonymity and in such circumstance one expects some higher degree of honest responses than in interview, where respondents might fear that he/she would be identified with his/her responses.

Questionnaire can be open-ended questions, close-ended or Likert-scale questions. In this study, Likert-scale questions were used in constructing the questionnaires. In this case, the responses are closed-ended with ordinal properties. It is easy to collect and analyse and the reliability can be determined.

The questionnaires included three components: Section A elicits socio-demographic information such as age, sex, racial group and religion; Section B consists of behavioural indicators and message exposure and section C contains items to rank some important preventive strategies in order of importance to the learner.

The questionnaire contains 45 items. Apart from the five items in section A (the socio-demographic information), all other items were ranked on a scale of 5. The item were adapted from previous literature (CAPS Instrument on Healthy Oakland Teens Survey; Student Health Questionnaire, University of Carlifornia at San Francisco Centre for AIDS Preventive Studies and ETR Associates; Khumalo, 2001; Dawood, 2001) to suit the study. The content validity of the questionnaire was established by having it read and corrected three times by my supervisor. The Cronbach Coefficient Alpha was computed to determine the internal consistency reliability and construct validity of the instrument using SSPS programme. Alpha for Section B is 0.7067 and for Section C is 0.7044.

3.5 The Relationship of Questionnaire to the Aims of the Study

The section on biographical data provides information about the age, sex, racial and religious distribution of the respondents that would help in relating respondents' responses on issues of preventive strategies to these variables. This would provide answers to Aims 1.4.1 and 1.4.2 that relate to the influence of learners' characteristics, age and sex on perceptions of preventive strategies contained in Section B and C of the instrument. Responses to items in section B and C will provide information about Aim 4.3. Responses to these items provide information about learners' perception of preventive strategies and the prioritization of the strategies. Items B 1, 2, 4, 6, 9, 14, 21, 27 and 28 pertain to issues of abstinence from sex until matured age/marriage/after completing one's education. Items B 7, 8, 10, 11, 13, 15, 16, 22, 23, 24, 25 and 30 refer to possible precautions that are necessary if one has to engage in sex (correct use of/being in possession of condom, being faithful to partners, change of sexual behaviour, avoidance of prostitution, proper knowledge of HIV/AIDS, avoidance of any social situations that may aggravate the risk of forced sex, etc). Responses to these items would address Aim 1.4.3 and, to some extent, Aim 1.4.4. The issue of circumcision as the most contentious alternative (Aim 1.4.2) is specifically covered by responses to item 12.

A cross-tabulation of responses to Section A and Section B would help in a more direct way in relation age, sex, race, grade and religion to learners' knowledge of preventive strategies. Similarly a cross-tabulation of Section A on Section C would reveal how the socio-demographic indices affect how learners prioritize the strategies to avoid infection.

3.6. Procedures for administration of the research instrument

Formal consent for conducting the study was obtained from my supervisor. A letter of introduction, indicating the purpose of the study, and a copy of the questionnaire, were taken to the Principals of all the High Schools approached to obtain their consents to use Grades 11-12 learners in their respective schools. The schools used were those where the Principals consented. The Principals of the schools linked the researcher with the class teachers who were then further briefed about the voluntary and confidential nature of the study.

It was made clear to the respondents that participation was voluntary and all information provided will be treated as confidential. Learners were assured that they would not be identified by their names or even schools; hence no provision is made on the questionnaire for names of respondents and their schools.

The class teachers in the participating schools administered the instrument, except in the case of Okhaza High School, where the researcher was physically present to assist the Vice-Principal. In recognition of the fact that the reading and literary skills of the subjects might vary, teachers were instructed to translate some of the instructions and items to the language of learners, so that responses do not misrepresent the intention of the subjects. The Principals of Empangeni High School was briefed directly. He volunteered to brief the class teachers and collected the questionnaires for administration by the respective class teachers. Only the "English classes" were used. This explained why only 82 of the 211 questionnaires assigned to the school were completed. The Principal of St Catherine's School was also briefed. She collected 25 questionnaires for the 25 students in Grades 11 and 12, and retuned all completed.

3.7. Scoring procedures

Section A

1. The age range is scored 1 for 13 years or younger, 2 for 14-16 years, 3 for17-19 years and 4 for 20 years or older.
2. Boy and girl are scored 1 and 2 respectively.
3. Grades are scored 1-5 for grades 8, 9, 10, 11 and 12 respectively.
4. Racial groupings are rated 1 for Indian, 2 for black, 3 for white, 4 for coloured and 5 for foreigner.
5. Religion is rated 1 for Christian, 2 for Muslim and 3 for any other.

Section B

Items 1-16, 20-30 are rated 5 for "of very great importance", 4 for "of great importance", 3 for "of some importance", 2 for "of low importance" and 1 for "of no importance" while 17-19 are rated 5 for "of no importance", 4 for "of low importance", 3 for "of some importance", 2 for "of great importance" and 1 for "of very great importance".

Section C deals with prioritization of preventive strategies against infection by HIV/AIDS and is rated from 5 to 1 where 5 represents a most positive rating and 1 the least positive rating.

3.8. Data Analysis

A template for data entry on to SPSS (Statistical Package for Social Scientists) will be created. Appropriate 'cleaning' on the data would be effected prior to analysis.

The socio-demographic characteristics of the population would be presented, to show their age, sex, race, religion, location of school and grade distribution. These may be presented in a table and/or a histogram/pie chart. Basic descriptive statistics will be employed and presented in tables/charts.

The relationship between the independent variables (age, sex, race, grade and religion) and the various dependent variables (knowledge of HIV/AIDS, perceptions of prevention, alternative prevention strategies, etc, will be examined and tested by some inferential statistics like Chi-Square Tests, ANOVA (one-way and factorial) and t-test. Cronbach's alpha will be computed to establish the internal consistency and the reliability of scales. The homogeneity of the rating of Section C will be established by Kendall's W while that of means scores for Section B will be tested with the Tukey's honestly significant difference (HSD) test.

The socio-demographic characteristics of the learners will be related to their perceptions. This will lead to results in regards of aim 1.4.1 and 1.4.2. Aims 1.4.3 and 1.4.4 will be analysed by constructing frequency distribution tables. The variability will also be determined by calculating the means and standard deviations In order to answer the research questions, conclusions will be drawn from these analyses using inferential statistics. This is based on probability theory and it includes rules for making decisions under uncertainty.

3.9 Hypotheses

(1) The socio-demographic characteristics of high school learners will not influence their perceptions of the nature of HIV/AIDS.

(2) There will be no significant difference between the learner's perception and preventive strategies used.

(3) There is no relationship between the learner's knowledge, attitude and belief and the acceptance of alternative methods of reducing the risk of infections.

CHAPTER FOUR

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 PRESENTATION AND ANALYSIS OF DATA

The questionnaire was administered to 286 high school learners drawn from five schools within the uMhlathuze Municipality of Kwazulu-Natal Province. The composition of the final study sample is presented in Table 4.1.

Table 4.1: Distribution of subjects in the final study sample (N = 286)

Major Characteristics	Levels	Number of participants	Percentage
Age (Years)			
	≤ 13	6	2.1
	14-16	56	19.6
	17-19	195	68.2
	≥20	29	10.1
Gender			35.3
	Male	101	64.7
	Female	185	
Grade			
	8, 9, 10	21	7.4
	11	154	53.8
	12	111	38.8
Racial Group			
	Black	218	76.2
	White	54	18.9
	Indian	7	2.4
	Coloured	6	2.1
	Foreigner	1	0.4
School Location			
	Semi-urban	107	37.4
	Rural	179	62.6
Religion			
	Christian	255	89.2
	Muslim	10	3.5
	Other religion	21	7.3

4.2 Reliability Analysis for Primary Scales used in the Study.

The reliability analysis was run under "item" and "scale if item deleted" mode (using the SPSS package) to yield the validity coefficient of each item and the reliability coefficient of the whole scale. This provided the reliability of the primary scale and internal consistency of the data. Since no item has a validity coefficient less than 0.5 all the items in the questionnaire were retained in this study. The results are presented in Table 4.2 and Appendix I. Kaplan and Saccuzzo (1989) suggested that Cronbach's Alpha Coefficients of 0.7 are categorized as good; 0.5 to 0.7 as satisfactory; and 0.5 as poor. Based on these generalizations, the primary scales used for Section B have good internal consistency whereas those of Section C are fair.

Table 4.2: Cronbach's alpha coefficients for KAP scales (N = 286)

Scale	Number of items	Cronbach's alpha	Mean	Standard deviation
Perception of preventive strategies (Section B)	29	0.7495	97.9755	12.3255
Strategies/methods to avoid infection (Section C)	10	0.6397	37.8042	6.8269

4.3 Descriptive statistics

4.3.1 Socio-demographic characteristics and preventive strategies

The results of the analysis of the socio-demographic characteristics and preventive strategies are summarized in Tables 4.3 and 4.4. The results from these analyses are used to evaluate how the socio-biographical characteristics of the learners influence their perceptions of preventive strategies. This evaluation is used to answer part of the research questions (1.3.1) and address the aims of the study in 1.4.1 and 1.4.2.

Table 4.3: Summary of scores from Sections B and C

	N	Minimum score	Maximum score	Mean	Standard deviation
Perception of preventive strategies (Section B)	286	51	129	97.9755	12.3255
Strategies/methods to avoid infection (Section C)	286	18	50	37.8042	6.8269
Valid N (listwise)	286				

Table 4.4: Results from cross tabulation of characteristics and perceptions of preventive strategies

Social-demographic characteristics		Perceptions			
		Low		High	
Major characteristic	Level	N	%	N	%
Age	≤13	6	100.0	0	0.0
	14-16	38	67.9	18	32.1
	17-19	107	54.9	88	45.1
	≥20	20	69.0	9	31.0
Gender	Male	76	75.2	25	24.8
	Female	95	51.4	90	48.6
Grade	8, 9, 10	15	71.4	6	28.6
	11	100	64.9	54	35.1
	12	56	50.5	55	49.5
Racial groups	Black	138	63.3	80	36.7
	White	22	40.7	32	59.3
	Indian	5	71.4	2	28.6
	Coloured	5	83.3	1	16.7
	Foreigner	1	100	0	0.0
School location	Semi-urban	58	54.2	49	45.8
	Rural	113	63.1	66	36.9
Religion	Christian	146	57.3	109	42.7
	Muslim	9	90.0	1	10.0
	Other religions	16	76.2	5	23.8
School	St. Catherine's	1	4.0	24	96.0
	Iniwe High	18	78.3	5	21.7
	Empangeni High	57	69.5	25	30.5
	Ohakaza High	37	47.4	41	52.6
	Tsand Tech	58	74.4	20	25.6

4.3.2 Age range and perception of preventives strategies

The first objective of this study is to determine how the learners' characteristics (age, gender, grade, etc), influence their perception of HIV/AIDS preventive strategies. In order to analyze the data, a template for data entry was created on SPSS and the relationship between the independent variables (age, gender, grade, etc) and the various dependent variables (perceptions of preventive strategies, Section B and ranking of preventive strategies, Section C) were determined.

4.3.3 *Testing the hypothesis*

The data presented in this section are the results of analyzing the age, gender, grade and school of high school learners and their perceptions of preventive strategies against infection by HIV/AIDS. The "Independent-sample T – test" and "One-way analysis of variance" (ANOVA) were used to test the significant differences between the learners and their perceptions of HIV/AIDS preventive strategies. The null hypothesis H_0 for age, grade, and school were tested using ANOVA, also called the F–test, while the null hypothesis for gender (sex) was tested by calculating the appropriate means and the independent samples T – test was used. The 0.05 level of confidence was used to reject or accept each of the hypotheses.

4.3.4 Assumptions for each statistical test chosen

Many statistical techniques require that some assumptions be met in order to make applications of such techniques admissible.

Application of ANOVA to compare K population means for a completely randomized design requires that the following assumptions hold:

- Samples drawn from different populations are randomized and independent;
- Populations from which the samples are drawn are approximately normally distributed;
- Populations from which the samples are drawn have the same variance.

The essence of these assumptions is that if the null hypothesis is true, it implies that all the samples have been selected from the same population and if any serious violation of these three assumptions occurs, the appropriateness of the ANOVA and its resulting inferences become questionable.

Chi-square tests are non-parametric test and do not require assumptions about the shape of the underlying distribution. The data are assumed to be a random sample. The expected frequency for each category should be at least one and no more than 20% of the categories should have expected frequencies less than 5.

4.3.4.1 The relationship between the variable of age and preventive strategies

The first task of the analysis was concerned with determining whether the age of the high school learners would influence their perception of HIV/AIDS. Hypothesis 3.7.1.1 predicted that: ***"The age of high school learners would not influence their perceptions of the nature of HIV/AIDS"***.

The results of testing the hypothesis are presented in Table 4.5.

Table 4.5: Analysis of variance of age and the perceptions of HIV/AIDS preventive strategies

Source of variation	Sum of squares	df	Means of squares	F-Ratio
Between groups	1555.002	3	518.334	3.502
Within groups	41741.827	282	148.021	
Total	43296.829	285		

(Critical value = 2.61)

The F-ratio of 3.502 is greater than the critical value of 2.61. This reveals that there is a statistically significant relationship between the age of the high school learners and the perceptions of HIV/AIDS. The null hypothesis is therefore rejected and H_1 is upheld; that is, the age of the high school learners does influence their perceptions of the nature of HIV/AIDS.

To determine how each age group among the high school learners perceive HIV/AIDS, their mean perception scores are presented in Table 4.6a.

Table 4.6a: The mean scores and standard deviation of high school learners' perceptions of HIV/AIDS by age group.

Age (in years)	N	Mean	Standard Deviations
≤13	6	85.5000	18.5876
14-16	56	96.0179	11.0790
17-19	195	99.2103	12.0900
≥20	29	96.0345	13.2382
Total	286	97.9755	12.3255

Although the perceptions of the high school learners of the nature of HIV/AIDS did differ significantly, it is evident from Table 4.6b that their perceptions varied according to their age groups. The data shows that the variations in perceptions follow the age group pattern, except for a small drop for learners in the ≥20 years of age. The results show that learners within the ≤13 have a much lower mean and, despite the small sample, have a much larger standard deviation. The means for the other age groups are comparable and evidently display more positive perceptions about HIV/AIDS preventive strategies. This indicates that adolescents' sexual experience is related to age (Hofferth, Kahn, & Baldwin, 1987).

This observation is further strengthened by the Tukey's honestly significant difference test (HSD). The Tukey's HSD test yielded the differences between the mean score of high school learners' perceptions by age group presented in Table 4.6b.

Table 4.6b: Post Hoc comparisons of age range on perception of preventive strategies

	Age range in years	N	Subset for alpha = 0.5	
			1	2
Turkey B[a, b]	≤13	6	85.5000	
	14-16	56		96.0179
	≥20	29		96.0345
	17-19	195		99.2103

Means of groups in homogeneous subsets are displayed.
[a] Uses Harmonic Mean Sample size = 17.846. [b] The group sizes are unequal. The harmonic mean of the group sizes is used. Type 1 error levels are not guaranteed.

The result shows that the mean scores of learners in the 14-16, 17-19, and ≥20 years age groups fall within the same homogeneous sub-set; that is, there is no difference between their means while that of ≤13 years age group has a mean score that is significantly different.

4.3.4.2 The relationship between gender of high school learners and their perceptions of the nature of HIV/AIDS

The essence of this is to determine whether there is any significant relationship between the perceptions of HIV/AIDS by high school learners and their gender. The hypothesis being tested (3.7.1.2), H_o, states that ***"The sex of high school learners would not influence their perceptions of the nature of HIV/AIDS"***.

The results of testing the hypothesis are presented in Table 4.7.

Table 4.7: Sex and the perceptions of HIV/AIDS preventive strategies

	Boys			Girls			
	N	Mean	SD	N	Mean	SD	t
Perceptions	101	93.7228	12.1022	185	100.2973	11.8475	-4.451

(Critical value = 0.66)

The results in Table 4.7 show that the observed *t* value is greater than the critical value; therefore there is significant relationship between the sex of the high school learners and their perceptions about HIV/AIDS. The null hypothesis is therefore rejected. The results from the mean score and standard deviations of both boys and girls presented in Table 4.7 show that girls have more positive perceptions than boys. The difference between the mean score is considered relatively small, *vis-à-vis* the number of each group in the study sample, but does warrant a confirmation of significant difference between boys and girls. The hypothesis that there would be no significant relationship between sex and perception of preventive strategies has therefore not been confirmed by this study.

Post Hoc comparisons could not be performed on learners' gender and perception because there are fewer than three groups.

4.3.4.3 The relationship between grade of high school learners and their perceptions of the nature of HIV/AIDS

The test of the hypothesis here is to determine whether the grade levels of high school learners influence their perceptions of HIV/AIDS. Hypothesis 3.7.1.3 states that "***The grade level of high school learners will not in anyway influence their perceptions of the nature of HIV/AIDS***". The results of testing the hypothesis is presented in Table 4.8

Table 4.8: Analysis of variance of high school learners' grade level and their perceptions about HIV/AIDS preventive strategies

Source of variation	Sum of squares	df	Mean of squares	F-ratio
Between groups	1518.084	4	379.521	2.553
Within groups	41778.745	281	148.679	
Total	43296.829	285		

(Critical value = 2.37)

The F-ratio of 2.553 in Table 4.8 is greater than the critical value of 2.37. This therefore reveals that there is a significant relationship between the grade level of the high school learners and their perceptions of the nature of HIV/AIDS. The null hypothesis is therefore rejected. Consequently the grade level of high school learners influences their perceptions of the nature of HIV/AIDS.

To determine how learners at each grade level drawn from different schools perceive HIV/AIDS, their mean perception scores and standard deviations are presented in Table 4.9a.

Table 4.9a: The mean scores and standard deviation of high school learners' perception of HIV/AIDS infection according to their grade levels

Grade level	N	Mean	Standard deviation
8, 9, 10	21	93.7143	16.6954
11	154	97.3701	11.3154
12	111	99.6126	12.4376
Total	286	97.9755	12.3255

The mean scores (97.3701 and 99.6126 respectively) presented in Table 4.9a indicate that the grade 12 learners are likely to have more positive perceptions than grade 11 while learners at the 8, 9 and 10 grade levels generally have lower positive perceptions. The hypothesis that the grade level of high school learners will not influence the perceptions of HIV/AIDS preventive strategies has not been confirmed. This finding is supported by an abundance of research evidence. Studies reveal that an increase in the number of years of education of a test subject is accompanied by a decrease in negative attitudes. (Thorson, 1975). Results in Table 4.4 show that their perceptions increases with grade level. The standard deviations also indicate that the respondents' perceptions become progressively more homogeneous as the grade level becomes higher.

The Post Hoc comparisons could not be obtained because one of the groups has fewer than two cases. Grades 8 (2 cases) and Grade 9 (1 case) were deleted to obtain the Post Hocs test on the mean scores of Grades 10, 11 and 12 presented in Table 4.9b.

Table 4.9b: Tukey's HSD test on means of perceptions by grade levels.

	Grade this year	N	Subset for alpha = 0.5
			1
Turkey HSD[a, b]	10th	18	96.0000
	11th	154	97.3701
	12th	111	99.6126
	Sig.		0.361

Means for groups in homogeneous subsets are displayed.
[a] Uses Harmonic Mean Sample Size = 34.510.

All the grade levels fall into the same homogeneous subset, which implies that there is no significant difference between their mean scores.

4.3.4.4 The relationship between the learners' schools and their perceptions of HIV/AIDS.

The analysis of the different schools from which the learners were drawn will be used to determine whether the school attended by the learners has any influence on their perceptions of HIV/AIDS. The hypothesis 3.7.1.4 predicted that:

"The school which the high school learners attend will not influence their perceptions of HIV/AIDS".

The results to test the hypothesis are presented in Table 4.10.

Table 4.10: Analysis of variance of high school learners' schools and their perceptions of HIV/AIDS preventive strategies

Source of variation	Sum of squares	df	Mean of squares	F-ratio
Between groups	588.866	3	196.289	4.361
Within groups	12694.169	282	45.015	
Total	13283.035	285		

(Critical value = 2.61)

The F- ratio of 4.361 in Table 4.10 is greater than the critical value of 2.61. This reveals that there is a significant relationship between the schools which the high school learners attend and their perceptions of HIV/AIDS. Therefore the null hypothesis is rejected.

To determine the extent to which the school a learner attends influences his/her perceptions about HIV/AIDS, the mean scores and the standard deviations are presented in Table 4.11a.

Table 4.11a: The mean scores and standard deviations of high school learners' perceptions about preventive strategies against HIV/AIDS by schools

School	N	Mean	Standard deviation
St. Catherine's	25	108.3200	5.3820
Iniwe High	23	94.9565	10.523
Empangeni High	83	95.2073	12.5538
Ohakaza High	78	102.5128	11.8648
Tsand Tech	78	93.9231	11.3718
Total	286	97.9755	12.3255

The data in Table 4.11a show that the learners' perceptions varied from one school to another as indicated by the mean scores compared to the total mean score. While St. Catherine and Ohakaza have mean scores of 108.32 and 102.51 respectively, far above the average mean score of 97.97 the mean scores of the other schools are all below the average and also differ. An examination of the standard deviations indicates that St Catherine's, the only all female school, appears to be most homogeneous in their responses and the most positive despite the relatively small sample size drawn from the school. Empangeni High, a mixed school, is the least homogeneous. Both are located in the semi-urban setting. Ohakaza is located in a rural area.

The hypothesis that says that the learners' schools do not influence their perceptions has not been confirmed. The results show that the various schools which the learners attend influence their perceptions. This may relate to the level of sex education provided by the various schools or the level at which each learner could discuss the issue of sexuality with peers or parents. Results from school and perception in Table 4.4 strengthen this conclusion.

Post Hoc comparisons using Turkey's HSD test was performed on Table 4.11a. The results are in Table 4.11b.

Table 4.11b: Means for groups in homogeneous subsets of schools on perception

School		N	Subset for alpha = 0.5	
			1	2
Turkey HSD[a, b]	Tsand Tech	78	93.9231	
	Iniwe High	23	94.9565	
	Empangeni High	82	95.2073	
	Ohakaza High	78		102.5128
	St. Catherine's	25		108.3200
	Sig.		0.987	0.145

[a] Uses Harmonic Mean Sample Size = 41.215. Other footnotes are as for Table 4.6b.

The results show that Tsand Tech, Iniwe High and Empangeni High Schools are homogeneous subset; that is, there are not differences between the mean scores on perceptions of learners from the three schools on preventive strategies against HIV/AIDS infection. However, Ohakaza and St. Catherine's belong to a different homogeneous subset which indicates that their mean scores do not differ from each other but different from those of the other schools. These observations reinforce the conclusions drawn from the results in Table 4.11a.

4.3.4.5 Level of perception of preventive strategies against HIV/AIDS from the study

The hypothesis 3.7.2 being tested stated that ***"High school learners favourably perceived HIV/AIDS preventive strategies"***.

To test this hypothesis χ^2 one-sample test would be used since the data is classificatory. The results obtained from the learners' perceptions are presented in Table 4.12.

Table 4.12: Learners' perception about HIV/AIDS preventive strategies

	Frequency	Mean score	Percentage	Average mean
Above the $\overline{X}$	140	113.8286	48.95	97.9755
$\overline{X}$ and below	146	82.3425	51.05	
Total	286		100	

A χ^2 value of 0.125 was obtained at df = 1. The χ^2 value obtained is less than the critical value of 3.84 at the 5% confidence level. Therefore the null hypothesis is upheld and is concluded that high school learners do favourably perceive the HIV/AIDS preventive strategies. The results about their perceptions of the preventive strategies show that 48.95% of learners have highly positive perceptions as indicated by a mean score of 113.8286 compared to average mean score of 97.9755. On the other hand 51.05% have low level perceptions at a mean score of 82.3425. In order to get a closer look at the way the learners perceive the preventive strategies their perceptions towards abstinence and, in case of inability to abstain from sex, their perceptions towards the precautionary measures against infections before engaging in sex are presented in Tables 4.13 and 4.14.

Table 4.13: Learners' perception about abstaining from sex before marriage (N = 286)

	Frequency	Mean score	Percentage	Average mean
Above the $\overline{X}$	152	33.7697	53.15	29.4056
$\overline{X}$ and below	134	24.4552	46.85	
Total	286		100	

A χ^2 value of 1.1 was obtained at df = 1. This value is less than the critical value of 3.84 at the 95% confidence level. Thus the null hypothesis is not rejected. This conclusion strengthens the conclusion drawn from Table 4.12 and reveals that the learners favourably perceived abstinence and delay of onset of sex until marriage positively. From Table 4.13 it is observed that 53.15% of the high school learners have positive perceptions about preventive strategies and a mean score of 29.4056. On the other hand 46.85% of the learners have relatively negative perceptions with a mean score of 24.4552, much less than an overall mean score of 29.4056.

Table 4.14: Perceptions of precautionary measures against infection during sex

	Frequency	Mean score	Percentage	Average mean
Above the $\overline{X}$	125	43.9360	43.71	38.7413
$\overline{X}$ and below	161	34.7981	56.29	
Total	286		100	

A χ^2 value of 4.53 was obtained at df = 1. This value is greater than the critical value of 3.84 at the 95% confidence level. This reveals that the learners do not favourably perceive the precautionary measures against infection during sex. The results in Table 4.14 show that 56.29% of the learners have negative perceptions about the precautionary measures as indicated by a mean score of 38.7413 while 43.71% have positive perceptions with a mean score of 43.9360 as against the overall average of 38.7413.

4.4: Significance of the ranking assigned to different preventive measures

The essence of this is to find out if the learners' rankings of preventive strategies were based on the same criterion. That is, to find out if there is any correlation in the judgment of the 286 learners in relation to the 10 different methods (in Section C) by which one could avoid infection. The hypothesis being tested here is *"**There are no differences in the way high school learners perceive different methods by which the risk of infection with HIV/AIDS could be avoided**"*.

In testing this hypothesis a χ^2 value of 819 at df = 9 was obtained. This was significant at 5% confidence level. We therefore reject the hypothesis and conclude that the learners' rating of methods to avoid infections were unrelated; in other words there was no agreement among learners on the ranks assigned to each strategy.

In order to get a clearer picture of how learners ranked each method the Kendall's W test was performed on the score in Section C. The results are presented in Table 4.15.

Table 4.15a: Learners' prioritization of methods to avoid infection (N = 286)

Score on Section C of the questionnaire by:	Mean rank
Age range	3.97
Grade this year	5.63
Racial grouping	3.09
Religion	1.45
School	4.64
Sex	2.22

Table 4.15b: Test statistics on Table 4.15a

	N = 286
Kendall's W[a]	0.849
Chi-square	1456.883
df	6
Asymp. Sig.	0.000

[a] Kendall's coefficient of concordance

The Kendal's W test yielded a χ^2 value of 1456.883 at a df = 6. This value is greater than the critical value of 12.59 at the 95% confidence level. The rejection of the null hypothesis is thus further corroborated. It is therefore concluded that there are differences in the way learners rank different methods by which the risk of infection with HIV/AIDS could be avoided. The coefficient of concordance is, however, high, close to one, which implies that there is near complete agreement.

Considering the percentage of the learners ranking on each method the percentage of those that gave the same rank to each item was computed. "Doing HIV test before marriage" (71.7%); "Abstaining/avoiding sex altogether (67.8%); "Using a condom

(64.0%) and "Knowing the HIV status of one's partner (60.0%) could be considered to be good as intervention methods. The use of condoms to prevent infection has been widely documented in the literature. Although 64.0% recognized that using a condom is a very important method of avoiding infection but only 38.8% believed in carrying condoms always. This finding is supported by NPPHCN study (1995) where it was found that a large majority of students knew that condoms prevent HIV/AIDS transmission but they were not carrying condoms. Similar observations were reported by Abdool Karim, Soldam, and Zondi (1995) in their studies on adolescents in Kwazulu-Natal, whose sexual relations were typified by a lack of condom use. A similar trend was reported by Elkonin (1993).

4.5 Acceptance of alternative preventive strategy

We have chosen circumcision because it has been reported from studies in Uganda and the US that circumcised people exposed to infected partners are less at risk of infection with HIV/AIDS and STDs respectively (Simonsen, Cameron & Gakinya, 1988; Cook, Koutsky & Holmes, 1994; Halperin & Bailey, 1999; Cameron, Simonsen & D'Costa, 1989). A one-way ANOVA was used to generate the F-ratio.

4.5.1 Relationship between the learners' religion and perception about circumcision

The analysis of the learners' perception and circumcision would be used to determine if their religious believes influence in anyway their perception of whether circumcision could be accepted as a preventive strategy, even though it may not be popular within their culture. The hypothesis (3.7.4.1) being tested is "***The religions of high school learners would not in anyway influence their perceptions of circumcision as a cultural practice that could be used to prevent infection of HIV/AIDS***".

The results of testing the hypothesis are presented in Tables 4.16a.

Table 4.16a: Analysis of the relationship between the learners' religion and perception about circumcision

Source of variation	**Sum of squares**	**df**	**Mean of squares**	**F-ratio**
Between groups	6.296	2	3.148	1.872
Within groups	475.764	283	1.6811	
Total	482.059	285		

(Critical value = 3.0)

The F-ratio of 1.872, less than 3.0, reveals that there is no significant relationship between the learners' religions and their perception of circumcision as a preventive strategy. The null hypothesis is thus not rejected and one could conclude that religion does not influence their perception of circumcision as a cultural practice that can be used to prevent infection by HIV/AIDS.

In order to determine how each religion influences the learners' perception about circumcision the mean scores and standard deviations of the learners' rating based on their religious beliefs are presented in Table 4.16b.

Table 4.16b: Tukey HSD[a] test on learners' perception that circumcision among boys can reduce the risk of HIV/AIDS infection by religion

Religion	N	Subset for alpha = 0.05
		1
Muslim	10	2.2000
Christian	255	2.2431
Other religions	21	2.8095
Sig.		0.301
Total	286	2.2832

Means for groups in homogeneous subsets are displayed.
[a] Uses Harmonic Mean Sample size = 19.797

When Tukey HSD test was performed on the results presented in Table 4.16a, all the mean scores of the various religious groups fall in the same homogeneous subset. This means that there is no significant difference between either the acceptance or the rejection of the cultural practice of circumcision as a preventive strategy.

The results, however, show that learners from other religious groups have a slightly higher acceptance of circumcision as a strategy but the variation is generally very small. Despite the small sample size of the Muslims the standard deviation (1.2293) is the smallest and hence much more homogeneous than even the large number that claimed to be Christians (Standard deviation = 1.2719). Those of other religions appear small to warrant any further comments but are evidently most inhomogeneous (Standard deviation = 1.6006). The results show that the effect of religion on the acceptance of a cultural practice like circumcision as an alternate method of prevention of infection is rather weak. The hypothesis has thus been upheld.

4.5.2 Relationship between learners' race and perception about circumcision

The hypothesis being tested (3.7.4.2) here is *"**The racial group of high school learners would not influence their acceptance of a cultural practice of circumcision**"*.

The results are in Table 4.17a.

Table 4.17a: Analysis of the influence of race on the perception of circumcision

Source of variation	Sum of squares	df	Mean of squares	F-ratio
Between groups	23.425	4	5.856	3.588
Within groups	458.635	281	1.632	
Total	482.059	285		

(Critical value = 2.37)

The F-ratio of 3.588 when compared with the critical value shows that there is a significant relationship between the learners' race and perception of a cultural practice like circumcision. To determine how each racial group perceived the cultural practice of circumcision, their mean scores and standard deviation in relation to circumcision is given in Table 4.17b.

Table 4.17b: Tukey HSD[a] test on learners' perception that circumcision among boys can reduce the risk of HIV/AIDS infection by racial groups

Racial group	N	Subset for alpha = 0.05
		1
Coloured	6	1.6667
Indian	7	1.7143
White	54	1.8148
Black	218	2.4404
Sig.		0.447

Means for groups in homogeneous subsets are displayed.
[a] Uses Harmonic Mean Sample Size = 12.025

In order to perform Tukey's HSD test on Table 4.17a, foreigner was removed because it has only one case. The result from this test indicates that there is no difference between their mean scores.

The results show that the black learners perceived the cultural practice such as circumcision more favourably than the other racial groupings (mean rating = 2.44) followed by the Whites (Mean rating = 1.81) and the Indians (mean rating = 1.71). Generally their mean rating by racial grouping is below the average mean rating (2.2832). This indicates that the learners have low perceptions about the cultural practice of circumcision, which has been shown to reduce the risk of infections with STDs, including HIV/AIDS.

The hypothesis that there is no relationship between racial grouping and cultural practice of circumcision has been confirmed. Consequently the race of a learner does influence his/her perception about cultural practices such as circumcision.

4.5.3 Relationship between learners' age and cultural practices such as circumcision

The analysis of their age group and circumcision would help in revealing if their age influences in anyway the way the learners perceived the cultural practice such as circumcision as a preventive strategy. The hypothesis being tested (Hypothesis 3.7.4.3) is ***"The age of high school learners would not influence their perception of circumcision as a preventive strategy"***

The results of the analysis are given in Table 4.18a.

Table 4.18a: Analysis of variance of age against circumcision as a preventive strategy

Source of variation	Sum of squares	df	Mean of squares	F-ratio
Between groups	22.883	3	7.628	4.685
Within groups	459.176	282	1.628	
Total	482.059	285		

(Critical value = 2.61)

The F-ratio of 4.685 is greater than the critical value of 2.61. This implies that there is a significant relationship between high school learners' age and their perception of a cultural practice like circumcision as a preventive strategy against HIV/AIDS infection. The null hypothesis is therefore rejected and H_1 is upheld; i.e. the age of high school learner influences his/her perception of such cultural practice.

To determine how the learners' age groups influence their perceptions of circumcision among boys as a strategy of prevention against infection the Tukey's HSD tests on the mean scores are presented in Table 4.18b.

Table 4.17b: Tukey HSD[a] test on learners' perception that circumcision among boys can reduce the risk of HIV/AIDS infection by age

Age range	N	Subset for alpha = 0.05	
		1	2
≤13	5	1.4000	
17-19	195	2.1795	2.1795
14-16	56	2.3750	2.3750
≥20	29		3.0000
Sig.		0.145	0.278

Means for groups in homogeneous subsets are displayed.
[a] Uses Harmonic Mean Sample Size = 15.536

Tukey's HSD test was performed on the mean scores. The results show that the mean score for learners in the 13 years or younger age group are significantly different from those for 20 years or older group.

The results show that the perceptions of the learners about circumcision varied in accordance to their age groups. Learners who are 13 years and younger have low perceptions as indicated by their mean rating (1.33) while those who are above 20 years and above have very good perceptions (Mean rating = 3.00). The disparity between 14-16 year olds and 17-19 year olds is rationalized by the Tukey's HSD test which put the two groups in two different homogeneous subsets.

The hypothesis that the age group of the learners does not influence their perceptions about circumcision has not been confirmed. We conclude that the age group of the learners does influence their perceptions of the cultural practice of circumcision.

4.6 DISCUSSION

4.6.1 Results from Aim 1

The first aim of this study is to determine how the learners' characteristics (age, gender, grade level and school) influence their perceptions about HIV/AIDS preventive strategies.

It has been established from this study that the learners' age, sex, grade level and school influence their perception about HIV/AIDS preventive strategies while their gender and grade level do not.

The dependence of perception on age could be explained on the basis of changes that take place on the learners' sexuality as adolescents (Gullota, Adams & Montemayor (1991). The differences in their perceptions based on their age groupings could also be linked to the age at which the learner attained puberty, which causes them to function as "self-motivated sexual actors". The age of onset of puberty varies because of genetic, environmental and socio-economic status (Tanner, 1975). As presented in Table 4.4, all the learners that are 13 years and younger have low perceptions. Positive perceptions increase with age except for the marginal drop observed in the above 20 age group. The apparent abnormal trend in this group could probably be due to the smaller sample size (only 26 learners fell in this category) (Morgan, King, and Robinson, 1979). The Tukey's HSD test, however, shows that there is no significant difference in the mean scores of this group and the other two age groups that have more positive perceptions

The study also reveals that the grade level of the learners influences their perceptions of HIV/AIDS preventive strategies. Studies in psychology reveal that there is a relationship between educational level and rejection of stereotypes (Strabo, 1970; Thornson, 1975). This implies that education could be likened to a factory that modifies one's attitudes in life.

A relationship is also observed between the learners' schools and their perception of HIV/AIDS preventive strategies. The results show very sharp differences between the learners' perceptions from one school to the other. Those schools with high positive perceptions are likely to have received some form of sex education, formally from the school or informally from friends or their homes. It has been established that many adolescents prefer to discuss HIV/AIDS with friends. This is why the roles of peer group norms in HIV/AIDS prevention programmes have been emphasized (Fisher and Fisher, 1991; Mati, 1976).

We also observe some influence of gender on perceptions of preventive strategies. Even though the sexual drives manifest differently in males and females, due to different mature phenotypes, there are similarities in the process. It is generally believed that an accelerated maturity could occur within genetically determined limits for a particular population (Bullough, 1981). The lack of differences between sexes and perceptions is supported by the opinion held that biological differences cannot be potent factors in determining attitudes and perceptions. Attitudes are acquired and they are not innate. The foundations of attitudes may be traced to developmental trends of early childhood upbringing and a lot of factors tend to modify these attitudes with time. Considering the diverse cultural and social backgrounds of the learners one expects this observation. There are research findings that support the fact that the sex of an individual does not influence his/her perceptions; e.g. Nzimande (1971).

4.6.2 Results from Aim 2

The second aim of this study is to find out about learners' perception of preventive strategies.

The study reveals that the learners favourably perceive HIV/AIDS preventive strategies, particularly knowing the HIV status of partner before marriage, abstinence before marriage and the use of condoms.

Adolescents' sex experience is strongly related to age (Hofferth, Kahn, & Baldwin, 1987), race (Miller, Christophersen, & King, 1993) and this in turn gives rise to different sets of normative expectations regarding heterosexual behaviour (Furnstenberg, Morgan, Moor, & Peterson, 1987). All these coupled with parental values, supervision and modeling (Hogan & Kitagawa, 1985; Miller, McCoy, Olisen, & Wallace, 1986; Thornton & Camburn, 1987) influence the learners' perception of HIV/AIDS preventive strategies. The learners that have strong positive perceptions about a particular strategy are most likely to be those that have received adequate orientation about that particular strategy. Since sexual behaviours and developmental changes taking place among the learners influence their perceptions, the low level of perception recorded for some of the strategies by some learners could relate to these two factors.

In case an intervention programme is to be developed based on the outcome of this study, knowing the HIV status of the partners before marriage would be the most important method to be targeted followed by abstinence and the use of condoms, in that order. This order of preference is interesting as most intervention programmes have centred on the use of condom, rather than abstinence. Moreover, the issue of knowing the HIV status of one's partner has not been on the card as claims of the right of the infected has been used to cloud this important strategy.

4.6.3 Results from Aim 3

The third aim is to find out if learners would accept alternative measures which are not necessarily popular in South Africa. For this purpose circumcision was chosen as a cultural practice that is not popular within the locality of study.

There is no relationship between religion and circumcision. Although there has not been any study that examines the influence of religion on circumcision, communities that adopt this traditional practice accept it as the norm rather than the exception in respect of the religious leaning of any member of the community.

A significant influence has been established from this study between racial grouping and circumcision. All studies on HIV/AIDS' preventive strategies and circumcision have been mainly on whether circumcision reduces the risk of infection or not (Simesen, Cameron, & Gakinya 1988); Halperin and Bailey, 1999) and in some instances as prevention (Green, Zekwe & Dupree, 1993). In all these instances circumcision was regarded as a community-based practice, which varied from one race to another.

We also observe a significant relationship between the learners' age and the acceptance or rejection of the cultural practice. This is expected because age plays a prominent role on the time an individual becomes integrated into his/her society and this consciously or unconsciously influences their perceptions about the cultural practices of that particular society.

CHAPTER FIVE

CHAPTER 5

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

5.1 The problem

This study was designed to investigate high school learners perceptions about HIV/AIDS preventive strategies, i.e., whether high school learners have positive perceptions, negative perceptions or are indifferent to measures that could prevent the infection with HIV/AIDS.

5.2 The aims of the study

- To determine whether there are any relationships between the learners' perceptions of HIV/AIDS preventive strategies and the following variables in respect of the learners: age, gender, grade level and school.
- To find out how high school learners perceive HIV/AIDS preventive strategies.
- To find out whether differences exist in the way high school learners perceive different strategies by which the risk of infection with HIV/AIDS could be avoided.
- To find out whether religion, racial grouping and age influence the perceptions of learners of using circumcision as a cultural practice to reduce the risk of infection with HIV/AIDS.

5.3 Hypotheses

The following hypotheses were formulated:

- The following variables of the learners would not influence the learners' perception of HIV/AIDS

  (i) Age

  (ii) Sex

  (iii) Grade level

  (iv) School

- High school learners favourably perceive HIV/AIDS preventive strategies.
- There are no differences in the way high school learners perceive different strategies by which the risk of infection with HIV/AIDS could be avoided.
- The following variables of high school learners would not in anyway influence their perceptions of circumcision as a cultural practice that could be used to prevent infection of HIV/AIDS.

  (i) Religion

  (ii) Race

  (iii) Age

5.4 Methodology

The study is divided into five chapters. Chapter one consists of the introduction and the motivation for the project. Chapter two contains a summary of the theoretical models for prevention, an outline of the physical development, sexuality and the risk behaviours of adolescents that help in our appreciation of the complexity that surround the life of the adolescent. Various preventive strategies, with areas of successes and failures, were also reviewed. Chapter three detailed the research methodology and the design of the study. The measuring instrument was a Liker-type scale constructed and standardized with the help of my supervisor. The analyses of the data were presented in Chapter four while Chapter five contains conclusions, recommendations and limitations of the study.

5.5 Findings

This study revealed that the age, sex, grade and school of the learners influence their perceptions. The influence of age on perceptions of HIV/AIDS preventive strategies is due to the fact that sex drive increases with age and the awareness about risks arising from sexual activities also increases with age. As a learner approaches puberty, his/her sex drive increases thereby increasing the risk of contacting sexually transmitted infections, including HIV/AIDS. Positive perceptions about the nature of HIV/AIDS and available preventive strategies against such risks appear to increase with age as well.

The study also reveals a positive influence between grade levels of the learners and their perceptions. This is in accord with the known fact that education modifies one's attitudes towards life even though it cannot completely change people's outlook on life. The influence of grade level on the learners' perception is an important factor in intervention programme to reduce the spread of HIV/AIDS in South Africa. This relationship clearly shows that the learners in the higher grade levels have more knowledge about HIV/AIDS preventive strategies and this in turn would influence their choices as endangered individuals.

A relationship is also observed between the learners' schools and their perceptions. This shows the influence of environment or community on an individual learner's characteristics. Since each school draws learners from within the locality in which the school is located, interplay of community's and schools' intervention is evident here. Those schools where learners recorded high positive perceptions are likely to have received some form of education on preventive strategies against HIV/AIDS, either formally or informally from school, friends, homes or the media. These might be lacking in children with low perception.

The gender of the learners also influences their perception. Although biological differences cannot be potent factors in determining one's outlook on life, some early childhood experiences are more influential in shaping one's attitudes. The differences between the perceptions of males and females about HIV/AIDS preventive strategies could be attributed to the fact that sexual drives manifest differently in males and females due to different mature phenotypes even though there are similarities in the process.

The study reveals that the learners favourably perceived HIV/AIDS preventive strategies. They viewed the issue of abstinence and delaying of onset of sex until marriage as well as knowing the HIV/AIDS status of the would-be partner as of paramount importance. The use of condom falls into a third place. Also those that do not hold positive perceptions about abstinence believe that it is necessary to practice safe sex to reduce the risk of infection.

The study reveals that there is no relationship between religion and the acceptance of circumcision as a cultural practice through which infection could be avoided; but racial grouping and age greatly influence the acceptance of this alternative strategy. The influence of the racial grouping on the acceptance of circumcision as a strategy could not be over-emphasized because "*The roots of human personality extend back through our ancestral past, but the individual human being moves constantly toward a goal of self-realization, toward the blending of all parts of the personality into one harmonious whole*" (Morris, 1976:432).

Since at no point in life or in the history of mankind have people been without a culture the influence of racial grouping on perception of circumcision as a preventive strategy could be as a result of the cultural lineage of the individual learner.

The influence of age on the perception of circumcision as a cultural practice that could reduce infection is due to the interplay between age and the integration of an individual into his/her society. The appreciation of culture increases with age. Even in a community or among a particular race in which circumcision is accepted as a cultural practice through which the scourge of HIV/AIDS could be reduced, the age is a prominent factor of the time when an individual could see the value of such practice or believe.

5.6 Recommendations

In order to establish the basic steps to be taken in preventing the spread of HIV/AIDS among high school learners, the following areas need to be examined further.

The causes of disparities/differences in perceptions of the HIV/AIDS preventive strategies from one school to the other need to be studied in detail. Also the interplay between the high level of awareness with regard to condom usage and the actual number of sexually active learners that carry condom always and the reasons why most sexually active adolescents seldom use condom will be very useful if studied further.

It is also recommended that this study be replicated on urban learners only, to enable comparison with results from rural/semi-urban learners covered by this study.

Studies along strictly racial lines could be contemplated to establish the role of cultural, social and economic factors on the perception of preventive strategies.

A follow-up study on the extent learners could abstain from sex, insist on HIV/AIDS testing and use condoms in case of actually being engaged in sex should be interesting.

The method of reducing the risk of infections should be further studied because the ranking of the method of prevention by the learners put abstinence and knowing the HIV/AIDS status of the partner higher than using condom.

5.7 Limitations

Although this study has achieved its objectives, several limitations exist with regard to sampling, instrument used and research design.

The operational definition of perception of the nature of HIV/AIDS is not all encompassing. The term perception embraces several attributes. It is used to mean both observable and subtle forms of functional limitations. The study is limited in the course of determining the perceptions of the learners about HIV/AIDS preventive strategies without taking into consideration the perception of other perceptions.

Another inherent limitation of the study is the study sample. Even though the internal consistency of the sample shows that they are consistent and sample appears randomized but the study population was not a random one. Also, only those learners that were willing to act as respondents were included in the sample. Even though the respondent could not be coerced to participate, the number of respondents (58% of questionnaire distributed) limited the spread because this could have altered the outcome of the study in one way or the other. The learners' responses to certain questions could not be fully guaranteed from personal prejudices of the various individuals in the study sample.

The reliability and validity of the scale used were computed and could be categorized as good. These values could subject to change with a more representative sample. It is questionable also that empirical approach to the study of perception is effective on its own. There is a need to supplement this statistical approach by projective techniques and phenomenological structure analysis to get a generalized picture of a person's perceptual field.

The data obtained were analyzed by the use of formulae, assumptions, and rationale for the suitability of each statistical test used. The statistical tests used: ANOVA, t-test, chi-square and Tukey's HSD do not give us any information about the different respondent's tolerance level.

In spite of the limitations outlined above, the result of the study could be applied in practical terms to curb the spread of HIV/AIDS and it could be of use to both policy makers and peer educators in regards of HIV/AIDS intervention programmes aimed at high school learners'

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ANNEXURE A: The instrument used for the study

UNIVERSITY OF ZULULAND
FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

QUESTIONNAIRE

"High School Learners' Perception of HIV/AIDS Preventive Strategies"

Instructions for Learners

You are being asked to complete this form/survey so as to find out on how much you know about HIV/AIDS and prevention from infection. Many of the questions relate to sexual matters and it is possible that you may feel a bit uncomfortable. It is, however, important that you help us to answer all the questions so that we can use the information you provide to develop a programme that can be used to help young people like you to prevent them from being infected with the HIV/AIDS virus.

Your name or identity will not be disclosed to any person and that is why:

- You don't have to put your name in this form.
- No one will know your answers, not even your teachers in the School.
- You are not being graded in this exercise; i.e. there is no right or wrong answer.
- Any honest answer you provide to each of the question is acceptable to us.

Please take your time to answer all the questions carefully and truthfully. Please mark one answer and **DO NOT mark two answers to any one question.**
Thank you for your help.

Please turn to the next page and begin.

QUESTIONNAIRE
High School Learners' Perception of HIV/AIDS Preventive Strategies

Instructions for Learners

Indicate by means of a tick (√) your choice in the appropriate space..

A. BIOGRAPHICAL INFORMATION

Yourself

1. How old are you?
   ⬭ 13 years or younger ⬭ 14-16 years ⬭ 17-19 years ⬭ 20 years or older

2. What sex are you? ⬭ Boy ⬭ Girl

3. What Grade are you this year? ⬭ 8 ⬭ 9 ⬭ 10 ⬭ 11 ⬭ 12

4. To which racial group do you belong? (If you are a foreigner, please write your country)
   ⬭ Indian ⬭ Black ⬭ White ⬭ Coloured ⬭ Foreigner

5. What is your religion? ⬭ Christian ⬭ Muslim ⬭ Any other (Please specify) ⬭

B PREVENTIVE STRATEGIES

Assume that we all know about the risk of getting infected by HIV/AIDS, how important would it be for you to have the following preventive conditions/strategies on/before your marriage day?

	Of very great importance	Of great importance	Of some importance	Of low importance	Of no importance
1. Completing my education before going into any relationship.					
2. Waiting until I am old enough, say 25 years, before engaging in sex.					
3. Have a honeymoon first.					
4. Good to ensure ones' partner is suitable for marriage before engaging in sex with him/her.					
5. Discussing with my parents before I go into any serious relationship.					
6. Simply staying away from sex					

is a certain way to avoid being infected with HIV/AIDS virus.					
7. Using condom correctly prevents infection by HIV/AIDS virus.					
8. Keeping to one sex partner helps with reducing the risk of infection with HIV/AIDS virus.					
9. No sex before marriage is the most certain way to avoid infection with the HIV/AIDS virus.					
10. The HIV status of partners should be known before having sex.					
11. My partner must undergo HIV/AIDS testing before marriage.					
12. Circumcision among boys can reduce the risk of contacting HIV/AIDS.					
13. Carrying condom always helps with prevention when one is forced to have sex.					
14. Not to have sex before marriage is the surest way to avoid infection with the HIV/AIDS virus.					
15. Keeping to one partner can prevent infection.					
16. It is always safer to know the HIV/AIDS status of your partner before you have sex.					
17. Avoid using toilets used by HIV/AIDS patients.					
18. Avoid shaking hands with HIV/AIDS patients.					
19. Living with HIV/AIDS patients in the same room.					
20. Kissing your partner.					
21. Any type of sexual intercourse must be avoided.					
22. Avoidance of any social situations which might lead to forced sex relations.					
23. Sex education at School helps learners to take decisions about safe sex.					

24. Having good knownedge of HIV/AIDS helps in taking the right decision against infection.					
25. A person can avoid getting HIV/AIDS by changing his/her sexual behaviour.					
27. Discouraging people of my age from having sex.					
28. My religion does not allow one to have sex before marriage.					
29. Not right to engage in sex because my friend are already having sex.					
30. Not to engage in prostitution under any circumstance.					

C The most important strategies/methods to avoid infection with HIV/AIDS virus

Tick (√) the statements in the table below in order of importance to you in answer to the following incomplete sentences. (For each statement **5** is the most important and **1** is the least important)

"The most important strategies/methods to avoid infection by HIV/AIDS virus is ——————"

	5	4	3	2	1
1. Using a condom.					
2. Abstaining/avoiding sex altogether.					
3. Doing HIV test before marriage.					
4. Delaying sexual relationship until marriage.					
5. Keeping to one sex partner.					
6. For men to be circumcised.					
7. Carrying condoms always.					
8. Staying away from youths that drink lots of alcohol.					
9. Staying away from people that are known to use drugs.					
10. Knowing that ones' sex partner is not already infected					

Thank you very much for your time in completing this questionnaire.

ANNEXURE B: Validity Coefficient for each item in Section B

Item	Validity coefficient
1. Completing my education before going into any relationship.	0.7390
2. Waiting until I am old enough, say 25 years, before engaging in sex.	0.7382
3. Have a honeymoon first.	0.7506
4. Good to ensure ones' partner is suitable for marriage before engaging in sex with him/her.	0.7357
5. Discussing with my parents before I go into any serious relationship.	0.7435
6. Simply staying away from sex is a certain way to avoid being infected with HIV/AIDS virus.	0.7386
7. Using condom correctly prevents infection by HIV/AIDS virus.	0.7423
8. Keeping to one sex partner helps with reducing the risk of infection with HIV/AIDS virus.	0.7440
9. No sex before marriage is the most certain way to avoid infection with the HIV/AIDS virus.	0.7307
10. The HIV status of partners should be known before having sex.	0.7411
11. My partner must undergo HIV/AIDS testing before marriage.	0.7426
12. Circumcision among boys can reduce the risk of contacting HIV/AIDS.	0.7518
13. Carrying condom always helps with prevention when one is forced to have sex.	0.7406
14. Not to have sex before marriage is the surest way to avoid infection with the HIV/AIDS virus.	0.7307
15. Keeping to one partner can prevent infection.	0.7387
16. It is always safer to know the HIV/AIDS status of your partner before you have sex.	0.7413
17. Avoid using toilets used by HIV/AIDS patients.	0.7504
18. Avoid shaking hands with HIV/AIDS patients.	0.7517
19. Living with HIV/AIDS patients in the same room.	0.7608
20. Kissing your partner.	0.7540
21. Any type of sexual intercourse must be avoided.	0.7468
22. Avoidance of any social situations which might lead to forced sex relations.	0.7457
23. Sex education at School helps learners to take decisions about safe sex.	0.7442
24. Having good knownedge of HIV/AIDS helps in taking the right decision against infection.	0.7417
25. A person can avoid getting HIV/AIDS by changing his/her sexual behaviour.	0.7451
27. Discouraging people of my age from having sex.	0.7378
28. My religion does not allow one to have sex before marriage.	0.7314
29. Not right to engage in sex because my friend are already having sex.	0.7357
30. Not to engage in prostitution under any circumstance.	0.7438

ANNEXURE C: Validity Coefficient for each item in Section C

Item	Validity Coefficient
1. Using a condom.	0.6110
2. Abstaining/avoiding sex altogether.	0.6123
3. Doing HIV test before marriage.	0.5916
4. Delaying sexual relationship until marriage.	0.6074
5. Keeping to one sex partner.	0.6028
6. For men to be circumcised.	0.6447
7. Carrying condoms always.	0.6185
8. Staying away from youths that drink lots of alcohol.	0.5687
9. Staying away from people that are known to use drugs.	0.5925
10.Knowing that ones' sex partner is not already infected	0.6263

ANNEXURE D: Particulars of population

Sample	School	Age (Years)	Sex	Grade	Race	Religion	Location	B score	C score
CA001	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	39
CA002	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	114	40
CA003	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	113	39
CA004	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	104	34
CA005	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	102	44
CA006	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	43
CA007	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	115	41
CA008	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	114	45
CA009	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	45
CA010	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	108	41
CA011	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	111	39
CA012	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	40
CA013	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	39
CA014	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	104	41
CA015	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	112	41
CA016	St Catherine	17 - 19	Girl	12	Coloured	Christian	Semi-Urban	111	38
CA017	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	113	43
CA018	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	114	43
CA019	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	107	42
CA020	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	106	37
CA021	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	107	46
CA022	St Catherine	17 - 19	Girl	12	White	Christian	Semi-Urban	108	46
CA023	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	112	46

CA024	St Catherine	17 - 19	Girl	12	Black	Christian	Semi-Urban	109	46
CA025	St Catherine	14 - 16	Girl	10	Black	Christian	Semi-Urban	89	38
IN001	Iniwe High	17 - 19	Girl	12	Black	Christian	Rural	118	42
IN002	Iniwe High	≥20	Girl	12	Black	Christian	Rural	60	34
IN003	Iniwe High	≥20	Girl	12	Black	Others	Rural	104	34
IN004	Iniwe High	≥20	Girl	12	Black	Muslim	Rural	88	42
IN005	Iniwe High	≥20	Girl	12	Black	Muslim	Rural	92	45
IN006	Iniwe High	≥20	Girl	12	Black	Christian	Rural	106	46
IN007	Iniwe High	17 - 19	Boy	12	Black	Christian	Rural	94	44
IN008	Iniwe High	≥20	Girl	12	Black	Christian	Rural	82	46
IN009	Iniwe High	≥20	Boy	12	Black	Christian	Rural	106	46
IN010	Iniwe High	≥20	Boy	12	Black	Christian	Rural	101	46
IN011	Iniwe High	≥20	Boy	12	Black	Christian	Rural	98	26
IN012	Iniwe High	14 - 16	Girl	11	Black	Christian	Rural	98	42
IN013	Iniwe High	17 - 19	Boy	11	Black	Christian	Rural	91	38
IN014	Iniwe High	≥20	Girl	11	Black	Christian	Rural	90	43
IN015	Iniwe High	17 - 19	Girl	11	Black	Christian	Rural	96	31
IN016	Iniwe High	≥20	Boy	11	Black	Christian	Rural	93	40
IN017	Iniwe High	≥20	Boy	11	Black	Christian	Rural	94	43
IN018	Iniwe High	≥20	Girl	11	Black	Christian	Rural	105	44
IN019	Iniwe High	≥20	Girl	11	Black	Christian	Rural	95	46
IN020	Iniwe High	≥20	Girl	11	Black	Christian	Rural	101	39
IN021	Iniwe High	17 - 19	Boy	11	Black	Christian	Rural	95	36
IN022	Iniwe High	≥20	Boy	10	Black	Others	Rural	91	23
IN023	Iniwe High	≥20	Boy	12	Black	Christian	Rural	86	46
EM001	Empangeni High	17 - 19	Girl	12	Black	Christian	Semi-Urban	79	43
EM002	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	104	42
EM003	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	104	42
EM004	Empangeni High	14 - 16	Girl	11	White	Christian	Semi-Urban	87	38
EM005	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	108	38
EM006	Empangeni High	14 - 16	Girl	11	White	Christian	Semi-Urban	102	44

EM007	Empangeni High	≤13	Boy	11	White	Christian	Semi-Urban	95	34
EM008	Empangeni High	17– 19	Girl	11	White	Christian	Semi-Urban	114	50
EM009	Empangeni High	17– 19	Boy	11	White	Christian	Semi-Urban	112	39
EM010	Empangeni High	14– 16	Girl	11	White	Christian	Semi-Urban	105	33
EM011	Empangeni High	17– 19	Boy	11	White	Christian	Semi-Urban	112	40
EM012	Empangeni High	17– 19	Girl	11	Black	Christian	Semi-Urban	100	40
EM013	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	97	18
EM014	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	115	40
EM015	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	116	40
EM016	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	102	36
EM017	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	96	50
EM018	Empangeni High	14 - 16	Boy	11	Black	Christian	Semi-Urban	93	39
EM019	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	104	38
EM020	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	92	33
EM021	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	92	44
EM022	Empangeni High	14 - 16	Boy	11	Black	Christian	Semi-Urban	115	46
EM023	Empangeni High	≤13	Girl	10	Indian	Christian	Semi-Urban	97	37
EM024	Empangeni High	≤13	Boy	10	Indian	Christian	Semi-Urban	51	24
EM025	Empangeni High	≤13	Boy	10	Indian	Christian	Semi-Urban	97	37
EM026	Empangeni High	17 - 19	Girl	11	White	Muslim	Semi-Urban	88	40
EM027	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	116	42
EM028	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	107	41
EM029	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	100	27
EM030	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	101	42
EM031	Empangeni High	14 - 16	Girl	11	White	Christian	Semi-Urban	113	32
EM032	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	108	47
EM033	Empangeni High	14 - 16	Boy	11	White	Christian	Semi-Urban	88	43

EM034	Empangeni High	14 - 16	Boy	11	White	Christian	Semi-Urban	78	35
EM035	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	89	45
EM036	Empangeni High	17 - 19	Boy	11	Indian	Christian	Semi-Urban	126	48
EM037	Empangeni High	17 - 19	Boy	11	Coloured	Others	Semi-Urban	99	36
EM038	Empangeni High	14 - 16	Girl	11	Black	Christian	Semi-Urban	85	31
EM039	Empangeni High	17 - 19	Girl	11	Coloured	Christian	Semi-Urban	87	38
EM040	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	90	34
EM041	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	107	42
EM042	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	81	35
EM043	Empangeni High	14 - 16	Girl	11	Indian	Christian	Semi-Urban	75	32
EM044	Empangeni High	14 - 16	Boy	11	Black	Christian	Semi-Urban	100	41
EM045	Empangeni High	17 - 19	Girl	12	Black	Christian	Semi-Urban	84	45
EM046	Empangeni High	17 - 19	Boy	12	Black	Christian	Semi-Urban	86	40
EM047	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	93	37
EM048	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	91	48
EM049	Empangeni High	14 - 16	Girl	11	Black	Christian	Semi-Urban	104	36
EM050	Empangeni High	17 - 19	Boy	11	Black	Others	Semi-Urban	86	24
EM051	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	91	34
EM052	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	94	28
EM053	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	97	48
EM054	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	94	30
EM055	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	99	39
EM056	Empangeni High	14 - 16	Girl	11	Black	Christian	Semi-Urban	102	26
EM057	Empangeni High	17 - 19	Boy	11	Black	Muslim	Semi-Urban	95	47
EM058	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	94	38
EM059	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	113	45

EM060	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	88	32
EM061	Empangeni High	14 - 16	Boy	11	Indian	Others	Semi-Urban	71	23
EM062	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	69	29
EM063	Empangeni High	17 - 19	Boy	11	White	Others	Semi-Urban	82	32
EM064	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	93	29
EM065	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	103	45
EM066	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	85	33
EM067	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	79	33
EM068	Empangeni High	14 - 16	Girl	11	White	Christian	Semi-Urban	89	35
EM069	Empangeni High	17 - 19	Girl	11	White	Christian	Semi-Urban	90	38
EM070	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	89	38
EM071	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	95	40
EM072	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	108	40
EM073	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	83	33
EM074	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	105	44
EM075	Empangeni High	17 - 19	Boy	11	Black	Christian	Semi-Urban	96	41
EM076	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	78	38
EM077	Empangeni High	17 - 19	Girl	11	Coloured	Christian	Semi-Urban	81	28
EM078	Empangeni High	17 - 19	Girl	8	White	Christian	Semi-Urban	75	31
EM079	Empangeni High	14 - 16	Boy	11	Black	Christian	Semi-Urban	99	37
EM080	Empangeni High	17 - 19	Girl	11	Black	Christian	Semi-Urban	99	37
EM081	Empangeni High	14 - 16	Girl	11	Black	Christian	Semi-Urban	101	36
EM082	Empangeni High	17 - 19	Boy	11	White	Christian	Semi-Urban	99	36
QH001	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	94	34
QH002	Ohakaza High	14 - 16	Girl	12	Black	Others	Rural	101	39
QH003	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	101	42

QH004	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	102	33
QH005	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	116	44
QH006	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	95	36
QH007	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	126	44
QH008	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	103	43
QH009	Ohakaza High	≥20	Girl	12	Black	Christian	Rural	91	34
QH010	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	106	41
QH011	Ohakaza High	17 - 19	Girl	12	Black	Others	Rural	100	21
QH012	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	104	30
QH013	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	110	44
QH014	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	105	33
QH015	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	104	35
QH016	Ohakaza High	17 - 19	Girl	11	Black	Others	Rural	94	33
QH017	Ohakaza High	17– 19	Boy	12	Black	Others	Rural	81	34
QH018	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	96	36
QH019	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	104	30
QH020	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	95	25
QH021	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	109	41
QH022	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	104	27
QH023	Ohakaza High	≥20	Girl	11	Black	Christian	Rural	115	46
QH024	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	94	33
QH025	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	101	31
QH026	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	93	36
QH027	Ohakaza High	17 - 19	Girl	11	Black	Others	Rural	93	31

QH028	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	117	44
QH029	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	106	49
QH030	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	107	37
QH031	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	103	33
QH032	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	97	39
QH033	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	101	42
QH034	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	102	40
QH035	Ohakaza High	14 - 16	Boy	11	Black	Christian	Rural	94	28
QH036	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	103	39
QH037	Ohakaza High	≥20	Boy	12	Black	Others	Rural	118	46
QH038	Ohakaza High	17 - 19	Girl	11	Black	Muslim	Rural	98	47
QH039	Ohakaza High	17– 19	Girl	11	Black	Christian	Rural	127	42
QH040	Ohakaza High	≤13	Girl	8	Coloure d	Christian	Rural	96	30
QH041	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	121	32
QH042	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	94	42
QH043	Ohakaza High	14 - 16	Girl	11	Black	Others	Rural	108	29
QH044	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	87	35
QH045	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	111	35
QH046	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	116	41
QH047	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	85	29
QH048	Ohakaza High	17 - 19	Girl	11	Black	Others	Rural	92	41
QH049	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	93	18
QH050	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	78	18
QH051	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	103	47

QH052	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	102	37
QH053	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	114	46
QH054	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	113	49
QH055	Ohakaza High	17 - 19	Boy	12	Black	Muslim	Rural	91	39
QH056	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	90	33
QH057	Ohakaza High	14 - 16	Boy	12	Black	Christian	Rural	99	36
QH058	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	91	30
QH059	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	90	27
QH060	Ohakaza High	≥20	Girl	11	Black	Christian	Rural	128	34
QH061	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	94	35
QH062	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	107	36
QH063	Ohakaza High	14 - 16	Boy	11	Black	Muslim	Rural	82	29
QH064	Ohakaza High	17 - 19	Girl	11	White	Christian	Rural	94	46
QH065	Ohakaza High	17 - 19	Girl	12	Black	Others	Rural	106	41
QH066	Ohakaza High	17 - 19	Boy	12	Black	Christian	Rural	92	34
QH067	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	129	44
QH068	Ohakaza High	17 - 19	Boy	11	Black	Christian	Rural	102	41
QH069	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	128	26
QH070	Ohakaza High	17 - 19	Girl	10	Black	Christian	Rural	121	48
QH071	Ohakaza High	14 - 16	Girl	11	Black	Christian	Rural	95	36
QH072	Ohakaza High	17 - 19	Girl	12	Black	Others	Rural	108	41
QH073	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	105	47
QH074	Ohakaza High	17 - 19	Girl	11	Black	Christian	Rural	98	36
QH075	Ohakaza High	≥20	Girl	11	Black	Others	Rural	76	28

QH076	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	124	41
QH077	Ohakaza High	17 - 19	Girl	12	Black	Christian	Rural	116	44
QH078	Ohakaza High	≥20	Girl	11	Black	Christian	Rural	107	50
TS001	Tsand Tech	14 - 16	Boy	11	Black	Christian	Rural	93	23
TS002	Tsand Tech	17 - 19	Girl	10	Indian	Muslim	Rural	114	34
TS003	Tsand Tech	17 - 19	Boy	11	Black	Christian	Rural	79	31
TS004	Tsand Tech	17 - 19	Girl	9	Black	Christian	Rural	70	32
TS005	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	79	35
TS006	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	81	32
TS007	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	92	34
TS008	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	109	47
TS009	Tsand Tech	17 - 19	Girl	12	White	Muslim	Rural	93	43
TS010	Tsand Tech	17 - 19	Girl	12	Black	Muslim	Rural	99	44
TS011	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	80	32
TS012	Tsand Tech	≥20	Girl	12	Black	Christian	Rural	89	46
TS013	Tsand Tech	≥20	Girl	12	Black	Christian	Rural	97	38
TS014	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	96	45
TS015	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	100	44
TS016	Tsand Tech	≥20	Boy	12	Black	Christian	Rural	106	37
TS017	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	111	36
TS018	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	102	46
TS019	Tsand Tech	14 - 16	Boy	10	Black	Christian	Rural	79	39
TS020	Tsand Tech	17 - 19	Boy	10	Black	Christian	Rural	82	42
TS021	Tsand Tech	17 - 19	Boy	10	Black	Christian	Rural	114	45

TS022	Tsand Tech	14 - 16	Girl	10	Black	Christian	Rural	97	29
TS023	Tsand Tech	14 - 16	Girl	10	Black	Christian	Rural	101	34
TS024	Tsand Tech	14 - 16	Boy	10	Black	Christian	Rural	90	39
TS025	Tsand Tech	14 - 16	Boy	10	Black	Christian	Rural	116	40
TS026	Tsand Tech	14 - 16	Girl	10	Black	Christian	Rural	97	42
TS027	Tsand Tech	14 - 16	Girl	10	Black	Christian	Rural	109	46
TS028	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	109	43
TS029	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	81	29
TS030	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	96	41
TS031	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	95	37
TS032	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	95	49
TS033	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	95	46
TS034	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	108	45
TS035	Tsand Tech	14 - 16	Girl	11	White	Christian	Rural	99	42
TS036	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	88	35
TS037	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	92	42
TS038	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	111	47
TS039	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	120	40
TS040	Tsand Tech	≥20	Boy	12	Black	Christian	Rural	84	29
TS041	Tsand Tech	≥20	Girl	12	Black	Christian	Rural	90	29
TS042	Tsand Tech	17 - 19	Boy	12	Black	Others	Rural	83	37
TS043	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	99	45
TS044	Tsand Tech	≥20	Girl	12	Black	Christian	Rural	92	45
TS045	Tsand Tech	17 - 19	Boy	10	Black	Christian	Rural	106	42

TS046	Tsand Tech	14 - 16	Girl	12	Black	Christian	Rural	94	34
TS047	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	112	50
TS048	Tsand Tech	17 - 19	Girl	12	Black	Others	Rural	100	29
TS049	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	109	38
TS050	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	90	41
TS051	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	82	37
TS052	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	94	24
TS053	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	85	35
TS054	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	79	37
TS055	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	91	40
TS056	Tsand Tech	17 - 19	Girl	11	Black	Christian	Rural	106	38
TS057	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	93	38
TS058	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	84	35
TS059	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	86	24
TS060	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	99	35
TS061	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	72	28
TS062	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	77	34
TS063	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	85	30
TS064	Tsand Tech	17– 19	Girl	11	Black	Christian	Rural	91	41
TS065	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	93	37
TS066	Tsand Tech	17 - 19	Boy	12	Coloured	Others	Rural	84	22
TS067	Tsand Tech	≤13	Boy	10	Foreigner	Others	Rural	77	18
TS068	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	102	48
TS069	Tsand Tech	14 - 16	Girl	11	Black	Christian	Rural	103	49

TS070	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	91	34
TS071	Tsand Tech	14– 16	Boy	12	Black	Christian	Rural	79	23
TS072	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	74	41
TS073	Tsand Tech	14 - 16	Girl	12	Black	Christian	Rural	104	48
TS074	Tsand Tech	17 - 19	Girl	12	Black	Christian	Rural	97	34
TS075	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	105	40
TS076	Tsand Tech	17– 19	Boy	12	Black	Christian	Rural	93	30
TS077	Tsand Tech	17– 19	Boy	12	Black	Christian	Rural	85	31
TS078	Tsand Tech	17 - 19	Boy	12	Black	Christian	Rural	92	31