AN ANALYSIS OF HEALTH PROMOTING AND RISKY BEHAVIOURS OF HEALTH SCIENCE STUDENTS OF THE UNIVERSITY OF THE WESTERN CAPE

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ABSTRACT

Assessing and understanding the health needs and abilities of university and college students is vital in creating healthy campus communities. Student learning is a central part of the higher education academic mission, and health promotion serves this mission by supporting students and creating healthy learning environments. Findings from various studies suggest that students entering the university setting put themselves at risk through unhealthy behaviours. Health science students are the future health professionals who will teach health promotion and disease prevention. They are also in an inimitable position to influence and inspire other students to lead a healthy lifestyle. It is therefore of utmost importance that these students fully understand the consequences of engaging in health risk behaviours. The aim of the study was to determine and analyze health risk behaviours and health promoting behaviours among health sciences students at the University of the Western Cape. The study further aimed to identify the factors influencing these students' engagement in these risk behaviours. A quantitative cross-sectional study was done. Data was collected by means of a structured, self-administered questionnaire including items regarding the prevalence and knowledge of the consequences of the five health risk behaviours (tobacco use, sexual risks, alcohol and drug use and behaviours that contribute to unintentional injuries and violence) as well prevalence and knowledge of health promoting or protective behaviours and physical activity. Two hundred and one (201) 2nd year full-time undergraduate CHS faculty students, ranging from age 18 – 42 years, with a mean age of 22.16 years, (SD = 4.68), completed and returned the self-

administered questionnaire. Cross tabulations were used to determine the distributions of cases or frequency counts. The differences in frequency count per health risk behaviour in the respective groups were tested for significance using the Chi-square test. The exact binomial method was used to construct confidence intervals for proportions. Overall 58.7% of the study sample smoked; 76.6% used alcohol; 32.8% used drugs; 34.3% “binge drink”; 59.7% were sexually active and 80.6% were physically active. Results of this study clearly illustrate that many undergraduate health professional students are engaging in numerous health risk behaviours. However, the results further illustrated that these students receive health promoting information from their university and that many of them have protective strategies in place. The study highlighted that prevention programs should be started in early adolescence as literature suggests that the engagement of many health risk behaviours among university students are a continuation of engagement in such behaviours in high school. Furthermore intervention programs should encompass both knowledge and skills and factual information should constitute the core of the program. Emphasis should be placed on attitudes and the confidence to adapt and maintain healthy lifestyles.

DECLARATION

I hereby declare that **'AN ANALYSIS OF HEALTH PROMOTING AND RISKY BEHAVIOURS OF UNDERGRADUATE HEALTH SCIENCE STUDENTS OF THE UNIVERSITY OF THE WESTERN CAPE'** is my own work, that it has not been submitted, or part of it, for any degree of examination at any other university, and that all sources I have used or quoted have been indicated and acknowledged by means of complete references.

Tania Steyl

Signature…….. February 2007

Witness:

…….

Dr. JS Phillips

DEDICATION

To my beloved sons, Douw and Dirk. You have been and are a blessing source of inspiration, the crown of my joy. I love you with all my heart.

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I would like to thank my supervisor, Dr. Julie Phillips. Your guidance, encouragement, knowledge and believe in me have enabled me to complete this study. Thank you for you practical assistance. You are the most wonderful supporting person and friend I have ever met in my life! Without your commitment I would never have been able to successfully complete this thesis.

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My sons, Douw and Dirk, who sacrificed with me to achieve my goal. I did this for us three. You make me so proud. Love you lots…….

Above all, I am deeply grateful to God who blessed me with the opportunity and strength to further my studies.

It's choice – not chance – that determines your destiny. Jean Nidetch

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION TO THE CHAPTER

In this chapter the rationale of the study highlights the broad range of lifestyle behaviours which attribute globally to the morbidity and mortality of youth. The purpose of the study is explained and the specific aims are outlined. Finally the significance of the study explains the need to understand the prevalence of health risk behaviours among youth, specifically future health professional students as they are in an inimitable position to influence and inspire other students to lead a healthy lifestyle. The chapter ends with the definition of terms and abbreviations used in the study as well as a summary of the chapters that will follow in this study.

1.2 RATIONALE OF THE STUDY

South Africa today is experiencing an exceptional increase in the number of young people. Between 1996 and 2001, the proportion of youth increased by about 2.1% in South Africa. In South Africa there are currently 7.1 million people between the ages 18-25 years (Statistics South Africa, 2001). These young people account for approximately 16% of the total South African population. According to the South African Department of Education, there are 23 tertiary institutions in South Africa. At the beginning of 2006, more than 700 000 students were enrolled at these institutions (South African Department of Education, 2005). The majority of students at tertiary institutions can be classified as late adolescents and young adults. Assessing and understanding the health needs and abilities of university and college

students is vital in creating healthy campus communities. Student learning is a central part of the higher education academic mission, and health promotion serves this mission by supporting students and creating healthy learning environments.

Findings from various studies suggest that students entering the university setting put themselves at risk through unhealthy behaviours. Researchers have recognized that universities are often settings where students experience independence and freedom from direct adult supervision for the first time (Rozmus, Evans, Wysochansky & Mixon, 2005; Windle, 2003). This freedom, however presents new stressors associated with a different structure to daily life and greater responsibilities. Students enter an environment where normative values may be different than parental values, thus causing them to question individual beliefs, values and goals. At this vulnerable period of students' life, understanding why they engage in health behaviours is an important factor in helping them to decrease risk behaviours and therefore improve their quality of life.

Youth and adolescence appears to be one of the healthiest periods of the life course with very low rates of morbidity and mortality due to disease (Call, Riedel, Hein, McLoyd, Petersen & Kipke, 2002; Burt, 2000). It is a healthy period in the life-span of an individual, compared to a very young child and the elderly. The adolescent years are not only a time of physical, intellectual and emotional development, but it is also a time when experimentation and exploration in their lifestyles, attitudes, concepts, beliefs and habits are developmentally normal in preparation for the commitments of adulthood (Peltzer, 2003; Joffe 2000 and McGee & Williams,

2000). Youth is often depicted as a time of marked distress and disturbance, a period when a number of healthy and unhealthy habits are developed that may last throughout the life course (Rodham, Brewer, Mistral & Stallard, 2006). It is a time when the primary causes of mortality and morbidity are closely related to the behavioural choices of the individual (Rodham et al, 2006; McGee & Williams, 2000).

The adolescent no longer depends on concrete experiences as the basis of thought, but develops the ability to reason abstractly (Dowdell & Santucci, 2003). The ability to think and act independently leads many adolescents to rebel against parental authority. Joffe (2000) also states that older adolescents are often idealistic and highly critical of traditional institutions. Through these actions adolescents seek to establish their own identity and values (Burt, 2002). Consequently establishing positive health behaviours during adolescence holds great potential for reducing health problems in later life (Rodham et al, 2006; Spear & Kulbok, 2001).

Adolescents and young adults have been identified as a population that engages in numerous health risk behaviours (Peltzer, 2003; Spear & Kulbok, 2001; Adderley-Kelly & Green, 2000). Survey data from the U.S. Youth Risk Behaviour Surveillance Survey (2001) indicates that 10-20% of youth engage in behaviours that put them at substantial risk for negative secondary problems such as sexually transmitted diseases, pregnancy and negative self-feelings (Wekerle, Wall & Knoke, 2004). Although health risk behaviours such as the use of addictive substances, smoking tobacco products and unprotected sex do not lead to morbidity or mortality in

adolescence or early adulthood, it has an effect in later life (Spear & Kulbok, 2001; Burt, 2002). Conditions associated with an increase in mortality in later life, e.g. diabetes mellitus, tobacco addiction, hypertension, cardiovascular disorders and lifestyle related cancers, have been identified in South Africa to be influenced by behavioural factors (Peltzer, 2000).

Existing South African studies clearly shows that university and college students use alcohol, tobacco and other drugs, engage in unprotected sex, have unhealthy dietary habits and are victims and perpetrators of violence (Madu & Matla, 2003; Peltzer, 2003 and Peltzer, 2000). A study by Peltzer (2000) at the University of the North in South Africa, showed that black South African university students from non-health courses are less well-informed about the risks of alcohol, smoking, lack of exercise and dietary fat than European students. Peltzer (2000) further found that the knowledge of the association between smoking and heart disease (15,6%) was much lower than that among European university students (63,7%). This finding correlates with Michaud (2003) who stated that the health problems adolescents faces worldwide, are quite similar, although somehow different in scale and scope. A study done among physiotherapy students at the University of the Western Cape in 2005 found that 60% smoked cigarettes, 78% used alcohol, 44% engage in unprotected sex and 12% reported illegal drug use (Phillips, 2005). These findings are of great concern as these students are in an inimitable position to teach health promotion and disease prevention.

Although Sub-Saharan Africa accounts for only 10% of the world's population, 85% of deaths from AIDS have occurred there. The Actuarial Society of South Africa estimates that over 500 000 people will be infected with HIV this year in South Africa: about 1 400 people a day (Making Prevention Work, 2006). South African youth have been disproportionately affected by the HIV/AIDS epidemic. The largest growing number of infections in South Africa is found among the youth between 15 and 25 years of age (Coetzee, 2003). According to the World Health Organization Report (WHO) 2002, 99% of HIV infections prevalent in Africa are attributable to unsafe sex. Bylund, Imes and Baxter (2005) and Lance (2001) found that due to unprotected sex being common in college students, they place themselves at an increased risk of acquiring sexually transmitted diseases (STDs), contracting the human immunodeficiency virus (HIV) and unplanned pregnancies. A critical risk factor for both adolescent pregnancy and STDs is the early age of sexual intercourse initiation which has been associated with sexual risk behaviours, for example multiple sex partners and the failure to use contraceptive methods that protect them against pregnancy and STDs (Longmore , Manning, Giordano & Rudolph; 2003; O'Donnel, Myint, O'Donnel & Stueve, 2003; Lance, 2001).

Alcohol abuse is a major concern on college and university campuses (Baldwin, Johnson, Gotz, Wayment & Elwell, 2006; Dantzer, Wardle, Fuller, Pampalone and Steptoe, 2006). Biscaro, Broer & Taylor (2004) mentioned that the college culture often views excessive drinking as a rite of passage, encouraging behaviour that is destructive to the college subculture and the general population. Alcohol use has been linked to physical violence, academic and occupational problems and illegal

behaviours. Long-term alcohol misuse is also associated with cancer, cardiovasvular disease and liver disease. Alcohol definitely plays a role in high sexual risk-taking, especially situations involving casual or unprotected sex, therefore increasing the risk of human immunodeficiency virus (HIV) transmission (Matuare, McFarland, Fritz, Kim, Woelk, Ray and Rutherford, 2002). Windle (2003) found that the age group 18-24 years had a higher prevalence of drinking and binge drinking than did people 25 years and older. This is of great concern as several studies revealed that binge drinking significantly impacts the academic performance and health status of college students and their peers (Boyle & Boekeloo, 2006).

Tobacco use has been designated as the chief avoidable cause of death in the Western World (Global Youth Tobacco Survey Collaboration Group, 2003). The WHO projected that it would cause 10 million deaths per annum by 2025. In South Africa cigarette smoking has been reported to have negative impacts on health status and the economy, as it contributes to mortality and morbidity due to premature death (Yach, McIntyre & Salojee, 1992). Despite several decades of widespread health warnings about risks associated with cigarette smoking and the declining social acceptability of smoking, cigarette smoking among adolescents and young adults continues to be a major public health problem (Rodham et al., 2006; Upadhaya, Drobes & Thomas, 2004; Call et al., 2002). Despite the well-known health hazards associated with smoking, youth are continuing to smoke at alarming rates. Studies have shown that smoking is an important risk factor for most current causes of illness and death. The leading causes of death from smoking in South Africa are chronic obstructive pulmonary disease (COPD), tuberculosis (TB), lung

cancer and ischaemic heart disease (Chronic Diseases of Lifestyle in South Africa, 1995-2005; Ezzatti & Lopez, 2003). Of concern is the fact that because of the clustering of smoking with other risk behaviours, it is to be a risk factor for several health-compromising behaviours. Őzcan and Őzcan (2002) also stated that tobacco is often the first drug used by young people who then go on to use alcohol and illicit drugs. The college years may be an important period in the development of long-term smoking habits. College students identify the benefits of smoking as stress reduction, enjoyment, something to do, social acceptance and weight reduction (Ott, Cashin, Altekruse, 2005).

Substance use among adolescents in all parts of the world continues to be a significant health problem (Brook, Morojele, Pahl & Brook, 2006; Gil, Wagner & Tubman, 2004). Several studies have been done on illicit drug use in US and other industrialized countries, but much remains to be learned about the risk factors in developing countries. Although South African youth live in a social context in which violence, HIV/AIDS and low educational achievement is prevalent, illegal drug use among South African youth tends to be less than among youth in the US (Brook et al., 2006; Statistics South Africa, 2001). Drug use has also been directly and indirectly linked to the Acquired Immuno-deficiency Syndrome (AIDS) epidemic. Brook et al. (2006) have identified a number of risk factors that increase the likelihood of drug use among adolescents and young adults. Peer substance use is one of the major predictors of adolescent drug use. It was found that peer drug use influenced adolescents' own predispositions to using drugs and that it may lead them to select abnormal peers (Brook, Morojele, Pahl and Brook, 2006). Feigelman,

Gorman and Leb (1998) also found that polydrug use among college students indicated that illicit drug use is highly associated with the use of other substances such as tobacco and alcohol.

Youth violence is a dynamic and complex public health problem. No community, whether affluent, poor, urban, suburban or rural, is immune. Evidence suggests that it occurs at a higher rate in low-income neighbourhoods, disproportionately among the youth (Soriano, Rivera, Williams, Daley & Reznick, 2004). The designation of violent and abusive behaviour as a public health priority in the United States of America (USA) is also evidenced by its inclusion in the Healthy 2010 objectives (US Department of Health and Human Services, 2000). In these objectives, intimate partner violence is recognized as an important sub-domain of such behaviour. The World Report on Violence and Health estimated that 1.6 million people died from violence in 2000, corresponding to 28.8 per 100 000 population. Price, Telljohann, Dake and Marisco (2002) stated that youth now are more likely than ever to be confronted with the daily reality of an ubiquitous model of physical aggression and violence. Cheng, Wright, Fields, Brenner, O'Donnel, Schwarz and Scheidt (2001) stated that the number of nonfatal injury rates caused by violence and risky behaviour are higher in adolescents than for any age group. In a report by the National Injury Surveillance System in South Africa, Peden (2000) reported that injury was the major cause of death among youth and 58% injury deaths were due to homicide. Research has shown that the health consequences of violence are far broader than death and injuries. Victims of violence are at risk of psychological and behavioural problems, including depression, anxiety, suicidal behaviour, alcohol

abuse and reproductive health problems, such as sexually transmitted diseases, HIV/AIDS and unwanted pregnancies (Krug , Mercy , Dahlberg & Zwi , 2002).

Regular physical activity, fitness and exercise are critically important for the health and well-being of people. Physical inactivity, a serious and pervasive public health concern, has been linked to many chronic diseases of lifestyle, such as obesity, cardiovascular diseases, diabetes mellitus and hypertension (CDL in SA, 1995-2005). There is substantial evidence that regular physical activity is associated with a lower risk for chronic disease of lifestyle (Prat, Macera & Wang, 2000). Even though the clinical symptoms of many chronic diseases only become apparent in later life, it is known that the origin lies in early childhood. Therefore prevention has to start as early as possible. Some of the benefits of physical activity include helping to build and maintain healthy bones and muscles, control body weight, reduce feelings of depression and anxiety and promote psychological well-being (Travill, 2003). Current recommendations for participation in physical activity are based on the United States Centers for Disease Control and Prevention (1996) guidelines. For adults, about 30 minutes of moderate intensity physical activity should be accumulated during the course of a day. Examples of moderate intensity physical activities are walking two miles briskly, swimming with moderate effort and racket sports. The Canadian Fitness and Lifestyle Research Institute (2002) recommended that adolescents and young adults should engage in three or more sessions per week of activities that last 20 minutes or more at a time, that require moderate to vigorous levels of exertion. Furthermore, researchers at the Centers for Disease Control and Prevention (2001(a)) found that physically active people had lower

annual direct medical costs than did inactive people. Various researcher have noted that physical inactivity is also a major concern for college students (Keating, Guan, Pinero and Bridges, 2006; Buckworth & Nigg, 2004). Keating et al. (2005) further stated that college students' overall physical activity levels were not higher than levels in the general population.

1.3 AIM OF THE STUDY

The aim of the study was to determine and analyze health risk behaviours and health promoting behaviours among health sciences students at the University of the Western Cape.

1.4 OBJECTIVES OF THE STUDY

The following objectives of the study were identified:

1. To determine the prevalence of health risk behaviours among students of the Community and Health Sciences (CHS) Faculty of the University of the Western Cape (UWC):
    (a) To determine the prevalence of smoking among students of the Community and Health Sciences Faculty of the University of the Western Cape.
    (b) To determine the prevalence of alcohol use among students of the Community and Health Sciences Faculty of the University of the Western Cape.
    (c) To determine the prevalence of drug use among students of the Community and Health Sciences Faculty of the University of

the Western Cape.

(d) To determine the prevalence of sexual risk behaviours among students of the Community and Health Sciences Faculty of the University of the Western Cape.

(e) To determine the prevalence of violence related behaviours among students of the Community and Health Sciences Faculty of the University of the Western Cape.

2. To determine the prevalence of health promoting behaviours among students of the Community and Health Sciences Faculty of the University of the Western Cape (UWC):

   (a) To determine the prevalence of physical activity among students of the Community and Health Sciences Faculty of the University of the Western Cape.

3. To determine if a correlation exist between actual risk behaviour and perceived risk behaviour among students of the Community and Health Sciences Faculty of the University of the Western Cape.
4. To determine the students of the Community and Health Sciences Faculty of the University of the Western Cape's knowledge of consequences when participating in health risk behaviours.
5. To inform university administrators in planning educational interventions for the promotion of healthy lifestyles.

For the purpose of this study, the following racial categories have been used: "African Black", "Coloured", "White" and "Indian". The "Coloured" population group is

a population of mixed descent i.e. Afro-Euro-Malay-Khoisan descent (Temple, Steyn, Hoffman,Levitt and Lombard, 2001). The race/etnicity variable was based on the former government's classification system (i.e. Black, Coloured, White and Indian/Asian). Although these designations continue to influence the universities that students go to, the communities they live in, and their socio-economic status, the author acknowledges that using "racial" labels is ill conceived. Ellison, De Wet, Ijsselmuiden and Richter (1996) also warn that there are dangers analyzing data by race classification because the groups do not have anthropological or scientific validity. However, these authors stated that there are differences among the groups for many indicators of health, mediated by political and economic differences. Prior to 1994, fewer resources and funding had been allocated to the black population in South Africa. The inadequacies and inequalities in the system of "apartheid" reflected and reproduced the socio-economic disadvantagement that was experienced by the disenfranchised racial groupings. Therefore in this study the use of the race/ethnicity refers explicitly to the social concept of race.

1.5 SIGNIFICANCE OF THE STUDY

Health professionals are involved in educating and administering health-change programmes at the individual as well as community level (Huddleston, Mertesdorf & Araki, 2002).

Undergraduate Community and Health Science (CHS) Faculty students are the future health professionals who will teach health promotion and disease prevention. Huddleston et al. (2002) stated 'the way in which college educators in the three

disciplines of physical education, health and leisure services communicate their participation message to pre-professionals may determine how effectively their students are able to later influence the public to become physically active and live healthy'. It is therefore of utmost importance that the students fully understand the consequences of engaging in health risk behaviours. If they lack the knowledge of the importance of a healthy lifestyle, they risk the development of many of the chronic diseases that plaque our South African population. However, they are in an inimitable position to influence and inspire other students to lead a healthy lifestyle.

Early identification of health risk behaviours among students can contribute to the development and implementation of programmes by faculty that help students adopt healthy lifestyle behaviours. The outcome of this study would contribute to the establishment of effective preventative measures to counter health issues facing university students, thereby promoting their health. It would provide a platform for youth to lead healthy lifestyles, endorse health promotion among youth and form a basis for future university-based health promotion programmes. Furthermore, after the 1st South African National Youth Risk Behaviour Survey 2002, it was recommended that determinant studies should be undertaken of all behaviours that place young people at risk (Reddy, Panday, Swart, Jinabhau, Amosun, James et al., 2003).

1.6 DEFINITION OF TERMS

Adolescent health behaviour: Voluntary activities of an individual undertaken to prevent or detect disease or injury, to promote or enhance health, and to protect from risk of disease, injury, or disability (Spear & Kulbok, 2001).

Binge drinking: consuming five (5) or more drinks in a row for men and four (4) or more drinks in a row for women, at least once in the past two weeks (O'Malley and Johnston, 2002).

Health promotion: the aspect of prevention that encourages personal change in the interest of personal health outcomes (Keeling, 1999).

Heavy episodic drinking: Having five (5) or more drinks on the same occasion, at least five (5) days in the past 30 days (Windle 2003).

Late adolescence or young adults: Ages 17 to 21 (Joffe, 2000).

Risk factors: Conditions that influence a person's health status and are capable of causing illness or injury, including genetic or biological risk factors, lifestyle or environmental conditions (www.Deha.org, 2004).

1.7 ABBREVIATIONS

The following abbreviations have been used in the thesis:

ACHA-NCHA:	American College Health Association National College Health Assessment
AIDS:	Acquired Immune Deficiency Syndrome
CAS:	College Alcohol Study
CDC:	Centers for Disease Control and Prevention
CDL:	Chronic Diseases of Lifestyle
CHS:	Community and Health Sciences
MRC:	Medical Research Council of South Africa
NCHRBS:	National College Health Risk Behaviour Survey
USA:	United States of America
UWC:	University of the Western Cape
YRBSS:	Youth Risk Behaviour Surveillance System
WHO:	World Health Organisation

1.8 SUMMARY OF CHAPTERS

Chapter one presents a review of literature regarding late adolescence and youth, health risk behaviours and the prevalence of health risk behaviours and health promotion in youth, specifically university and college students. The rationale, aims, objectives and significance of the study is also outlined. The chapter ends with the definition of terms and abbreviations used in this study.

Chapter two presents a review of relevant literature to understand the need for the study. It focuses on the period of late adolescence and youth, an overview of youth health and the prevalence and consequences of health risk and health promoting behaviours among youth, specifically university and college students. The health risk and promoting behaviours reviewed included tobacco use, alcohol and drug use, sexual risks, behaviours that contribute to violence and physical inactivity.

Chapter three considers the methodological issues relevant to the study. It explains the research setting in which the study was based, as well as the study design used in this study. A description of data collection methods is presented. This includes the instrument used in data collection, data collection procedures and issues of reliability and validity. The chapter ends by giving the method of data analysis and showing how ethical issues would be addressed.

Chapter four outlines the outcome of the data collected. The results include socio-demographic information, prevalence of health risk behaviours, the prevalence of

health promoting behaviours, the correlation between actual and perceived health risk behaviours and the students' knowledge of consequences when participating in health risk behaviours.

Chapter five presents the integration stage of the study in the form of the discussion.

Chapter six provides a summary of the study and draws conclusions based on the findings. Limitations to the study are also outlined. In addition recommendations based on the main findings of the study are made.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter gives an overview on the health of late adolescence and young adulthood. Literature regarding the prevalence and consequences of health risk behaviours among late adolescents and young adults, specifically university and college students, are reviewed. The specific health risk behaviours reviewed includes tobacco use, sexual risks, physical inactivity, alcohol and drug use and behaviours that contribute to unintentional injuries and violence. The Centers for Disease Control and Prevention (CDC) in the United States of America identified these six behaviours as those that contribute to major health problems in adolescence and adulthood.

2.2 OVERVIEW OF LATE ADOLESCENCE AND YOUNG ADULTHOOD

Adolescence is generally described as a transitional phase of development that begins at the onset of puberty and continuous into early adulthood (Spear & Kulbok, 2001). Joffe (2000) customarily divided adolescence into three stages: early (age 11 to 14 years), middle (age 14 to 17 years) and late adolescence (age 17 to 21 years). Adolescence is described as a time when exploration and experimentation in their lifestyle, attitudes, concepts, beliefs and habits are developmentally normal in preparation to the commitments of adulthood (Peltzer, 2003; Joffe, 2000; McGee & Williams, 2000). Furthermore, adolescence is also

a time for first experiences of various kinds: being out of the direct control of parents and guardians, living away from home and first sexual experiences. The way adolescents experience these changes depends on their circumstances (Call et al., 2002).

Adolescence is often depicted as a time of marked distress and disturbance, a period when a number of healthy and unhealthy habits are developed that may last throughout the life course (Rodham et al., 2006). Adolescents and young adults have been identified as a population that engages in high-risk behaviours (Peltzer, 2003; Spear & Kulbok, 2001; Adderley-Kelly & Green, 2000). Although many risk behaviours may be considered a normal part of their development, surveys suggest that some youth engage in forms of risk-taking that may be associated with adverse longterm consequences (Burt, 2002; Spear & Kulbok, 2001). Survey data from the U.S. Youth Risk Behaviour Surveillance Survey (2001) indicates that 10-20% of youth engage in behaviours that put them at substantial risk for negative secondary problems such as sexually transmitted diseases, pregnancy and negative self-feelings (Wekerle et al., 2004).

Adolescents' health is shaped by every sector of society. Burt (2002) stated that the adolescents' family, peers, neighbourhood environment and school can either help them to complete their developmental tasks (i.e. establishing of self-identity) or they can pose significant barriers to it. Call et al. (2002) also stated that central factors in adolescents' health and well-being, is their interactions with their environment and people in their daily lives. Beal, Ausiello & Perrin (2001)

and Peltzer (2003) found that peer influences emerged as having a great impact on health risk behaviours, as acceptance by peers is very important to young peoples' social development. Research has shown that just as there are factors in adolescents' environment that will increase the probability for them to engage in risky behaviour (i.e. low socio-economic status and poor mental health), there are also factors that may be able to protect them (i.e. connection with family, religion and school) (Viner, Haines, Head, Bhui, Taylor, Stanfeld , Hillier & Booy, 2006; Wekerle et al.,2004; Dowdell & Santucci, 2003; Reininger, Evans, Griffin, Valois, Vincent, Parra-Medina, Taylor & Zullig, 2003). High socio-economic status may predict an adolescents' well being, since it plays an important role in determining whether someone will have access to education and housing and whether they will be exposed to violence.

Results from the National Longitudinal Study of Adolescent Health show that adolescents who feel close to their families and who report to have a satisfactory relationship with their mothers are at reduced risk for engaging in health risk behaviours. Although parents are important in the lives of adolescents, fewer parents, especially single parents, are able to spend the necessary amount of time with their children. This may be one of the explanations why parents tend to underestimate the prevalence of risk behaviours among their adolescents (Joffe, 2000).

Adolescence and young adulthood appears to be a healthy period in the life-span of an individual, compared to the very young child and the elderly. It has very

low rates of morbidity and mortality due to disease (Call et al., 2002; Burt, 2000). However, it is also a critical development period with lots of exploration and experimentation different from other age groups. It is a time when the primary causes of mortality and morbidity are closely related to the behavioral choices of the individual (Rodham et al, 2006; McGee & Williams, 2000). Certain health habits formed during adolescence do not produce morbidity and mortality in adolescence itself, but it has long term negative effects on their health (e.g. unprotected sex, smoking and addictive substance use) (Madu & Matla, 2003; McGee & Williams, 2000). Peltzer (2003) stated that South African youth do engage in risky behaviours, e.g. alcohol and drug use, unprotected sex, unhealthy diet as well as violence. Although these risky behaviours on its own may be associated with negative consequences, recent research suggests risk behaviours often occur in clusters, placing youth at risk for a variety of adverse outcomes (Pittman & Woolfe, 2003).

Jessor (1991) and Gemelli (1996) stated that the earlier the onset of engaging in health risk behaviours, the more likely adolescents will engage in multiple risk behaviours as they progress to adulthood. In support if this hypothesis, several studies have found that an early age of onset of substance use is associated with engaging in other health risk behaviours during middle and late adolescence (Lenz, 2004; Windle, 2003; Call et al., 2002; Hingson, Heeren, Zacoks, Winter & Wechsler, 2003).

2.3 HEALTH RISK BEHAVIOURS

Health risk behaviours are activities that can damage one's health and well-being (Zweig, Lindberg & McGinley, 2001). Research has however suggested that health risk behaviours may in part reflect a normative stage of youth development (Engels & ter Bogt, 2001; Topolski, Patrick, Edwards, Huebner, Connell & Mount, 2001). Carr-Greg, Enderby & Grover (2003) also purport that healthy risk-taking is a positive tool in an adolescent's life for discovering, developing and consolidating his or her identity. It is however the extent to which youth engages in these health risk behaviours that are of increasing public health concern (Carr-Greg et al., 2003). Klein and Matos Auerbach (2002) stated that youth morbidity and mortality are more often due to preventable causes and risky behavioural choices than to natural causes.

Many of the studies done on health risk behaviours had the tendency to focus on the frequency of engaging in risky behaviours rather than focusing on what "risk" means to adolescents (Rodham et al, 2006; Gullone & Moore, 2000). A study by Rodham et al. (2006) indicated that adolescents perceived risk to be something where the outcome was uncontrollable, whereas challenges were thought of as having a known end point that was difficult to achieve. Knowledge about behaviour-health risk awareness is an important factor in an informed choice concerning healthy lifestyle. Studies have shown that the perceived advantages of certain health behaviours are associated with the practice of such behaviours (Peltzer, 2000). In addition to causing serious health problems, health risk

behaviours simultaneously cause many of the social problems that confront a nation, including unemployment and crime (CDC, 2002).

Statistics from the CDC (2002) suggests that the number of adolescents who are engaging in health risk behaviours, such as using alcohol, smoking and carrying a weapon, are increasing. Luquis, Garcia and Ashford (2003) documented that although many studies have been done on college health issues, each of them has tended to emphasize a specific single set of behaviours (i.e. alcohol and drug use, sexual practices and tobacco use). Several researchers are however of the opinion that it is of utmost importance to emphasize that a single behaviour is influenced by other health risk behaviours among youth and that there is an interrelationship among multiple behaviours (e.g. substance use and sexual practices) (Luquis et al., 2003; Pittman & Woolfe, 2003; Zweig et al., 2001).

Rhodes (1997) explained two paradigms in his study of health risk behaviours. The first paradigm views the individual as the unit of analysis. Risk behaviour is conceptualized as the product of the person's decisions and associated actions. In the second paradigm risk behaviour is thought to be a product of interaction between individuals, their communities and social environment.

2.3.1 SUBSTANCE USE

Substance use among youth is a worldwide epidemic. Not only does it have a negative impact on the health sector, but it also impacts negatively on the family and society in terms of crime and social development (South African Health

Review, 2000). Young adults begin to assume responsibility for many lifestyle choices affecting their health. Some of these choices are healthy, whereas other such as using tobacco or alcohol may not be (Lenz, 2004; Call et al., 2002). Several studies have found that an early onset of substance use is associated with engaging in other health risk behaviours during late adolescence (Windle, 2003; Pittman & Woolfe, 2003; Call et al., 2002; Hingson et al., 2000).

Recent evidence from the World Health Report by the WHO suggests that tobacco and alcohol are among the top ten risk factors leading to disease and injury in developing nations (Hindin, 2003). This leads to an increase in medical costs as well as an increase in crime, motor vehicle accidents and early mortality (Gage & Suzuki, 2006; Testa, Vanzile-Tamsen & Livingstone, 2004; Spear & Kulbok, 2001). The use of other drugs has frequently been found to be associated with smoking. Studies revealed that tobacco use was significantly greater among students who binge drink and smoke marijuana (Windle, 2003; Zweig, Phillips & Lindberg, 2002; Adderley-Kelly & Green, 2000). Among youth, the use of alcohol and other drugs has also been linked to unintentional injuries, physical fights, academic problems and illegal behaviour (Matuare et al., 2002). Naimi, Brewer, Mokdad, Denny, Serdula and Marks (2003) pointed out that drug use contributes directly and indirectly to the HIV epidemic.

Alcohol use

Worldwide, alcohol use during adolescence and young adulthood remains a prominent public health problem. Alcohol use is the third leading preventable cause of death in the United Sates (US) (4% of the total deaths in 2000) and it is a factor in approximately 41% of all deaths from motor vehicle crashes (Mokdad, Marks, Stroup & Gerberding, 2004). Statistics from the US Department of Health and Human Services on consequences of college drinking showed the following: over 1 400 students ages 18-24 years die from alcohol-related unintentional injuries including motor vehicle crashes; 500 000 students ages 18-24 years are unintentionally injured under the influence of alcohol; more than 600 000 students ages 18-24 years are assaulted by another student who has been drinking; more than 70 000 students ages 18-24 years are victims of sexual assault or date rape in which alcohol is involved; 400 000 students ages 18-24 years have unprotected sex and 25% of college students report academic consequences of their drinking including missing class and doing poorly on exams and papers.

Alcohol abuse is a major concern on college and university campuses (Baldwin et al., 2006; Dantzer et al., 2006; Wechsler, Lee, Kuo, Seibring, Nelson & Lee, 2002). Furthermore, heavy episodic drinking or binge drinking has become a major health hazard. Windle (2003), Hingson et al. (2002) and Usdan, Schumacher, McNamara & Bellis (2002) stated that binge drinking is associated with major contributors to youth mortality, e.g. motor vehicle accidents and suicide. O'Malley and Johnston (2002) found that about 70% of students drank

alcohol, 40-45% were 'binge' drinkers (defined as drinking 5 or more drinks in a row for men and 4 or more drinks in a row for women, at least once in the past 2 weeks). According to the 2002 College Alcohol Study (CAS) survey, 80.7% of students reported alcohol consumption within the past year and 44% can be classified as binge drinkers (Baldwin et al., 2006). Furthermore, Windle (2003) found that the age group 18-24 years had higher prevalence of drinking and binge drinking than did people 25 years and older. This is of great concern as several studies revealed that binge drinking significantly impacts the academic performance and health status of college students and their peers (Boyle & Boekeloo, 2006; Jennison, 2004; O'Neill, Parra & Sher, 2001; Vik, Tate, Carrello & Field, 2000). Dantzer et al. (2006) report the prevalence of alcohol use among South African college students as 29% for men and 6% for women.

Biscaro et al. (2004) mentioned that the college culture often views excessive drinking as a rite of passage, encouraging behaviour that is destructive to the college subculture and the general population. Rozmus et al. (2005) and Windle (2003) stated that college students are often undergoing role transitions, such as moving away from home for the first time, residing with other students and experiencing less adult supervision. Therefore students also engage in different social activities, e.g. college parties that may lead to heavy alcohol use.

Literature has shown that there are certain factors that will protect youth from alcohol use as well other factors that will contribute to their alcohol use. (Gage & Suzuki, 2006; Watkins, Howard-Barr, Moore & Werch, 2006; Urberg, Goldstein & Toro, 2005). Youth that receive high levels of support from their parents, such as

parental monitoring, communication and emotional support are less likely to engage in a variety of negative anti-social behaviours. Increased self-efficacy has also been demonstrated to act as a protective factor in adolescent and youth alcohol use. (Watkins et al.,2006). Perkins (2002) and Presley, Meilman & Leichliter (2002) have indicated that living circumstances are a major influence in students' drinking behaviour. Living in a dormitory instead of living at home with parents was associated with substantially higher levels of alcohol use. Peers may create normative environments that reinforce and sanction high-risk behaviour.

High levels of alcohol use among college and university students are also associated with a broad array of other risk behaviours, such as tobacco use, unintentional injury and drinking and driving (Borges, Cherpitel, Mondragon, Poznyak & Gutierrez, 2004; Steptoe, Wardle, Bages, Sallis, Sanabria-Ferrand & Sanchez, 2004; Hingson et al., 2003; Hingson & Winter, 2003). It is also associated with a number of health problems, including an increased risk of contracting sexual transmitted diseases, teenage pregnancy, violence related injuries and accidental death (Gage & Suzuki, 2006; Testa et al., 2004; Richardson & Budd, 2003; Windle, 2003). Alcohol definitely plays a role in high sexual risk-taking, especially situations involving casual or unprotected sex, therefore increasing the risk of human immunodeficiency virus (HIV) transmission (Matuare et al., 2002). In addition, students who do not drink nevertheless experience adverse secondhand effects of drinking, including victimization (verbal or physical threats and actions) as well as disruption of sleep and study

habits (Gage & Suzuki, 2006; Buzy, McDonald, Jouriles, Swank, Rosenfield, Shimek & Corbitt-Shindler, 2004; Naimi et al., 2003; Johnston, O'Malley & Bachman, 2003; Windle, 2003; Perkins, 2002).

Several studies indicated that longterm alcohol misuse is associated with liver disease, cancer, cardiovascular disease and depression. (Gage & Suzuki, 2006; Grunbaum, Kann, Kinchen, Ross, Hawkins & Lowry, 2004; Peltzer, 2003; Naimi et al.,2003; Windle, 2003). It is therefore clear that prevention strategies at family and community levels as well as education at university level is much needed.

The Social Learning Theory views alcohol use as socially influenced behaviour acquired and maintained through a learning process that involves several mechanisms (Gage & Suzuki, 2006). Firstly, the more an adolescent defines alcohol use as good or justifiable and the less he/she holds attitudes that are disapproving of alcohol use, the more likely he/she is to use it. Secondly, most behaviour is learned by observing others, as well as by participating. Thirdly, a person is most likely to model behaviours by others with whom they identify. Last, but not the least, is the interaction between personal factors, behaviour and the environment. Adolescents select with whom they interact with as well as the activities they participate in, therefore their behaviour also determines the nature of their environment. Research on the Social Learning Theory has demonstrated that a child is more pertinent to emulate the behaviours of a model if the child has a positive relationship with the model. This theory therefore suggests that a

supportive relationship with a drinking parent or peer would increase the likelihood of drinking by the adolescent. (Gage & Suzuki, 2006; Urberg et al., 2005).

Tobacco use

Tobacco use has been designated as the chief avoidable cause of death in the western world (Global Youth Tobacco Survey Collaboration Group, 2003; MacDonald & Wright, 2002; Alexander, Piazza, Melcos & Valente, 2001). The WHO estimated that tobacco was the cause of 3 million deaths globally in 1993 (Call et al., 2002; Global Youth Tobacco Survey Collaborating Group, 2003) and projected that it would cause 10 million deaths per annum by 2025 (WHO, 2001). The WHO further stated that if unchecked, tobacco use will be the greatest risk factor for death and disability worldwide by 2020 (Adderley-Kelly & Green, 2000). Smoking reduces life expectancy by 15 to 25 years and is the single most preventable cause of death. In 2000, an estimated 4.83 million premature deaths in the world were attributed to cigarette smoking (CDL in SA, 1995-2005).

Despite several decades of widespread health warnings about risks associated with cigarette smoking and the declining social acceptability of smoking, cigarette smoking among adolescents and young adults continues to be a major public health problem (Rodham et al., 2006; Upadhaya et al., 2004; Call et al., 2002). Recent evidence from the World Health Organization suggests that rates of smoking are increasing by about 3.4% per year, particularly in the developing world and among adolescents (Hindin, 2003; Call et al., 2002). Between 80%

and 90% of adults who are regular smokers started smoking before 18 years of age (Call et al., 2002; Alexander et al., 2001). Based on current smoking patterns, it is projected that by 2030, smoking-related illnesses will result in the death of 10 million people annually worldwide. The majority of these deaths are expected to be in developing countries (Call et al., 2002).

Tobacco use among college and university students is also a critical health problem. Cigarette smoking has increased on college campuses worldwide irrespective of students' gender, ethnicity, the type of college and the year in college (Patterson, Lerman, Kaufman, Neuner & Audrian-McGovern, 2004). Furthermore, Ott et al. (2005) also found a sharp increase in cigarette smoking among college students, especially women. Although most smokers started smoking before their nineteenth birthday, many college students start smoking after they get to campus (Loukas, Garcia & Gottlieb, 2006; Windle, 2003; Peltzer 2000). According to a study conducted on US college campuses in 2002, 43.3% of college students used tobacco in the past year and 31.7% used tobacco in the past month (Baldwin et al., 2006). However, a study by Loukas et al. (2006) found that only 17.9% of college students reported smoking in the past 30 days in their study. This lower smoking rate can be attributed to the fact that the majority of their participants were black students, a population of students that traditionally have had lower rates of smoking than white peers (CDC, 2001(b)).

For the majority of adolescents, the transition to college or university represents progression into adulthood and the freedom to make self-initiated choices,

including the decision whether to smoke or not (Patterson et al., 2004). The college years may be an important period in the development of long-term smoking habits. Many college students who have never tried smoking before may experiment with cigarettes, and students who where occasional smokers in high school are more likely to become more frequent, heavier smokers once in college (Rodham et al., 2006; Wechsler, Lee & Rigotti, 2001, Lantz, Jacobson & Warner, 2000). Adderley-Kelly & Green (2000) found that predictors of smoking among college students include gender (men are more likely to smoke than women) and high-risk behaviours (marijuana use and binge drinking). However, Rigotti, Lee and Wechsler (2001) and Ott et al. (2005) found a sharp increase in cigarette smoking among college students, particularly women.

The age at which a person starts to smoke has been shown to influence the total number of years of smoking (Zweig et al., 2002; Everett, Husten, Kann & Warren, 1999). The younger people begin smoking cigarettes, the more likely they are to become strongly addicted to nicotine. Research has shown that adolescent smoking remains one of the most consistent predictors of adult smoking (Rodham et al., 2006; Tilleczek & Hine, 2006). Rodham et al. (2006) further stated that 91% of adult smokers started smoking in adolescence.

Studies have shown that smoking is an important risk factor for most current causes of illness and death in South Africa. The leading causes of death from smoking in South Africa are chronic obstructive pulmonary disease (COPD), tuberculosis (TB), lung cancer and ischaemic heart disease (Ezzatti & Lopez,

2003; CDL, SA 1995-2005). If current patterns of smoking behaviour continue, an estimated 6.4 million of today's children can be expected to die prematurely from a smoking-related disease (Grunbaum et al., 2004; MacDonald & Wright, 2002).

Of concern is the fact that because of the clustering of smoking with other risk behaviours, it is to be a risk factor for several health-compromising behaviours. Studies revealed that tobacco use was significantly greater among students who binge drink and smoke marijuana (Lenz, 2004; Windle, 2003; Zweig et al., 2002; Flemming, Kim, Harachi & Catalano, 2002; Adderley-Kelly & Green, 2000). Őzcan and Őzcan (2002) also stated that cigarette smoking in adolescence represents a crucial entry-point in the progression to illicit drugs. The earlier an adolescent begins to experiment with cigarettes and alcohol, the greater the severity and persistence of his or her subsequent involvement with illicit drugs.

Drug use

Substance use among adolescents in all parts of the world continues to be a significant health problem (Brook et al., 2006; Gill et al., 2004; Ellikson, Tucker, Klein & Saner, 2004). According to Madu and Matla (2003) illicit drug use among adolescents can be part of normal risk-taking in developing their identity. Bonomo (2003) however stated that although drug use may be part of experimentation, it still has serious implications on adolescent well-being. Naimi et al. (2003), Gilvarry (2000) and McArdle, Wiegersma, Gilvarry, Kolte, McCarthy and Fitzgerald et al. (2002) found that alcohol and drug use has been linked to unintentional injuries, physical fights and illegal behaviour. Drug use has also

been directly and indirectly linked to the Acquired Immune-deficiency Syndrome (AIDS) epidemic. Gill et al. (2004) and Ellikson et al. (2004) pointed out that drug use at an early age increases the risk for alcohol abuse and the use of other illicit drugs.

Researchers in the United States of America (USA) have identified a number of risk factors that increase the likelihood of drug use among adolescents and young adults (Brook et al., 2006; Brook, Brook, Richter & Whiteman, 2003; McArdle et al., 2002). These risk factors include demographic, environmental, family, peer and personal domains. Factors in the demographic domain include ethnicity, age and gender. Brook et al. (2006) found that white adolescents, older adolescents and males report higher frequency of drug use in the USA. Brook et al. (2006) and Flisher, Parry and Evans (2003) expressed concern about environmental stressors that could attribute to adolescent and young adults' drug use. In the past decade, South Africans have been exposed to a number of environmental stressors, including social changes associated with transition from apartheid, violence and crime, increase rates of unemployment and the ever-worsening AIDS epidemic. Furthermore research pointed out that parental influence can either be positive or negative towards adolescents' drug use. Studies suggest that drug use by parent(s) serves as a behavioral model and predicts the adolescent's drug use. It was noted that adolescents who used illegal drugs, were significantly more likely to have parents who used legal and illegal drugs (Brook et al., 2006; Naimi et al., 2003). A parent-child mutual relationship marked by affection, has also been found to predict less drug use in

adolescents (Brook et al., 2006; Oxford, Harachi & Tracy, 2001). Peer substance use is one of the major predictors of adolescent drug use. It was found that peer drug use influenced adolescents' own predispositions to using drugs and that it may lead them to select abnormal peers (Brook et al., 2006). In the personal domain, a linkage was found between depression and substance use. Unconventional attitudes and behaviours, e.g. tolerance of deviant behaviour and delinquency, were also found to be associated with adolescents' drug use habits (Brook et al., 2006; White, Xie & Thompson, 2001).

Rates of illicit drug use have risen among youth in the United States (US) in the past decade, especially among young adults (18-24 years) (Gledhill-Hoyt et al., 2000). Several studies have been done on illicit drug use in US and other industrialized countries, but much remains to be learned about the risk factors in developing countries. Although South African youth live in a social context in which violence, HIV/AIDS and low educational achievement is prevalent, illegal drug use among South African adolescents tends to be less than among adolescents in the US (Brook et al., 2006; Statistics South Africa, 2001).

The presence of illicit drug use on college campuses has well been documented (Gledhill-Hoyt et al., 2000; Presley, Meilman & Cashwin, 1996; Douglas & Collins, 1997). Data from a study by Gledhill-Hoyt et al. (2000) found that 87% of the students that use illicit drugs also use another substance and binge drink and that 34% started to use marijuana and other illicit drugs at or after the age of 18, when most were in college. However, Webb, Ashton, Kelly & Kamali (1996)

reported that only 13% of their 2nd-year university students in the United Kingdom (UK) began using illicit drug after entering university.

Feigelman et al. (1998) also found that polydrug use among college students indicated that illicit drug use is highly associated with the use of other substances such as tobacco and alcohol. College students who engage in polydrug use are at greater risk for alcohol related injuries such as motor vehicle accidents. It becomes evident that the college years are a time of greater risk for the development of behaviours such as illicit drug use due to the students' economic ability to purchase illicit drugs, their absence from parental supervision and the tendency of college students to try previously prohibited behaviours (Gledhill-Hoyt et al., 2000).

2.3.2 SEXUAL RISK BEHAVIOURS

Risk factors in the area of sexual health can affect well-being in a number of ways. Adolescence is an important developmental period for sexual decision making. Understanding how adolescents make decisions to engage in early sexual activities is vital for intervention efforts of adolescent sexual behaviour. According to Michels, Kropp, Eyre and Halpern-Felsher (2005) adolescent decision making regarding sexual behaviour, focus on two major points: whether or not to engage in sexual intercourse and whether or not to use safer sex methods, such as condoms.

South African youth have been disproportionately affected by the HIV/AIDS epidemic. Taylor, Dlamini, Kagora, Jinabhai and De Vries (2003) stated that an estimated 4.7 million people in South Africa (of a total of 40.5 million) are currently infected with HIV/AIDS. The largest growing number of infections in South Africa is found among the youth between 15 and 25 years of age (Coetzee, 2003). Although it has less than 1% of the world's 15-24-year olds, South Africa accounts for roughly 15% of all HIV infections worldwide in this age group (Magnani, MacIntyre, Karim, Brown & Hutchinson, 2005). The Actuarial Society of South Africa developed in 2000 (ASSA, 2000), projects a tremendous increase in the mortality of young adults (Dorrington, Bourne, Bradshaw, Laubscher & Timaeus, 2001). The projected mortality, expressed as deaths per day, attributed to AIDS, is projected to increase from 77 per day in 1996 to 2184 per day in 2010.

The South African government's response to the epidemic has been the implementation of a Life Skills and HIV/AIDS Education Programme in secondary schools by 2005. The goal of the programme was to increase knowledge, to develop skills, to promote positive and responsible attitudes and to provide motivational support. Unfortunately research indicates only marginal success of this programme in influencing sexual risk-taking and health-seeking behaviours among youth in schools (Magnani et al., 2005; Speizer, Magnani & Colvin, 2003) as well as among college students (DeJong, 2002; Larimer & Cronce, 2002). These findings were confirmed by a report of Action Aid which

reported that school-based HIV/AIDS prevention programs are failing students in Africa and Asia (Boler , 2003).

Bylund et al. (2005) and Lance (2001) found that due to unprotected sex being common among college students, they place themselves at an increased risk of acquiring sexually transmitted diseases (STDs), contracting the human immunodeficiency virus (HIV) and unplanned pregnancies. According to the World Health Organization Report (WHO) (2002), 99% of HIV infections prevalent in Africa are attributable to unsafe sex. Each year, there are approximately 19 million new STD infections in the United States, and almost half of them are among youth ages 15 to 24 (Weinstock, Berman & Cates, 2000). One million adolescents become pregnant and 3 million new cases of STDs occur each year in the United States (Santelli, Kaiser, Hirsh, Radosh, Simkin & Middlestadt, 2004).

A critical risk factor for both adolescent pregnancy and STDs is the early age of sexual intercourse initiation which has been associated with sexual risk behaviours, for example multiple sex partners and the failure to use contraceptive methods that protect them against pregnancy and STDs (Longmore et al., 2003; O'Donnel et al. 2003; Lance, 2001). Substance use, for example alcohol and drugs has also been positively linked with an increase in high-risk behaviours such as unprotected sex. Alcohol use is also associated with a number of health problems, including an increased risk of contracting STDs and teenage pregnancy (Gage & Suzuki, 2006; Testa et al., 2004;

Richardson & Budd, 2003; Matuare et al., 2002). Furthermore, Moore and Davidson (2006) report that the presence of a STD greatly increases a person's likelihood of acquiring or transmitting HIV/AIDS. It is thus clear that adolescents and young adults put themselves at risk for HIV infection through unprotected sex.

Studies identified risk and protective factors that appear to influence adolescents' decision to engage in sexual activity or to use safer sex methods, for example self-efficacy, parental values and communication, peer norms, supervision and partner communication (Ethier, Kershaw, Lewis, Milan, Niccolai & Ickovics, 2006; Michels et al., 2005; Dilorio, Dudley, Soet & McCarty, 2004; Longmore et al., 2003; Cohen, Farley, Taylor, Martin & Schuster, 2002). Several studies have found a significant association between self-esteem and safer sexual behaviour among college women (Ethier et al., 2006; McNair, Carter & Williams, 1998).

Evidence increasingly suggests that the media are likely to play a major role in the sexual socialization of American youth. Students commonly rank the media among their top sexual informants, often placing them before peers and parents (Ward & Friedman, 2006). A study by Roberts, Foehr & Rideout (2005) found that adolescents devote approximately 3-4 hours to television per day, thus spending more hours in front of the television per year than interacting directly with their parents. At the same time, analyses indicate that sexual content is abundant on TV, appearing in 83% of programs popular among adolescent (Kunkel, Eyal, Biely, Cope-Farrar, Donnerstein & Fandrich, 2003). One

prominent finding is that TV often emphasizes a “recreational” orientation to sexual relationships, one in which sex is portrayed as a casual, leisure activity motivated solely by physical pleasure and personal gain (Ward & Friedman, 2006; Arnett, 2002). Sexuality is often referred to as occurring outside committed relationships, with minimal reference to contraception, pregnancy prevention and STD infections (Kunkel et al., 2003). Given television’s under-emphasis on the seriousness of sex, concerned is frequently expressed that regular exposure to these images may misinform adolescents’ developing sexual belief systems (Ward & Friedman, 2006; Ward, 2002).

2.3.3 BEHAVIOURS CONTRIBUTING TO VIOLENCE

Violence not only models aggression, but also disregard for the well-being of oneself and others. Youth violence is defined as: “The intentional use of physical force of power, threatened or actual, exerted by or against children, adolescents or young adults, ages 10-29, which results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development, or deprivation” (Mercy, Butchart, Farrington & Cerda, 2002). Youth violence includes aggressive behaviours such as verbal abuse, bullying, hitting, slapping or serious violent and delinquent acts such as robbery, rape and homicide.

According to the Surgeon General’s report on youth violence, today’s communities face alarming levels of juvenile crime, delinquent behaviour and juveniles’ witnessing violence (Dowdall & Santucci, 2003; Elliot, Hatot, Sirovatka & Potter, 2001). The World Health Assembly declared violence as a major public

health issue in 1996 (Krug et al., 2002). The first World Report on Violence and Health was released in 2002 by the WHO. This report estimated that 1.6 million people died from violence in 2000, corresponding to 28.8 per 100 000 population. In the 48 population-based studies from around the world used in this report, between 10% and 69% of women reported having been physically assaulted by an intimate partner during their lifetime and about 20% of women and 5-10% of men reported having been sexually abused as children. Furthermore, Jewkes, Levin & Penn-Kekana (2002) noted that in South Africa, a country of approximately 44 million people, as many as five women are estimated to be killed each week by an intimate partner. Peltzer , Mashego & Mabeba (2003) also noted that 13% of women in South Africa reported having been beaten by an intimate partner.

International and South African data suggest that violence is a problem of epidemic proportion among the youth (Soriano et al., 2004; Dowdell & Santucci, 2003; Burrows, Bowman, Matzopoulus & Van Niekerk, 2001). Assault and homicide statistics present a clear empiric portrait of the physical risks associated with violence. In the USA, homicide is the second leading cause of death for people aged 15 to 24 (Dowdell & Santucci, 2003; Sweatt, Harding, Knight-Lynn, Rasheed & Carter, 2002; Cheng et al., 2001, US Department of Health and Human Services, 2000).

College risk behaviour may be influenced by past violence exposure because young adults have developed permissive attitudes toward general risk-taking. College environments also present stressors (e.g. adapting to a new environment

and academic pressures), and some risk behaviours may represent maladaptive coping strategies (Brady, 2006).

2.4 HEALTH PROMOTING BEHAVIOURS

Health-protective or health promoting behaviours have been defined by Rozmus et al. (2005) as any behaviour to protect, promote, or maintain health, whether such behaviour is effective or not. As discussed under health risk behaviours in this chapter, changes may occur in health promotion behaviours of students as they experiment with their new freedom and environment (university setting). Rozmus et al. (2005) and Lawrence & Schank (1993) stated that behaviours that promote health ensure students of optimal health, which will strengthen their ability to endure stressors of the university environment, and prevent chronic diseases. These authors further emphasized the importance of gaining knowledge of health promoting behaviours to increase students' responsibility for their health.

Several researchers stated that the college and university environment provides the ideal setting for health promotion services and education. This is due to the fact that health is a multi-dimensional concept requiring life-long attention (Rozmus et al., 2005; Douglas, Collins, Warren, Kann, Gold & Clayton, 1997).

Regular physical activity, correct eating habits and weight loss have been identified as health promoting behaviours (Rozmus et al., 2005; Douglas et al., 1997). Valois, Zullig, Huebner and Diane (2004) stated that regular physical

activity is positively linked to increased life expectancy and enhanced quality of life through the lifespan. Correct eating habits are believed to extend the life span and reduce chronic diseases of lifestyle by many health authorities (WHO, 2002; US Department of Health and Human Services, 2000). Researchers have also reported that respondents felt they would be happier if they weighed less (Rozmus et al., 2005).

The Health Belief Model stipulates that individuals are more likely to take health promotion action when they truly perceive that their risks are serious and that they are predisposed to the consequences associated with these risks (Rosenstock, Stretcher & Becker, 1988). Factors such as gender have been suggested to affect health-promoting behaviours by several researchers (Gibbons & Gerrard, 1995; Pender, 1987).

2.4.1 Physical activity

The importance of being physically active cannot be overstated. The WHO identified physical inactivity as a threatening public health issue worldwide. Regular physical activity has been regarded as an important component of a healthy lifestyle. The Surgeon General's Report on Physical Activity and Health (CDC, 1996) indicates that only 50% of people aged 12 – 21 years engage in regular leisure time physical activity for the recommended frequency and duration. It is recommended that adolescents and young adults should engage in three or more sessions per week of activities that last 20 minutes or more at a time, that require moderate to vigorous levels of exertion. In contrast, Healthy

People 2010 suggested at least 30 minutes of moderate physical activity on a regular basis, preferably daily (Bray & Born, 2004).

Preliminary data from the studies conducted by the WHO on risk factors suggested that physical inactivity is one of the ten leading global causes of death and disability (WHO 2003; World Health Report 2002). Physical inactivity can lead to conditions such as heart disease, hypertension, type 2 diabetes, osteoporosis, obesity and depression. Over the past years, physical activity has become widely recognized as a key health behaviour, associated with reduced morbidity and mortality as well as chronic diseases of lifestyle (CDL) (Martinson, O'Connor & Pronk, 2001; Prat et al., 2000). Furthermore, Martinson et al. (2001) reported that physical inactivity is a predictor of ensuing disability in midlife and older populations. The WHO Health Report (2002) indicated that physical inactivity was estimated to cause 1.9 million deaths globally.

In 2000, the CDC (2001(a)) noted that physical activities of people of all ages tended to decrease. Concerns about physical inactivity among youth have been raised in various countries. Although adolescents and youth are generally more active than adults, participation in physical activity often falls below recommended levels for young people (Buckworth & Nigg, 2004; Keating et al, 2006; Huddleston et al., 2002, Furthermore, CDC (2001(a)) reported that of American youth ages 18 – 21 years, only 38% is regularly physical active. According to self-reported data available from the National Youth Risk Behaviour Survey, more than 25% of youth surveyed reported watching more than 3 hours

of television per day (Reddy et al., 2003; CDL, SA 1995-2005). Frantz, Phillips and Amosun (2003) stated that a physically inactive child is more likely to become a physically inactive adult, which could lead to chronic disease of lifestyle. Therefore early adaptations in the transition from sedentary living to becoming moderately active seem to have the greatest effect on risk reduction for CDL (Bouchard, 2001; Haskell, 2001).

Several studies recorded physical inactivity amongst college and university students. The 1995 National College Health Risk Behaviour Survey found that 36% of students did not participate in adequate amounts of physical activity (Keating et al., 2006). According to the 2000 National College Health Assessment (Buckworth & Nigg, 2004), 57% of male and 61% of female college students reported that they performed no vigorous or moderate exercise on at least three of the previous seven days. Other studies found between 40% and 50% of the students were not physically active (Bray & Born, 2004; Stone et al., 2002; Leslie, Fotheringham, Veitch & Owen, 2000; Wallace, Buckworth, Kirby & Sherman, 2000).

2.5 SUMMARY

As the literature review indicates, existing studies have shown that university/college students engage in numerous health risk behaviours related to environmental, social and interpersonal factors. The literature reviewed rouses questions regarding the actual and perceived risk taking behaviour. This study will attempt to unearth actual and perceived health risk behaviours involvement

among undergraduate health sciences students in a university setting. The study will further attempt to identify the factors influencing health risk behaviours among undergraduate health sciences students at the University of the Western Cape.

The literature reviewed also highlighted the lack of local studies regarding health risk behaviours among university/college students.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research setting in which the study was based. The study design, study population, sampling method and instrument to obtain data are also described. The data collection procedure and method of data analysis are also explained. Finally, the ethical issues relating to the study are discussed.

3.2 RESEARCH SETTING

The study was conducted at the University of the Western Cape. The University of the Western Cape (UWC) is located in the northern suburbs of Cape Town, Western Cape, South Africa. The Western Cape is a place of vibrant cultural diversity, a cosmopolitan environment. The university is readily accessible by car, taxi, bus or train, and even has its own railway station, Unibell, on the southern boundary of the campus. UWC has a history of resourceful struggle against oppression, discrimination and disadvantage. Among academic institutions, UWC has been in the front line of South Africa's historic change, playing a unique academic role in helping to build and evenhanded and dynamic nation. There are seven (7) faculties at the University of the Western Cape. These include Arts, Community and Health Sciences, Dentistry, Economic and Management Sciences, Education, Law and Natural Sciences

3.3 STUDY DESIGN

This was a study utilizing quantitative research methods. A cross-sectional, non-experimental study was done. Polit, Beck and Hungler (2001) stated that "cross-sectional designs are especially appropriate for describing the status of phenomena or relationships among phenomena at a fixed point".

3.4 STUDY POPULATION AND STUDY SAMPLE

The Community and Health Sciences (CHS) Faculty of UWC consists of ten departments, namely Dietetics, Human Ecology, Nursing, Occupational Therapy, Physiotherapy, Psychology, Social Work, Natural Medicine, Sport Recreation and Exercise Science and Public Health. According to the student profile of 2004 (UWC Prospectus 2005-2006), the CHS faculty had 2 346 (full-time and part-time) students enrolled during 2004. Of the total numbers of students, 77% were undergraduates and 23% were postgraduate students, 57% were female and 43% were male. The 2nd year CHS faculty student population for 2006 consisted of 508 undergraduate students. This excluded the Public Health Department, as they only offer postgraduate courses. Due to the nature of the nursing curriculum only one-third of the nursing students were approached to take part in the study, thus the total number of students approached were 345. Therefore the **population** for this study included all current (2006) full-time, undergraduate 2nd year Community and Health Sciences (CHS) Faculty students. Second-year university students represent a homogeneous population who had presumably adjusted to university life and are free of the stresses of final-year examinations.

Furthermore Webb et al. (1996) stated that it is unlikely that students radically change lifestyles in subsequent university years.

The issue of minimum size of a sample has been addressed in literature repeatedly (De Vos, 2002). He further stated that larger samples enable researchers to draw more representative and accurate conclusions. Furthermore since a certain degree of respondent mortality occurs, it is wise to draw a larger sample size than may eventually be needed. Grinell and Williams (1990) stated that in most cases a 10% sample should be sufficient for controlling of sampling errors. Different opinions however exist about the minimum number of the respondents needed for a research project. For the purpose of this study, the guidelines for sampling issued by De Vos (2002) were used. In these guidelines, the author suggested that with a population of about 500, the sample should consist of about 20% (i.e. 100) of the population.

Stratified random sampling was specifically used for this research. The population was divided into standardized subsets, namely the nine (9) departments of the CHS Faculty of UWC that offered undergraduate courses. The study incorporated a **probability sample** because every student who was eligible for inclusion in the study had an equal chance to participate in the study. This type of sample also enabled the researcher to generalize the findings to the designated population. Two hundred and one (201) students completed and returned the questionnaire, thus the overall response rate was 58.3%. The low response rate was a concern, but other college studies also obtained

approximately 50% participation rates, so that the present response rate is not out of line (Reifman & Watson, 2003). **The final sample** for this study thus consisted of 201 2nd year full-time undergraduate CHS faculty students, ranging from age 18 – 42 years, with a mean age of 22.16 years, (SD = 4.68, median and mode = 20.0). The socio-demographic characteristics of the sample are illustrated in table 3.1 below.

Table 3.1 Distribution of selected socio-demographic characteristics of the study sample (n=201)

Variable	n	%
Ethnicity/Race		
African/Black	48	23.9
Coloured	110	54.7
White	14	7.0
Indian/Asian	22	10.9
Other	7	3.5
Age (years)[a]		
18 – 24	169	84.1
25 – 29	14	7.0
≥ 30	18	8.9
Gender		
Male	45	22.4
Female	156	77.6
Head of household		
Father	114	56.7
Mother	48	23.9
Other[b]	39	19.4
Relationship status		
Single	174	86.6
Married/domestic partner	14	7.0
Engaged	11	5.5
Separated	1	0.5
Divorced	1	0.5
Current living status		
University housing	44	21.9
Off-campus housing	29	14.4
Parent/guardian's home	122	60.7
Missing	6	3.0
Religious affiliation		
Yes	165	82.1
No	36	17.9

[a]Mean age = 22.16 years, (SD = 4,68), median age = 20 years.
[b]Other included guardian, partner or self.

This sample consisted of 22.4% male and 77.6% female students. The majority of students in the study sample (84.1%) were aged between 18 – 24 years. Most of the study sample was single (86.6%) and 60.7% reported staying at their parent/guardian's home. More than half of the study sample (54.7%) classified themselves as "Coloured", 23.9% as "African/Black", 10.9% as Indian/Asian and 7.0% as White. The majority of the students (56.7%) reported their father being the head of the household and most of the students (82.1%) reported belonging to a religious organization.

3.5 METHODS OF DATA COLLECTION

Data was collected by means of a structured, self-administered questionnaire including items regarding the prevalence and knowledge of the consequences of the five health risk behaviours (tobacco use, sexual risks, alcohol and drug use and behaviours that contribute to unintentional injuries and violence) as well as prevalence and knowledge of health promoting or protective behaviours including physical activity. Below follows a brief motivation for the choice of instrument and its properties used.

3.5.1 The instrument

This self-constructed questionnaire (Appendix 4) measured demographic and socioeconomic characteristics of the participants, five domains of health risk behaviours and health promoting behaviours including physical activity. The following demographic and socio-economic characteristics of the participants

were assessed: age, gender, head of household, employment status of head of household and race/ethnicity. The students were asked to indicate the population group into which they would classify themselves. Therefore self-description, rather than any other method, was used for classification purposes. The race/ethnicity variable was based on the former government's repealed population Registration Act of 1950 (i.e. African/Black, Coloured, White and Indian/Asian).

Questions from the National College Health Risk Behaviour Survey (NCHRBS) as well as the American College Health Association National College Health Assessment (ACHA-NCHA) were included in the questionnaire. The Centers for Disease Control and Prevention (CDC) developed the Youth Risk Behaviour Surveillance System (YRBSS) in 1989 to monitor priority health risk behaviours that contribute substantially to leading causes of death, disability and social problems among youth and adults in the United States of America (USA) (Brener, Collins, Kann, Warren & Williams, 1995). The YRBSS was developed after input from state and local health and education agency representatives and experts in each categorical area. The YRBSS underwent extensive focus group and field tests work to clarify and refine the wording of the questions and their appropriateness for youth. The purpose of the YRBSS was to determine the prevalence and co-occurrence of health risk behaviours among youth.

The full form of the YRBSS questionnaire assesses eight domains of health risk behaviours. They include cigarette use, alcohol use, drug use, sexual activity,

behaviours related to physical activity, suicidal thoughts and body weight. The questionnaire has demonstrated good reliability with kappas for the risk behaviour items ranging from .61 to .88. Approximately 79% of the items have "substantial" or higher reliability (Kann, Kinchen, Williams, Ross, Lowry, Grunbaum & Kolbe, 1999). The instrument has also been found to have both face and content validity. The YRBSS has been used in South Africa with adolescents and youth and has been deemed appropriate for further use (Reddy et al., 2003).

One shortfall of the YRBSS is that it focuses almost exclusively on the health risk behaviours rather than the determinants (e.g. knowledge, attitudes and beliefs) of these behaviours. Furthermore Brener et al. (1995) documented that although studies has been done to examine the reliability of the YRBS items, all the studies, except for the study by Klein, Graff and Santelli et al. (2001), did not assess the reliability of all categories of health risk behaviour.

The NCHRBS, which forms part of the YRBSS, was developed by the CDC in 1995. It was the first national survey to measure health risk behaviours among college students in the United States across the six important areas of behaviours. The ACHA-NCHA instrument was developed in 1998 by the ACHA-NCHA work group, using the CDC's National Health Risk Behaviour Survey (NCHRBS) as a foundation for its survey development. The ACHA-NCHA includes approximately 300 questions assessing student health status and health problems, risk and protective behaviours, access to health information,

impediments to academic performance and perceived norms across a variety of health risk behaviours. Data collected during three studies in 1998, 1999 and 2000, as well as data from three external sources, were used to conduct reliability and validity analysis of the ACHA-NCHA. The three external data sets were (a) the NCHRBS conducted in 1995, using a nationally representative sample of undergraduate college students aged 18 years or older; (b) the College Alcohol Survey (CAS), a survey of students in 116 schools located in 39 states of the USA that was considered generalizable to college and university students nationally; and (c) the National College Women's Sexual Victimization Study (NCWSV), a survey conducted between February and May 1997 of a nationally representative sample of 4 446 women who were attending 2- or 4-year colleges or universities during 1996. This instrument has also been found to have construct and measurement validity as well as consistent standardized alphas for reliability (The American College Association National College Health Assessment (ACHA-NCHA), Spring 2003 Reference Group Report, 2005).

3.5.2 Validity of the instrument

Validity is one of the most important criteria by which a quantitative instruments' adequacy is evaluated (Polit, Beck & Hungler; 2001). Validity refers to the extent to which an instrument measures what it is supposed to be measuring. Unlike reliability, validity of an instrument is extremely difficult to establish. Like reliability, validity has a number of different aspects and assessment approaches.

To ensure **validity** of the instrument, the questionnaire was adapted from previous questionnaires used in similar studies, namely the NCHRBS and ACHA-NCHA questionnaires. **Face validity** refers to whether the instrument looks as though it is measuring the appropriate construct (Polit et al., 2001). Although there are no complete objective methods of assuring the adequate content coverage of an instrument, certain steps were taken to assure **content validity.**

The **questionnaire** was **piloted** before the final version of the questionnaire was adopted for use in the study. The questionnaire was administered to a group of 20 third year physiotherapy students of the University of the Western Cape (UWC). This was done to assess the validity and applicability of all the items for this population, its level of understandability and the time it takes to be completed. The time taken for the students to complete the questionnaire ranged from 20 to 30 minutes. A 30 minute **focus group discussion** followed the completion of the questionnaire to test content validity of the instrument and to see whether it was necessary to rephrase or change any of the questions. Prevalent themes that emerge in the responses to the questions were incorporated into items in the instrument, thus reflecting the major health risk and health promoting behaviours as experienced by university students. The results indicated that the instrument was relevant to the population and was easily used by the students. Only a few grammatical changes were made. The **final questionnaire** was send to an expert in the field of health risk behaviours among adolescents and young adults. This expert was called on to analyze the items to see if it adequately represents the hypothetical content universe in the correct

proportions. Thus the final instrument that assessed five domains of health risk and health promoting behaviours was finalized for use in the study (Appendix 4). The questionnaire consisted of the following:

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS. The following variables were assessed: age, gender, race/ethnicity, religious affiliation, current relationship status, current living status, head of household, employment status of head of household, number of persons living in household and highest level of education completed by the head of household. The students were asked to indicate the population group into which they would classify themselves. Therefore self-description, rather than any other method was used for classification purpose. The race/ethnicity variable was based on the former government's classification system (e.g. Black, Coloured, White and Indian/Asian).

QUESTIONS ABOUT HEALTH, HEALTH EDUCATION AND SAFETY. Description of own health; health risk behaviour topics; sources which provide health-related information; reliable sources of health information; questions regarding physical and verbal assault and sexual, emotional or physical abusive relationship.

TOBACCO USE. Questions on tobacco use measured lifetime and current patterns of tobacco use; age of initiation of smoking; knowledge of the effect of smoking on health; sources of information regarding smoking; and perceived patterns of smoking of university students.

ALCOHOL USE. Questions on alcohol use measured lifetime and current patterns of alcohol use; age of initiation of alcohol use; knowledge of the effect

of alcohol use on health; sources of information regarding alcohol use; and perceived patterns of alcohol use of university students.

DRUG USE. Questions on drug used measured lifetime and current patterns; age of initiation of drug use; knowledge of the effect of drug use on health; sources of information regarding drug use; and perceived patterns of drug use of university students.

BEHAVIOURS CONTRIBUTING TO VIOLENCE. The questions on violence related behaviours measured days missed from university due to safety reasons; the frequency of physical fights on campus; abusive behaviours of partners; forced sexual intercourse; knowledge of the effect of violence on health; and sources on information regarding violent behaviour.

SEXUAL BEHAVIOUR. Questions on sexual behaviour measured age of first intercourse, number of sexual partners, pregnancy prevention and condom use, whether students have received HIV prevention education, knowledge of the effect of unprotected sex on health; sources on information regarding sexual activity; and perceived patterns of sexual activity and condom use of university students.

PHYSICAL ACTIVITY. Questions on physical activity measured patterns of and participation in physical activity; sedentary behaviours such as watching television and playing computer games; knowledge of the effect of being physical inactive on health; sources on information regarding physical inactivity; and perceived patterns of physical activity of university students.

3.5.3 Procedure

Ethical clearance was granted from the Senate Research Grant and Study Leave Committee of the University of the Western Cape (UWC) to conduct the study. Permission to do the study was further sought from the Registrar of UWC (Appendix 1) as well as the heads of the nine participating Departments of the Community and Health Sciences (CHS) Faculty of UWC (Appendix 2).

At the beginning of each session the purpose of the study was clearly explained by the researcher to the students. Signed, written consent (Appendix 3) was acquired from each participant. Students were reminded that their participation in the study was voluntary and that they retained the right to withdraw at any time. Participants were assured of strict confidentiality of information provided, and they were informed about the ways in which information would be made available to the CHS faculty. Anonymity was achieved by having students complete questionnaires without their names or identifying information on the questionnaire. Furthermore, it was explained that the questionnaire could arouse some emotions, as it ask about personal experiences. The students were invited to contact the researcher telephonically to discuss issues or to indicate whether they need counseling and/or psychotherapy. A clinical psychologist at the UWC Student Counseling Services was made available for consultation.

Detailed instructions on how to complete the questionnaire followed. All this information was also available on the cover of the questionnaire. A questionnaire, enclosed in a sealed envelope, were handed out to each

participant, during the second semester of 2006. This procedure was done during one 60-minute scheduled class period, to maximize participation rate. The students were asked to work individually, honestly and as quickly as possible. It took the students approximately 35 minutes to complete the questionnaire.

3.6 DATA ANALYSIS

Completed data was captured on a spreadsheet using the Word Excel programme in preparation for analysis. The data were recoded from question responses into meaningful prevalence variables. Double data entering was done to ensure data quality. The data was then transferred into the Statistical Package for the Social Sciences (SPSS) version 14.0.

Descriptive statistics were employed to summarize the demographic data of the study sample. The demographic data were presented using frequency tables and was expressed as percentages, means and standard deviations.

Cross tabulations were used to determine the distributions of cases or frequency counts in the various groups defined in the objectives. The differences in frequency count per health risk behaviour in the respective groups were tested for significance using the Chi-square. Pretorius (1995) recommended Chi-square as an appropriate method for frequency data. The exact binomial method was used to construct confidence intervals for proportions. Alpha level was set at $p<0.05$. To determine the correlation between actual and perceived health risk

behaviours, the health risk behaviours were treated as categorical data and chi-square analysis were conducted.

3.6 SUMMARY

In this chapter the method used in the study, sampling and an explanation of the measuring instrument were outlined. Furthermore a brief outline of the analysis of the data was given. The results of this analysis were tabulated and are presented in Chapter 4.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

This chapter contains the results of the statistical analysis that attempted to meet the objectives of the study. The chapter is organized in such a manner that it follows the listing of the objectives stated in chapter one. Each objective will be restated followed by a summary of the results.

4.2 PREVALENCE OF HEALTH RISK BEHAVIOURS

The first objective of the study attempted to determine the prevalence of the selected health risk behaviours among undergraduate health sciences students at the University of the Western Cape (UWC). Below follows a brief description of the reported incidence in each of the health risk behaviours selected prior to the commencement of the study.

Figure 4.1 Percentage of undergraduate health science students who smoked, used alcohol and drugs

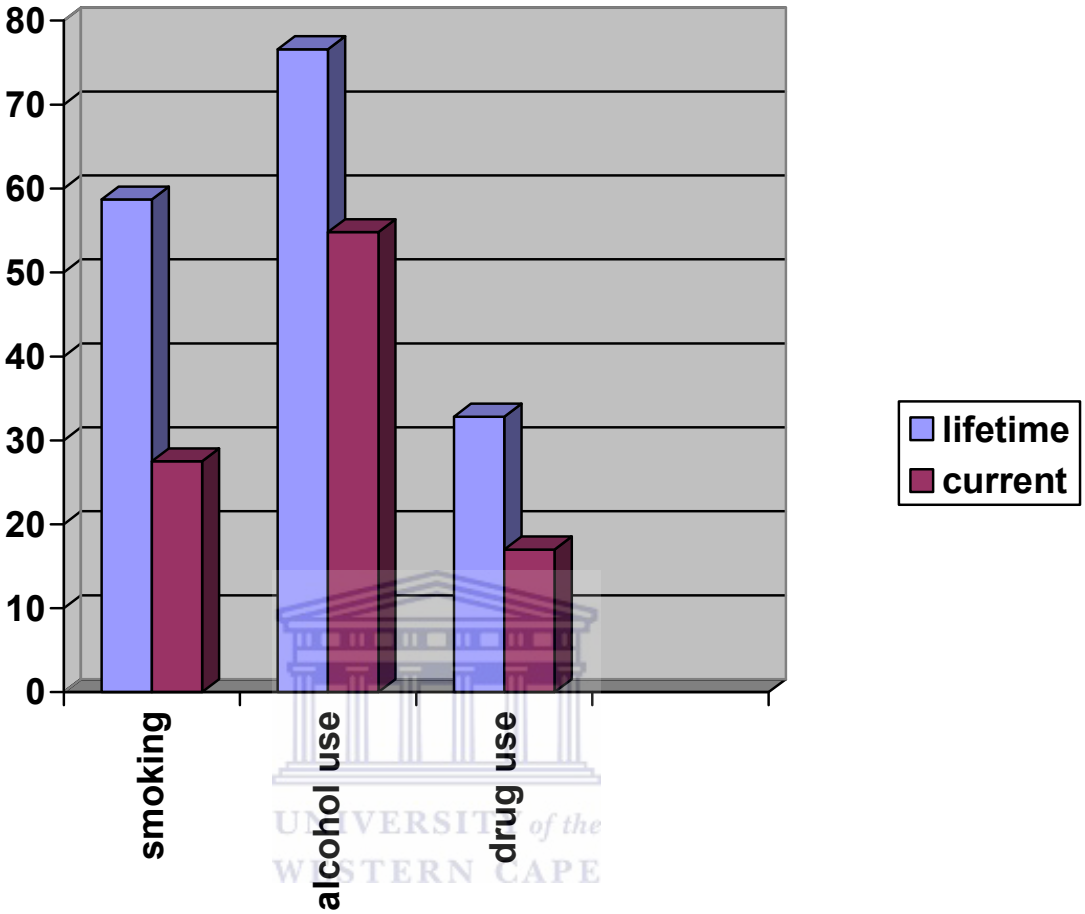


Figure 4.1 summarizes the prevalence of smoking, alcohol use and drug use among undergraduate health science students at the University of the Western Cape. Below follows a brief description of the incidence of smoking, drug and alcohol use as reported. Results will be reported in terms of lifetime use (i.e. ever used in their lifetime), current use (i.e. smoked, used alcohol and drugs in the 30 days preceding the study), and age of onset.

4.2.1 Smoking: A lifetime incidence of smoking was reported by 58.7% [95% CI: 51.7-65.7] of the study sample. Furthermore, 27.5% [95% CI: 21.3-33.7] were classified as current smokers. Overall, 88.1% [95% CI: 83.6-92.6] of the students had their first cigarette before the age of 17 years and 11.9% [95% CI: 7.4-16.4] at 17 years of age and older.

4.2.2 Alcohol use: A lifetime incidence of alcohol use was reported by 76.6% [95% CI: 70.7-82.5] of the study sample. More than half of the sample (54.8% [95% CI: 47.9-61.7]) reported current alcohol use. Overall, 72.5% [95% CI: 66.3-78.7] of the students had drunk their first drink before the age of 17 years and 27.5% [95% CI: 21.3-33.7] at 17 years of age and older.

4.2.3 Drug use: A lifetime incidence of drug use was reported by 32.8% [95% CI: 26.3-39.3] of the study sample. The prevalence of current drug use was 17.0% [95% CI: 12.2-23.6]. Overall, 82.1% [95% CI: 76.8-87.4] of the students reported using drugs before the age of 17 years of age and 17.9% [95% CI: 12.2-23.2] at the age of 17 years and older.

Figure 4.2 Percentage of undergraduate health science students who reported 'binge drinking' two weeks preceding the study

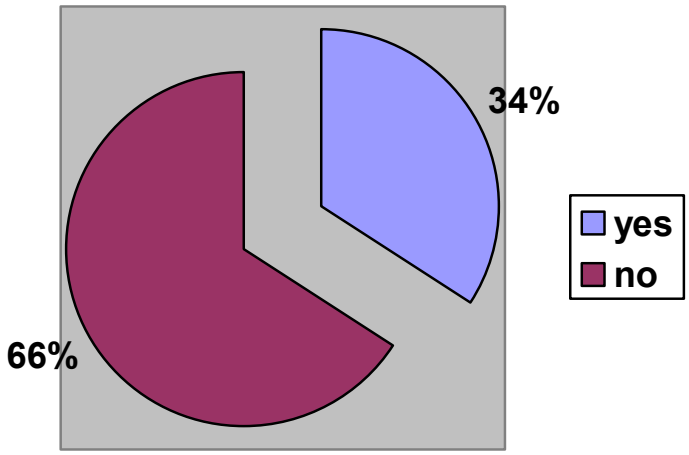


Figure 4.2 summarizes the percentage of undergraduate health science students who reported 'binge drinking' two weeks preceding the study. Below follows a brief description of the incidence of 'binge drinking' as reported.

4.2.3.1 **'Binge drinking'** is defined as drinking 5 or more drinks in a row at least once in the past 2 weeks. The overall prevalence of the study sample reporting 'binge drinking' two weeks preceding the study, is 34.3% [95% CI: 27.3-41.3]. The mean number of alcohol drinks the study sample had the last time they 'partied or socialized' was 4.12 (SD= 5.11). More than one-tenth (11.9%) [95% CI: 7.4-16.7] of the students reported driving after alcohol use in the 30 days preceding the study.

Table 4.1 Consequences of drinking experienced by undergraduate health science students by rank order

	Total		
Consequences of drinking	**n**	**%**	**[95% CI]**
1. **did something you later regretted**	31	26.9	20.8 - 33.0
2. **physically injured yourself**	26	13.4	8.7 - 18.1
3. **had unprotected sex**	8	10.4	6.2 - 14.6
4. **been involved in a fight**	7	7.0	3.5 - 10.5
5. **physically injured another person**	2	1.5	-0.2 - 3.2

Table 4.1 summarizes the consequences of drinking experienced by undergraduate health science students. Below follows a brief description of the consequences of drinking reported by the study sample.

4.2.3.2 Consequences of drinking: Overall, 26.9% [95% CI: 20.8-33.0] reported doing something they later regretted, 13.4% [95% CI: 8.7-18.1] physically injured themselves and 10.4% [95% CI: 6.2-14.6] had unprotected sex. Furthermore, 7.0% [95% CI: 3.5-10.5] of the students had been involved in a fight and 1.5% [95% CI: -0.2-3.2] had physically injured another person.

Figure 4.3 Percentage of undergraduate health science students who are sexually active

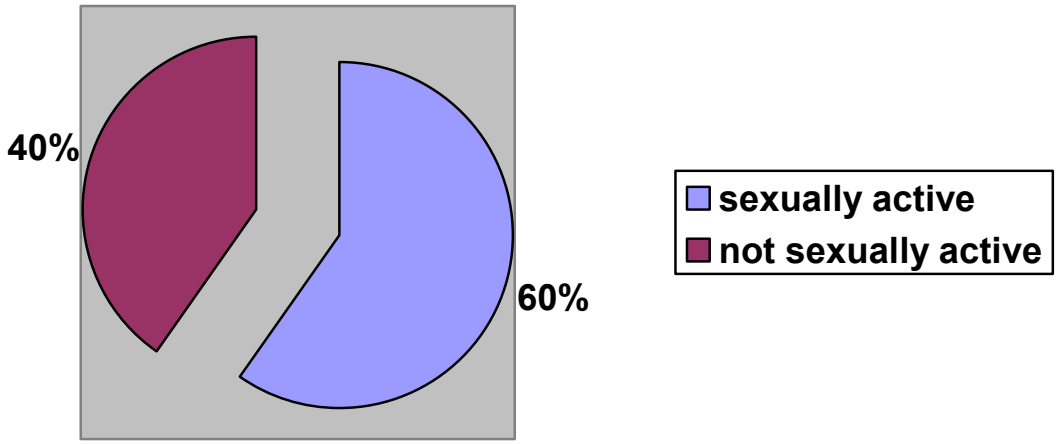
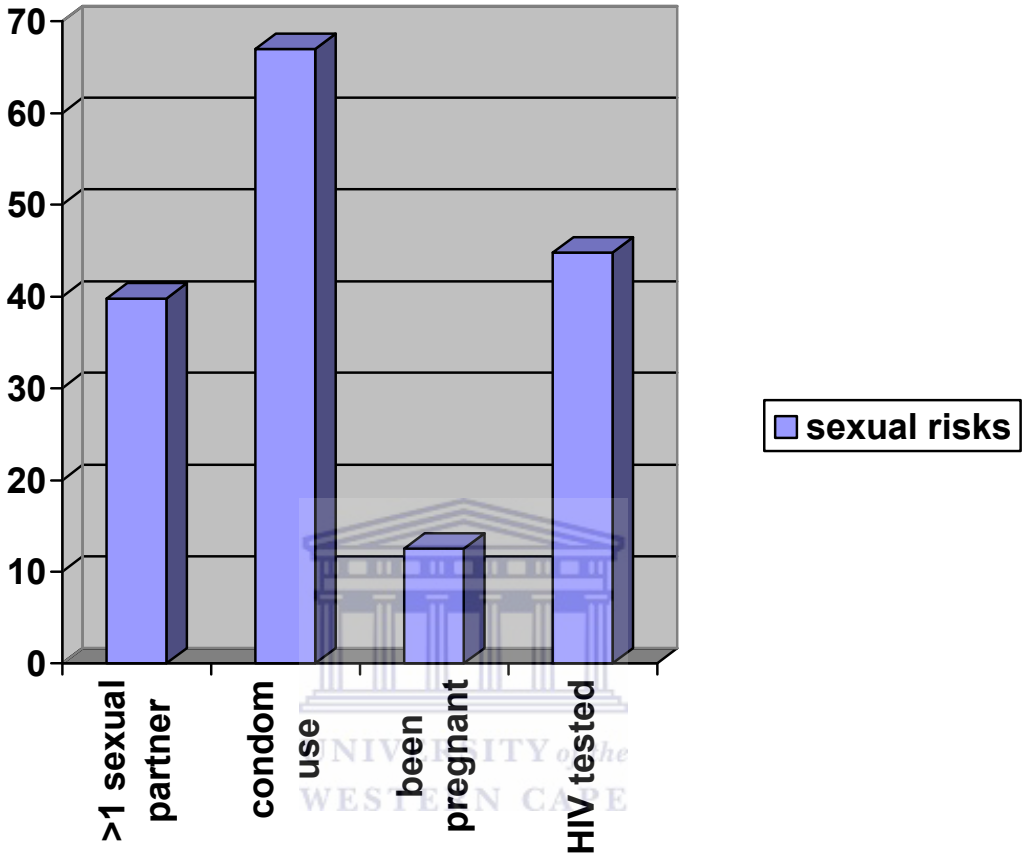


Figure 4.3 summarizes the prevalence of undergraduate health science university students of UWC who are sexually active.

Figure 4.4 below summarizes the prevalence of sexual risk behaviours among sexually active undergraduate health science students of UWC. Below follows a brief description of the incidence of these behaviours as reported. Results will be reported in terms of having more than one sexual partner in the past year, condom use in the past 30 days, having been pregnant and having been tested for HIV/AIDS.

Figure 4.4 Percentage of undergraduate health science students engaging in sexual risk behaviours



Note: 7.0% of the sample is married or has a domestic partner

4.2.4 Sexual risk behaviours: Overall 59.7% [95% CI: 52.9-66.5] of the students reported being sexually active. The prevalence of students who reported having had first sexual intercourse before the age of 17 years was 31.9% [95% CI: 23.3-40.5]. Of the students that reported having had sex in the year preceding the study, 39,8% [95% CI: 30.1-49.5] reported having had more than one sexual partner within the past year. Overall, more than two thirds (67.0%) [95% CI: 57.6-76.4] of those who reported

having had sex during the 30 days preceding the study reported condom use. Almost half (44.8%) [95% CI: 37.9-51.7] of the study sample reported having been tested for HIV/AIDS. Overall, 14.0% [95% CI: 9.2-18.8] of the total study sample reported having been pregnant once or more in their lifetime.

Figure 4.5 Percentage of undergraduate health science students having a boyfriend or girlfriend, reporting involvement in behaviours contributing to violence

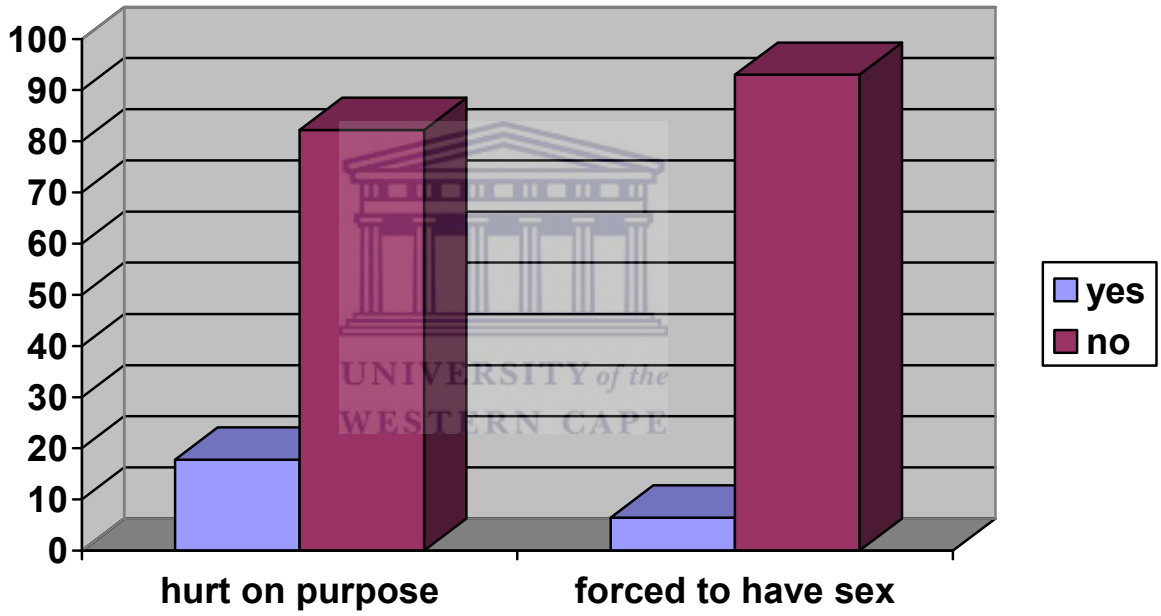


Figure 4.5 summarizes the percentage of undergraduate health sciencesstudents having a boyfriend or girlfriend, reporting involvement in behaviours contributing to violence. Below follows a brief description of the incidence of these behaviours as reported. Results are reported in terms of days missed at university during 30 days preceding the study, being threatened and injured with a weapon during 30 days preceding the study, being physically hurt on purpose

by a boyfriend or girlfriend in their lifetime and ever having been forced to have sex.

4.2.5 Behaviours that contribute to violence: Overall 11% [95% CI: 6.7-15.3] of the students missed university on one or more days during the 30 days preceding the study. Furthermore, 1.5% [95% CI: -0.2-3.2] of the study sample reported being threatened on campus with a weapon such as a gun, knife or stick. Only 0.5% [95% CI: -0.005-1.5] of the students reported having been injured by someone on campus with a weapon such as a gun, knife or stick. A small percentage (3.5% [95% CI: 0.9-6.1]) of the students reported being in a physical fight on campus and 1.5% [95% CI: -0.2-3.2] reported being injured due to a physical fight on campus. Almost one-fifth (17.7% [95% CI: 12.5-23.1]) of the students who reported having a boyfriend or girlfriend, were hit, slap or physically injured on purpose by them and 6.5% [95% CI: 3.1-9.9] reported ever having been forced to have sex.

Table 4.2 Types of abusive relationships students reported experiencing in the past year

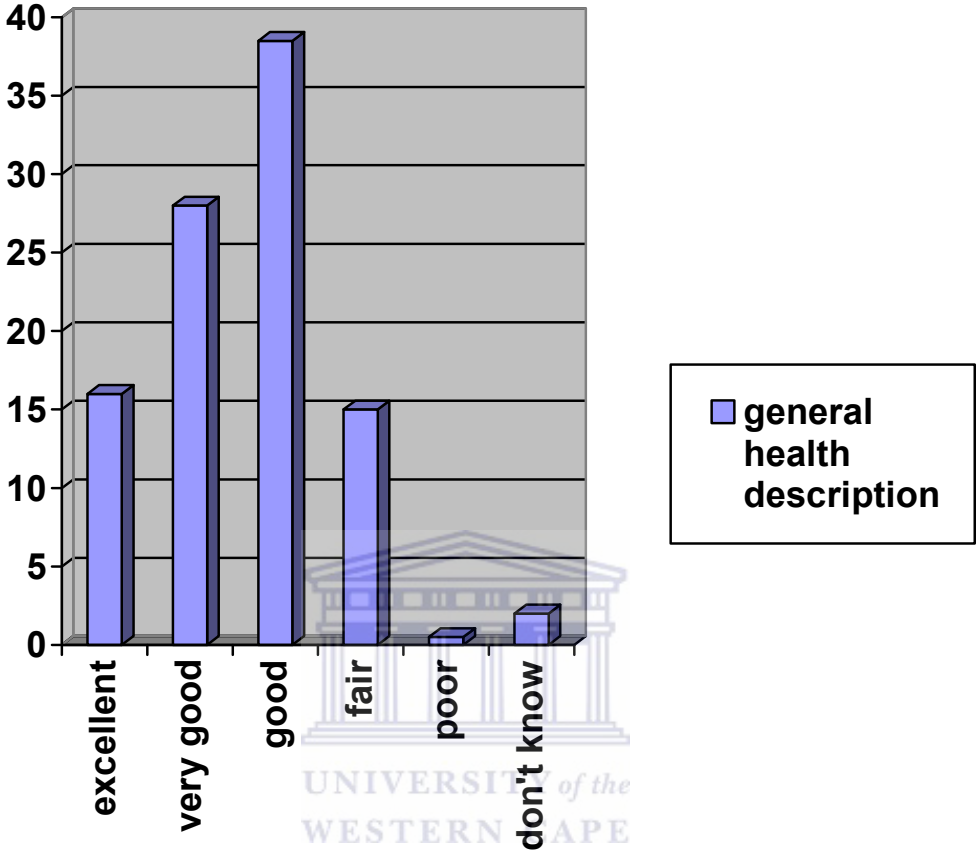
	Total		
Type of relationship	**n**	**%**	**[95% CI]**
Sexually	1	0.5	-0.5 – 1.47
Emotionally	38	18.9	13.5 – 24.3
Physically	4	2.0	0.1 – 3.9

Table 4.2 summarizes the types of abusive relationships undergraduate health science students reported experiencing in the year prior to the study. As illustrated in Table 4.2, emotional abuse was reported by almost one-fifth (18.9%) [95% CI: 13.5-24.3] of the study sample.

4.3 PREVALENCE OF HEALTH PROMOTING BEHAVIOURS

The second objective of the study attempted to determine the prevalence of health promoting behaviours among undergraduate health sciences students at the University of the Western Cape (UWC). Below follows a brief description of the reported incidence in each of the following: description of general health, types of health promoting information students reported receiving from their university, reported believability of health-related information, reported sources of health-related information, physical activity, as well as reported sources of information regarding each of the health risk behaviours selected prior to the commencement of the study.

Figure 4.6 Health science students' description of their general health



As illustrated in Figure 4.6, the majority of students (38.5% [95% CI: 31.8-45.2]) described their general health as good. Almost one-fifth (16.0% [95% CI: 10.9-21.1]) described their general health as excellent.

Table 4.3 Types of health promoting information students reported receiving from their university by rank order

		Total		
Rank	**Information type**	**n**	**%**	**[95% CI]**
1.	**AIDS/HIV infection prevention**	157	78.1	[72.4 – 83.8]
2.	**Drug use prevention**	76	37.8	[31.3 – 44.5]
3.	**Alcohol use prevention**	70	34.8	[28.2 – 41.4]
4.	**Tobacco use prevention**	68	33.8	[27.3 – 40.3]
5.	**Pregnancy prevention**	65	32.3	[29.0 – 35.6]
6.	**Violence prevention**	53	26.4	[23.3 – 29.5]
7.	**Physical activity and fitness**	53	26.4	[20.3 – 32.5]
8.	**Relationship violence prevention**	47	23.4	[17.5 – 29.3]
9.	**Injury prevention and safety**	31	15.4	[10.4 – 20.4]
10.	**None of the above**	3	1.5	[-0.002 – 3.2]

Table 4.3 summarizes the types of health promoting information undergraduate health science students from the University of the Western Cape reportedly received. Below follows a brief description of the information reported by the study sample.

Information regarding AIDS/HIV infection prevention was reportedly received by the majority (78.1% [95% CI: 72.4-83.8]) of the study sample. Furthermore information on drug use prevention was reportedly received by 37.8% [95% CI:

31.1-44.5] of the students. Information on injury prevention and safety was reportedly received by 15.4% [95% CI: 10.4-20.4] of the study sample.

Table 4.4 Reported believability of health-related information by rank order

		Believable		
Rank	**Believability of information**	**n**	**%**	**[95% CI]**
1.	**Health centre medical staff**	156	77.6	[71.8 – 83.4]
2.	**Leaflets, pamphlets and flyers**	132	65.7	[59.1 – 72.3]
3.	**Health educators**	122	60.7	[53.9 – 67.5]
4.	**Campus newspaper articles**	66	32.8	[26.3 – 39.3]
5.	**Parents/family**	62	30.8	[24.4 – 37.2]
6.	**Friends**	54	26.9	[20.8 – 33.0]

Table 4.4 summarizes the believability of health-related information reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the believability of health-related information reported by the study sample.

Overall 77.6% [95% CI: 71.8-83.4] of the study sample reported health centre medical staff to be a believable source of health promoting information. Almost two-thirds (65.7% [95% CI: 59.1-72.3]) of the students reported to believe information on leaflets, pamphlets and flyers. Friends were reported to be the

least likely believable source of health-related information (26.9% [95% CI: 20.8-33.0].

Table 4.5 Reported sources of general health-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Television**	169	84.1	[79.0-89.2]
2.	**Magazines**	160	79.6	[74.0-85.2]
3.	**Parents/family**	140	69.7	[63.3-76.1]
4.	**Friends**	110	54.7	[47.8-61.6]
5.	**Internet**	80	39.8	[33.0-46.6]
6.	**Religious centre**	69	34.3	[27.7-40.9]
7.	**Other**	5	2.5	[0.003-4.7]

Table 4.5 summarizes sources of general health-related information reported by the study sample. Below follows a brief description of the reported results.

Overall 84.1% [95% CI: 79.0-89.2] of the students reported their source of health-related information as the television. Almost four-fifths (79.6%) [95% CI: 74.0-85.2] reported their source of health-related information as magazines and 69.7% [95% CI: 63.3-76.1] as parents/family.

Figure 4.7 Percentage of undergraduate health science students who were classified as sedentary or physically active

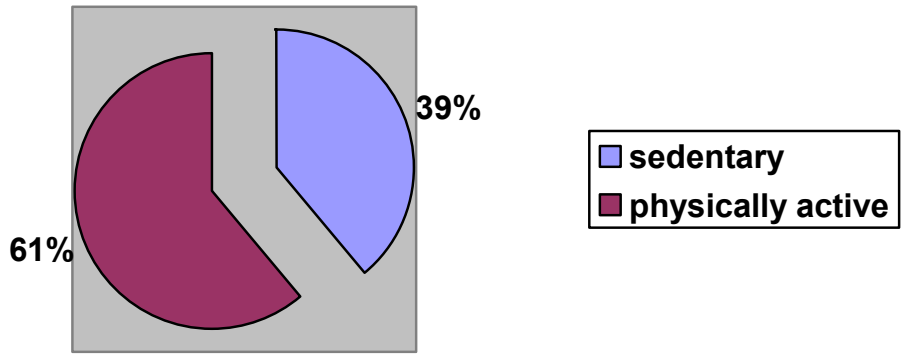


Figure 4.7 summarizes the percentage of undergraduate health science students who were classified as sedentary or physically active.

Figure 4.8 Percentage of undergraduate health science students who did not participate in physical activity by reasons given

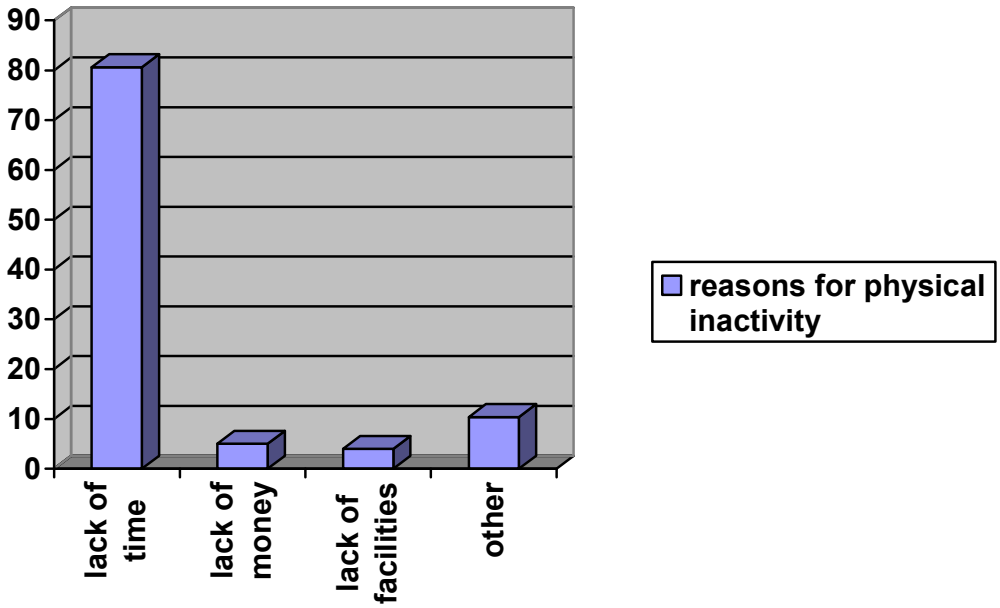


Table 4.6 Reported sources of smoking-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Magazines**	151	75.1	[69.1-81.1]
2.	**Television**	145	72.1	[65.9-78.3]
3.	**Parents/family**	125	62.2	[55.5-68.9]
4.	**Friends**	99	49.3	[42.2-56.2]
5.	**Internet**	57	28.4	[22.2-34.6]
6.	**Religious centre**	56	27.9	[21.7-34.1]
7.	**Other**	11	5.5	[2.3-8.7]

Table 4.6 summarizes the sources of information regarding smoking reported by undergraduate health science students of the University of the Western Cape. Below follows a brief description of the sources of smoking-related information reported by the study sample.

Overall 75.1% [95% CI: 69.1-81.1] of the students reported magazines to be their source of smoking-related information. Television contributes to 72.1% [95% CI: 65.9-78.3] of the study sample's source of information and 62.2% [95% CI: 55.5-68.9] received their information from parents/family.

Table 4.7 Reported sources of alcohol-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Television**	148	73.5	[67.5-79.6]
2.	**Parent/family**	129	64.2	[57.6-70.8]
3.	**Magazines**	125	62.2	[55.5-68.9]
4.	**Friends**	98	48.8	[41.9-55.7]
5.	**Religious centre**	94	46.8	[39.9-53.7]
6.	**Internet**	48	23.9	[18.0-29.8]
7.	**Other**	4	2.0	[0.001-3.9]

Table 4.7 summarizes the sources of information regarding alcohol reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the sources of alcohol-related information reported by the study sample.

Overall 73.6% [95% CI: 67.5-79.6] of the students reported television to be their source of alcohol-related information. Parents/family (64.2%) [95% CI: 57.6-70.8] and magazines (62.2%) [95% CI: 55.5-68.9] are also two of the more frequent sources of information reported by the study sample.

Table 4.8 Protective behaviours undergraduate health science students reported always or usually engaging in when drinking by rank order

	Total		
Behaviours	**n**	**%**	**[95% CI]**
1. **Choose not to drink alcohol**	129	64.7	[58.1 - 71.3]
2. **Use a designated driver**	16	24.9	[18.9 - 30.9]
3. **Avoid drinking games**	16	24.9	[18.9 - 30.9]
4. **Pace drinks to 1 or fewer per hour**	15	23.4	[17.5 - 29.3]
5. **Determine, in advance, not to exceed number of drinks**	11	17.9	[12.6 - 23.2]

Table 4.8 summarizes the protective behaviours undergraduate health science students reported always or usually engaging in when drinking. Below follows a brief description of the protective behaviours reported always or usually engaging in when drinking.

Overall, 64.7% [95% CI: 58.1-71.3] of the study sample have chosen not to drink and 24.9% [95% CI: 18.8-30.9] reported using a designated driver and avoiding drinking games respectively always or usually when engaging in drinking. The students that reported pacing their drinks to one or fewer per hour, were almost one-quarter (23.4%) [95% CI: 17.5-29.3] of the study sample.

Table 4.9 Reported sources of drug-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Television**	155	77.1	[71.3-82.9]
2.	**Magazines**	150	74.6	[68.6-60.6]
3.	**Parents/family**	121	60.2	[53.4-67.0]
4.	**Friends**	116	57.7	[50.9-64.5]
5.	**Religious centre**	103	51.2	[44.3-58.1]
6.	**Internet**	62	30.8	[24.4-37.2]
7.	**Other**	6	3.0	[0.006-5.4]

Table 4.9 summarizes the sources of drug-related information reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the sources of drug-related information reported by the study sample.

Overall 77.1% [95% CI: 71.3-82.9] of the students reported their source of drug-related information as the television. Almost three-quarters (74.6% [95% CI: 68.6-80.6]) of the study sample reported magazines and 60.2% [95% CI: 53.4-67.0] of the study sample reported parents/family to be their source of information.

Table 4.10 Reported sources of violence-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Television**	149	74.1	[68.0-80.2]
2.	**Parents/family**	137	68.2	[61.8-74.6]
3.	**Friends**	126	62.7	[56.0-69.4]
4.	**Magazines**	124	61.7	[55.0-68.4]
5.	**Religious centre**	100	49.8	[42.9-56.7]
6.	**Internet**	38	18.9	[13.5-24.3]
7.	**Other**	1	0.5	[-0.005-1.5]

Table 4.10 summarizes the sources of violence-related information reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the sources of violence-related information reported by the study sample.

Overall 74.1% [95% CI: 68.0-80.2] of the students reported television to be their source of violence-related information. Parents/family contributes to 68.2% [95% CI: 61.8-74.6] of the study sample's source of violence-related information. Almost two-thirds (62.7%) [95% CI: 56.0-69.4] receive their information from friends.

Table 4.11 Reported sources of information regarding sex by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Television**	163	81.1	[75.7 - 86.5]
2.	**Magazines**	155	77.1	[71.3 – 82.9]
3.	**Friends**	152	75.6	[69.7 – 81.5]
4.	**Parents/family**	136	67.7	[61.2 – 74.2]
5.	**Religious centre**	117	58.2	[51.4 – 65.0]
6.	**Internet**	50	24.9	[18.9 – 30.9]
7.	**Other**	4	2.0	[0.001 – 3.9]

Table 4.11 summarizes the sources of sexual-related information reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the sexual-related sources as reported by the study sample.

More than four-fifths (81.1% [95% CI: 75.7-86.5]) of the study sample reported television to be their source of information regarding sex. Magazines (77.1%) [95% CI: 71.3-82.9]) and friends (75.6% [95% CI: 69.7-81.5]) are also reported to be a source of information regarding sex for the students.

Table 4.12 Reported sources of physical activity-related information by rank order

		Used		
Rank	**Source of information**	**n**	**%**	**[95% CI]**
1.	**Magazines**	165	82.1	[76.8-87.4]
2.	**Television**	162	80.6	[75.1-86.1]
3.	**Friends**	121	60.2	[53.4-67.0]
4.	**Parents/family**	108	53.7	[46.8-60.6]
5.	**Internet**	72	35.8	[29.2-42.4]
6.	**Religious centre**	34	16.9	[11.4-22.4]
7.	**Other**	9	4.5	[1.6-7.4]

Table 4.12 summarizes the sources of physical activity-related information reported by undergraduate health science students of the University of the Western Cape (UWC). Below follows a brief description of the sources of physical activity-related information reported by the study sample.

Overall 82.1% [95% CI: 76.8-87.4] and 80.6% [95% CI: 75.1-86.1] of the students reported television and magazines respectively to be their source of physical activity-related information. Friends contribute to 60.2% [95% CI: 53.4-67.0] of the study sample's source of information.

4.4 FACTORS INFLUENCING HEALTH RISK BEHAVIOURS

The third objective of the study attempted to identify factors influencing health risk behaviours among undergraduate health science students of the University of the Western Cape (UWC).

Table 4.13 Percentage (with 95%CIs) of undergraduate health sciences students who smoked by selected demographic characteristic

Variable	Lifetime[a]	Current[b]
Gender		
Male	77.8 (65.7 – 89.9)	40.0 (25.7 – 54.3)
Female	53.2 (45.4 – 61.0)	23.9 (17.2 – 30.6)
Race		
African/Black	37.5 (23.8 – 51.2)	16.7 (6.2 – 27.3)
Coloured	72.7 (64.4 – 81.0)	34.9 (26.0 – 43.8)
White	28.6 (4.9 – 52.3)	14.3 (-0.4 – 32.6)
Indian/Asian	63.6 (43.5 – 83.7)	27.3 (8.7 – 45.9)
Age		
18-24 yrs	65.1 (57.9 – 72.3)	30.4 (23.5 – 37.5)
25-29 yrs	35.7 (10.6 – 60.8)	21.4 (0 – 42.8)
≥ 30 yrs	16.7 (-0.5 – 33.9)	5.6 (-0.5 – 16.2)
Education of head of household		
None or primary school	53.3 (28.1-78.5)	20.0 (-0.2-40.2)
Secondary school	55.4 (45.2-65.6)	26.1 (17.1-35.1)
Post secondary school	64.8 (55.0-74.6)	31.1 (21.5-40.7)
Current living status		
University housing	52.3 (37.5-67.1)	29.5 (16.0-43.0)
Off-campus housing	44.8 (26.7-62.9)	24.1 (8.5-39.7)
Parent/guardian's home	67.2 (58.9-75.5)	28.9 (20.8-37.0)

[a]Ever smoked a cigarette in their lifetime
[b]Smoked cigarettes on one or more days in the 30 days preceding the study

Table 4.13 summarizes the differences in smoking among undergraduate health science students by gender, race/ethnicity, age, education of head of household

and current living status categories. Below follows a brief description of the prevalence of smoking as reported by the different groups.

4.4.1 Smoking

Significantly more male undergraduate health science students (77.8%) than female undergraduate health science students (53.2%) reported lifetime smoking (χ^2 = 8.699, p<0.05). Significantly more male undergraduate health science students (40.0%) than female undergraduate health science students (23.9%) were also classified as current smokers (χ^2 = 4.551, p<0.05).

A significantly higher prevalence of Coloured undergraduate health science students (72.7%) than African/Black (37.5%) and White (28.6%) undergraduate health science students reported lifetime smoking (χ^2 = 25.912, p<0.05). There was no significant difference in the frequency of undergraduate health science students that were classified as current smokers by race. A higher prevalence of Coloured undergraduate health science students (34.9%) than African/Black undergraduate health science students (16.7%) were classified as current smokers.

Significantly more 18-24 year old undergraduate health science students (65.1%) than ≥30 year old undergraduate health science students (16.7%) reported lifetime smoking (χ^2 = 19.015, p<0.05). There was no significant difference in the frequency of undergraduate health science students that reported current smoking by age. A higher prevalence of 18-24 year old undergraduate health

science students (30.4%) than ≥30 year old undergraduate health sciences students (5.6%) were classified as current smokers.

No significant difference in the frequency of undergraduate health science students that were classified as lifetime and current smokers by education of head of household was found. A higher prevalence of the study sample who reported post secondary education (64.8%) than none or primary schooling (53.3%) of the head of their household were lifetime smokers.

Significantly more undergraduate health science students who stayed at their parent/guardian's home (67.2%) than undergraduate health science students living off-campus (44.8%) reported lifetime smoking (χ^2 = 15.227, $p<0.05$). There was no significant difference in the frequency of undergraduate health science students that were classified as current smokers by current living status.

Table 4.14 Percentage (with 95%CIs) of undergraduate health sciencesstudents who used drugs by selected demographic characteristics

Variable	Lifetime[a]	Current[b]
Gender		
Male	53.3 (38.7-67.9)	40.0 (23.8-56.2)
Female	26.9 (19.9-33.9)	10.8 (5.5-16.1)
Race		
African/Black	14.6 (4.6-24.6)	9.1 (0.6-17.6)
Coloured	40.9 (31.7-50.1)	21.2 (12.5-29.9)
White	42.9 (17.0-68.8)	25.0 (0.5-49.5)
Indian/Asian	31.8 (12.3-51.3)	11.8 (-3.5-27.1)
Age		
18-24 yrs	35.5 (28.3-42.7)	19.0(12.4-25.6)
25-29 yrs	21.4(-0.1-42.9)	8.3(-7.4-24.0)
≥ 30 yrs	16.7 (-0.5-33.9)	6.3 (-5.6-18.2)
Education of head of household		
None or primary school	26.7 (4.3-49.1)	21.4 (-0.1-42.9)
Secondary school	32.6 (23.0-42.2)	12.7 (5.0-20.4)
Post secondary school	35.2 (25.4-45.0)	20.8 (11.7-29.9)
Current living status		
University housing	20.5 (8.6-32.4)	12.8 (2.3-23.3)
Off-campus housing	31.0 (14.2-47.8)	8.7 (-2.8-20.2)
Parent/guardian's home	39.3 (30.6-48.0)	21.6 (13.4-29.8)

[a]Ever used drugs in their lifetime
[b]Used drugs on one or more days in the 30 days preceding the study

Table 4.14 summarizes the differences in drug use among undergraduate health science students by gender, race/ethnicity, age, education of head of household and current living status categories. Below follows a brief description of the prevalence of drug use as reported by the different groups.

4.4.2 Drug use

Significantly more male undergraduate health science students (53.3%) than female undergraduate health science students (26.9%) reported lifetime drug use (χ^2 = 11.046, p<0.05). Almost four times more male undergraduate health science students (40.9%) than female undergraduate health science students (10.8%) were also classified as current drug users (χ^2 = 16.722, p<0.05).

Lifetime drug use varied by race. Significantly more White (42.9%) and Coloured (40.9%) undergraduate health science students than African/Black undergraduate health science students (14.6%) reported lifetime drug use (χ^2 =12.242, p<0.05). There was no significant difference in the frequency of undergraduate health science students that were classified as current drug users by race. A higher prevalence of White undergraduate health science students (25.0%) than African/Black undergraduate health science students (9.1%) were classified as current drug users.

There was no significant difference in lifetime and current drug use reported by undergraduate health science students by age. A higher prevalence of 18-24 year old undergraduate health science students (35.5%) than ≥30 year old undergraduate health science students (16.7%) were classified as lifetime drug users.

No significant difference in lifetime and current drug use reported by undergraduate health science students by education of the head of their

household was found. A higher prevalence of the study sample who reported their head of household to have post-secondary education (35.2%) than none or primary schooling (26.7%), were lifetime drug users.

A significant difference was found in the prevalence of reported lifetime drug use by undergraduate health science students. Significantly more undergraduate health science students living at their parent/guardian's home (39.3%) than undergraduate health science students staying on campus (20.5%) reported lifetime drug use (χ^2 = 8.378, p<0.05). There was no significant difference in the frequency of undergraduate health science students that were classified as current drug users by living arrangement. The highest percentage of current drug using was reported by undergraduate health science students living with their parents/guardians (21.6%).

Table 4.15 summarizes the differences in alcohol use among undergraduate health science students by gender, race/ethnicity, age, education of head of household and current living status categories. Below follows a brief description of the prevalence of alcohol use as reported by the different groups.

Table 4.15 Percentage (with 95%CIs) of undergraduate health science students who used alcohol by selected demographic characteristics

Variable	Lifetime[a]	Current[b]	Binge drinking[c]
Gender			
Male	77.8 (65.7 – 89.9)	66.7 (52.9 – 80.5)	53.3 (38.7-67.9)
Female	76.3 (69.6 – 83.0)	51.3 (43.4 – 59.2)	28.8 (21.7-35.9)
Race			
African/Black	77.1 (65.2 – 89.0)	48.9 (34.6 – 63.2)	29.2 (16.3-42.1)
Coloured	82.7 (75.6 – 89.9)	63.3 (54.3 – 72.3)	39.1 (30.0-48.2)
White	100 (-)	78.6 (57.1 – 100.0)	57.1 (31.2-83.0)
Indian/Asian	36.4 (16.3 – 56.5)	18.2 (2.1 – 34.3)	13.6 (-0.7-27.9)
Age			
18-24 yrs	80.5 (74.5 – 86.5)	58.3 (50.8 – 65.8)	38.5 (31.2-45.8)
25-29 yrs	64.3 (39.2 – 89.4)	50.0 (23.8 – 76.2)	14.3 (-4.0-32.6)
≥ 30 yrs	50.0 (26.9 – 73.1)	23.5 (3.3 – 43.7)	11.1 (-3.4-25.6)
Education of head of household			
None or primary school	66.7 (42.8-90.6)	33.3 (9.4-57.2)	26.7 (4.3-49.1)
Secondary school	69.6 (60.2-79.0)	54.3 (44.1-64.5)	31.5 (22.0-41.0)
Post secondary school	84.6 (77.2-92.0)	60.0 (49.9-70.1)	39.6 (29.6-49.6)
Current living status			
University housing	84.1(73.3-94.9)	60.5 (45.9-75.1)	45.5 (30.8-60.2)
Off-campus housing	75.9 (60.3-91.5)	41.1 (23.5-59.3)	31.0 (14.2-47.8)
Parent/guardian's home	76.2 (68.6-83.8)	57.0 (48.2-65.8)	32.8 (24.5-41.1)

[a]Ever used alcohol in their lifetime
[b]Used alcohol on one or more days in the 30 days preceding the study
[c]Five (5) or more drinks in a row at least once in the two weeks preceding the study

4.4.3 Alcohol use

There was no significant difference in the frequency of undergraduate health science students that were classified as lifetime and current alcohol users by gender. A higher prevalence of male undergraduate health science students (66.7%) than female undergraduate health science students (51.3%) were classified as current alcohol users. A significant difference was found in the prevalence of undergraduate health science students who reported 'binge drinking'. Male students reported 53.3% and female students 28.8% participation in 'binge drinking' ($\chi^2 = 9.289$, $p<0.05$).

Both lifetime and current alcohol use varied by race. Significantly more White undergraduate health science students (100%) than Indian/Asian undergraduate health sciences students (36.4%) reported lifetime alcohol use ($\chi^2 = 27.950$, $p<0.05$). Furthermore, significantly more White undergraduate health science students (78.6%) than Indian/Asian undergraduate health science students (18.2%) reported current alcohol use ($\chi^2 = 20.879$, $p<0.05$). A significant difference was found between White undergraduate health science students (57.1%) and Indian/Asian undergraduate health science students (13.6%) that reported 'binge drinking' ($\chi^2 = 10.332$, $p<0.05$).

Younger undergraduate health science students (80.5%) were significantly more likely than older learners undergraduate health science students (50.0%) to report lifetime alcohol use ($\chi^2 = 9.709$, $p<0.05$). Furthermore, significantly more 18-24 year old undergraduate health science students (58.3%) than ≥30 year old

undergraduate health science students (23.5%) also reported current alcohol use (χ^2 = 7.687, p<0.05). 'Binge drinking' was also reported by significantly more 18-24 year old undergraduate health science students (38.5%) than ≥30 year old undergraduate health science students (11.2%) (χ^2 = 8.079, p<0.05).

Lifetime alcohol use varied by the head of household's educational level. Significantly more undergraduate health science students who reported the head of their household's education to be post secondary (84.6%) than being none or primary schooling (66.7%) reported lifetime alcohol use (χ^2 = 6.550, p<0.05). There was no significant difference in the frequency of undergraduate health science students that were classified as current alcohol users and 'binge drinkers' by education of their head of household. A higher prevalence of the study sample who reported the head of their household to have post secondary education (60%) than those with none or primary schooling (33.3%) were classified as current alcohol users.

There was no significant difference in the frequency of undergraduate health science students that were classified as lifetime and current alcohol users as well as 'binge drinkers' by their current living status. A higher prevalence of undergraduate health science students living on campus reported current (60.5%), lifetime (84.1%) alcohol use and participation in 'binge drinking' (45.5%).

Table 4.16 Percentage (with 95%CIs) of undergraduate health science students who engaged in sexual risk behaviours by selected demographic characteristics

Variable	Ever had sex[a]	First sex before 17 yrs[b]	More than one sexual partner[c]	Used condom last time[d]
Gender				
Male	73.3 (60.4-86.2)	48.5(32.0-65.0)	45.5(28.5-62.5)	66.7(50.6-82.8)
Female	55.8 (48.0-63.6)	30.2(20.5-39.9)	28.2(18.6-37.8)	49.4(38.9-59.9)
Race				
African/Black	91.7 (70.8-99.5)	40.4(26.5-54.4)	38.1 (23.4-52.8)	63.6 (49.4-77.8)
Coloured	50.0 (40.7-59.3)	36.4 (23.7-49.1)	30.9 (18.7-43.1)	50.9 (37.8-64.0)
White	71.4 (47.7-95.1)	30.0 (1.6-58.4)	30.0 (1.6-58.3)	60.0 (29.6-90.4)
Indian/Asian	27.3 (8.7-45.9)	16.7 (-13.1-46.5)	16.7 (-13.1-46.5)	33.3 (-4.4-71.0)
Age				
18-24 yrs	54.4 (46.9-61.9)	40.2 (30.2-50.2)	38.0 (25.1-47.9)	59.8 (46.9-72.8)
25-29 yrs	78.6 (57.1-100.0)	10.0 (-8.6-28.6)	22.2 (-5.0-49.4)	36.4 (-10.8-83.6)
≥ 30 yrs	94.4 (83.8-100.0)	23.5 (3.3-43.7)	11.8 (-3.6-27.2)	35.3 (-2.9-73.5)
Education of head of household				
None or primary school	66.7 (42.8-90.6)	30.0 (1.6-58.4)	30.0 (1.6-58.4)	30.0 (1.6-58.4)
Secondary school	57.6 (47.5-67.7)	32.7 (19.9-45.5)	29.4 (16.9-41.9)	52.8 (39.4-66.2)
Post secondary school	59.3 (49.2-69.4)	38.9 (25.9-51.9)	37.0 (24.1-49.9)	61.1 (44.5-77.7)
Current living status				
University housing	77.3 (64.9-89.7)	32.4 (16.7-48.1)	41.2 (24.7-57.7)	61.8 (45.5-78.1)
Off-campus housing	75.9 (60.3-91.5)	36.4 (16.3-56.5)	27.3 (8.7-45.9)	40.9 (26.4-55.4)
Parent/guardian's home	48.4 (39.5-57.3)	39.0 (26.6-51.4)	32.2 (20.3-44.1)	55.9 (43.2-68.6)

[a]Ever had sex in lifetime
[b]First sexual intercourse before 17 years
[c]More than one sexual partner in their lifetime
[d]Used a condom with their last intercourse

Table 4.16 summarizes the differences in sexual practices among undergraduate health science students by gender, race/ethnicity, age, education of head of household and current living status categories. Below follows a brief description of the prevalence of sexual risks as reported by the different groups.

4.4.4 Sexual risks

4.4.4.1 Ever had sex

Ever having had sex varied by gender, race, age and current living status. Male undergraduate health science students (73.3%) were significantly more likely than female undergraduate health science students (55.8%) to report ever having had sex in their lifetime (χ^2 = 4.478, p<0.05). Significantly more African/Black (91.7%) and White (71.4%) undergraduate health sciences students than Indian/Asian undergraduate health science students (27.3%) reported ever having had sex in their lifetime (χ^2 = 35.505, p<0.05). Older students, i.e. ≥30 years (94.4%) were significantly more likely than 18-24 year old undergraduate health science students (54.4%) to report ever having had sex in their life (χ^2 = 13.049, p<0.05). Significantly more undergraduate health science students staying on campus (77.3%) than undergraduate health science students staying at their parent/guardian's home (48.4%) reported having ever had sex in their lifetime (χ^2 = 16.709, p<0.05). There was no significant difference in the frequency of undergraduate health science students who reported ever having had sex by education of the head of their household. A higher prevalence of undergraduate health science students who reported the head of their household

to have none or primary schooling (66.7%) than secondary schooling (57.6%) reported ever having had sex in their lifetime.

4.4.4.2 First sex before 17 years

The only significantly difference in the frequency of undergraduate health science students that reported having had sex before 17 years was by gender. Significantly more male undergraduate health science students (48.5%) than female undergraduate health sciences students (25.0%) reported having had sex for the first time before the age of 17 years (χ^2 = 5.936, p<0.05). There was no significant difference in the frequency of undergraduate health science students who reported having had sex for the first time before 17 years by race, age, education of the head of their household and current living arrangement. A higher prevalence of African/Black undergraduate health science students (31.7%) than Indian/Asian undergraduate health science students (16.7%) reported having had sex for the first time before the age of 17 years. Furthermore, a higher prevalence of 18-24 year old undergraduate health science students (36.0%) than 25-29 year old undergraduate health sciencesstudents (10.0%) reported having had sex for the first time before the age of 17 years.

4.4.4.3 More than one sexual partner

There was no significant difference in the frequency of undergraduate health science students who reported having had more than one sexual partner in the year preceding the study by gender, race, age, education of the head of their

household and current living status. A higher prevalence of African/Black undergraduate health science students (45.7%) than Indian/Asian undergraduate health science students (25.0%) reported having had more than one sexual partner in the year preceding the study. Furthermore, a higher prevalence of 25-29 year old undergraduate health science students (50.0%) than ≥30 year old students (15.4%) reported having more than one sexual partner in the year preceding the study.

4.4.4.4 Used a condom within the past 30 days

The only significant difference in the frequency of undergraduate health science students that reported condom use within the 30 days preceding the study is by gender. More male undergraduate health science students (84.6%) than female undergraduate health science students (60.6%) reported condom use within the 30 days preceding the study (χ^2 = 4.980, $p<0.05$). There was no significant difference in the frequency of undergraduate health science students who reported condom use within the 30 days preceding the study by race, age, education of the head of their household and current living arrangement. A higher prevalence of African/Black undergraduate health science students (75.7%) than Indian/Asian students (40.0%) reported condom use within the 30 days preceding the study. More 18-24 year old undergraduate health science students (75.1%) than ≥30 year old students (46.2%) reported condom use within the 30 days preceding the study.

Table 4.18 Percentage (with 95%CIs) of undergraduate health science students who reported violent behaviour by selected demographic characteristics

Variable	Physical fights	Assualted	Verbal threats	Hurt on purpose	Forced sex
Gender					
Male	20.0 (8.3-31.7)	11.4 (2.0-20.8)	40.0 (25.7-54.3)	17.8 (6.6-29.0)	4.4 (-1.6-10.4)
Female	5.8 (2.1-9.5)	9.6 (5.0-14.2)	25.6 (18.8-32.4)	11.7 (6.6-16.8)	7.1 (5.0-9.2)
Race					
African/Black	14.6 (4.6-24.6)	19.1 (7.9-30.3)	33.3 (20.0-46.6)	26.1 (13.4-38.8)	14.9 (4.7-25.1)
Coloured	9.1 (3.7-14.5)	7.3 (2.4-12.2)	29.1 (20.6-37.6)	8.2 (3.1-13.3)	2.7 (-0.3-5.7)
White	7.1 (-6.4-20.6)	7.1 (-6.4-20.6)	42.9 (17.0-68.8)	14.3 (-4.0-32.6)	7.1 (-6.4-20.6)
Indian/Asian	0 (-)	4.5 (-4.2-13.2)	9.1 (-2.9-21.1)	13.6 (-0.7-27.9)	4.5 (-4.2-13.2)
Age					
18-24 yrs	8.9 (4.6-13.2)	9.5 (5.1-13.9)	29.6 (22.7-36.5)	11.2 (6.4-16.0)	4.7 (1.5-7.9)
25-29 yrs	7.1 (-6.4-20.6)	7.1 (-6.4-20.6)	21.4 (-0.1-42.9)	21.4 (-0.1-42.9)	21.4 (-0.1-42.9)
≥ 30 yrs	11.1 (-3.4-25.6)	17.6 (-0.5-35.7)	27.8 (7.1-48.5)	25.0 (3.8-46.2)	11.8 (-3.5-27.1)
Education of head of household					
None or primary school	13.3(-3.9-30.5)	13.3(-3.9-30.5)	13.3(-3.9-30.5)	20.0 (-0.2-40.2)	20.0 (-0.2-40.2)
Secondary school	13.0(6.1-19.9)	8.7(2.9-14.5)	29.3(20.0-38.6)	7.7 (2.2-13.2)	7.6 (2.2-13.0)
Post secondary school	4.4(0.2-8.6)	10.0(3.8-16.2)	30.8(21.3-40.3)	16.5 (8.9-24.1)	3.3 (-0.4-7.0)
Current living status					
University housing	6.8(-0.6-14.2)	15.9(5.1-26.7)	34.1(20.1-48.1)	20.9 (8.7-33.1)	11.6 (2.0-21.2)
Off-campus housing	6.9(-2.3-16.1)	14.3(1.3-27.3)	34.5(17.2-51.8)	25.0 (9.0-41.0)	10.3 (-0.8-21.4)
Parent/guardian's home	9.0(3.9-14.1)	6.6(2.4-10.2)	26.2(18.4-34.0)	8.2 (3.3-13.1)	3.3 (0.1-6.5)

Table 4.17 summarizes the differences in violent behaviour in the year preceding the study among undergraduate health science students by gender, race/ethnicity, age, education of head of household and current living status categories. Below follows a brief description of the prevalence of violence as reported by the different groups.

4.4.5 Violence

4.4.5.1 Physical fight

A significant difference was found in the frequency of undergraduate health sciences who reported involvement in a physical fight in the last year by gender. One fifth (20%) male and 5.8% female undergraduate health science students reported involvement in a physical fight in the last year ($\chi^2 = 8.675$, $p<0.05$).

No significant difference was found in the frequency of undergraduate health science students who reported involvement in a physical fight by race, age, education of the head household and current living status. None of the Indian/Asian undergraduate health science students (0%) reported involvement in a physical fight in the last year. A higher prevalence of ≥30 year old undergraduate health science students (11.1%) than 18-24 year old undergraduate health sciences students (8.9%) reported involvement in a physical fight in the last year. Of the study sample, 4.4% of the students that reported the head of their household to have post secondary education and 13.3% reporting the head of their household to have none or primary schooling, were involved in a physical fight in the last year.

4.4.5.2 Assault

No significant difference was found in the frequency of undergraduate health science students who reported being assaulted in the last year by gender, race, age, education of the head of household and current living status.

A higher prevalence of African/Black undergraduate health science students (19.1%) than Indian/Asian undergraduate health science students (4.5%) reported being assaulted in the last year. More 30 year and older students of the study sample (17.6%) than 25-29 year olds (7.1%) reported being assaulted in the last year. More students staying on campus (15.9%) reported being assaulted in the last year than those staying at their parent/guardian's home (6.6%).

4.4.5.3 Verbal threats

There was no significant difference found in the frequency of undergraduate health science students that reported verbal threats against them in the last year by gender, age, race, education of the head of household and current living status.

A higher prevalence of male undergraduate health science students (40%) than female undergraduate health science students (25.6%) reported being verbally threatened in the last year. More White (42.9%) than Indian/Asian (9.1%) students reported being verbally threatened in the last year. Of the students

reporting being verbally threatened in the last year, 30.8% reported the head of their household to have post secondary education and 13.3% reported the head of their household to have none or primary schooling.

4.4.5.4 Hurt on purpose

There was no significant difference in the frequency of undergraduate health science students that reported ever being hurt on purpose by their boyfriend/girlfriend by gender, age and education of the head of household. A higher prevalence of male undergraduate health science students (17.8%) than female undergraduate health science students (11.7%) reported ever being hurt on purpose by their boyfriend/girlfriend. A higher prevalence of undergraduate health science students in the age group 30 years and older (25.0%) reported ever being hurt on purpose than in the age group 18-24 years (11.2%). The students that reported the head of their household to have none or primary schooling (20.0%) were more likely than those students reporting the head of their household to have secondary schooling (7.7%) to report ever being hurt on purpose by their boyfriend/girlfriend.

Significantly more African/Black undergraduate health science students (26.1%) than Coloured undergraduate health science students (8.2%) reported ever being hurt on purpose by their boyfriend/girlfriend ($\chi^2 = 19.172$, $p<0.05$).

There was no significant difference in the frequency of undergraduate health science students who reported ever being hurt on purpose by current living

status. A higher prevalence of undergraduate health science students staying off campus (25.0%) than those staying at their parent/guardian's home (8.2%) reported ever being hurt on purpose.

4.4.5.5 Forced sex

There was no significant difference in the frequency of undergraduate health science students that reported ever being forced to have sex by gender, race and current living status. A higher prevalence of female undergraduate health science students (7.1%) than male undergraduate health science students (4.4%) reported ever being forced to have sex in their lifetime. A higher prevalence of African/Black undergraduate health science students (14.9%) than White undergraduate health science students (7.1%) ever reported being forced to have sex in their lifetime. A higher prevalence of undergraduate health science students staying on campus (11.6%) than those staying at their parent/guardian's home (3.3%) reported ever being forced to have sex in their lifetime. Significantly more 25-29 year old undergraduate health science students (21.4%) than 18-24 year old undergraduate health science students (4.7%) reported ever being forced to have sex in their lifetime ($\chi^2 = 6.777$, $p<0.05$). There was a significant difference in the students that reported the head of their household to have none or primary schooling (20.0%) than those students who reported the head of their household to have post secondary education (3.3%) to report ever being forced to have sex ($\chi^2 = 6.161$, $p<0.05$).

Table 4.18 Percentage (with 95%CIs) of undergraduate health sciencesstudents who engaged in physical activity by selected demographic characteristics

Variable	Physical active [a]	Sedentary[b]
Gender		
Male	73.3 (60.4-86.2)	26.7 (13.8-39.6)
Female	57.7 (50.0-65.4)	42.3 (34.5-50.1)
Race		
African/Black	54.2 (40.1-68.3)	45.8 (31.7-59.9)
Coloured	65.5 (56.6-74.4)	34.5 (25.6-43.4)
White	78.6 (57.1-100.0)	21.4 (-0.1-42.9)
Indian/Asian	40.9 (20.4-61.4)	59.1 (38.6-79.6)
Age		
18-24 yrs	60.4 (53.0-67.8)	39.6 (32.2-47.0)
25-29 yrs	78.6 (57.1-100.0)	21.4 (-0.1-42.9)
≥ 30 yrs	55.6 (32.7-78.6)	44.4 (21.5-67.4)
Education of head of household		
None or primary school	66.7 (42.8-90.6)	33.3 (9.4-57.2)
Secondary school	59.8 (49.8-69.8)	40.2 (30.2-50.2)
Post secondary school	63.7 (53.8-73.6)	36.3 (26.4-46.2)
Current living status		
University housing	56.8 (42.2-71.4)	43.2 (28.6-57.8)
Off-campus housing	48.3 (30.2-66.2)	51.7 (33.5-69.9)
Parent/guardian's home	66.4 (58.0-74.8)	33.6 (25.2-42.0)

[a]Participated in physical activity on 3 or more days in the week preceding the study
[b]Participated in physical activity on 2 or less days in the week preceding the study

Table 4.18 summarizes the differences in physical activity among undergraduate health science students by gender, race/ethnicity, age, education of head of household and current living status categories. Below follows a brief description of the prevalence of physical activity as reported by the different groups

4.4.6 Physical activity

There was no significant difference in the frequency of undergraduate health science students that were classified as physically active by gender, race, age, education of head of household and current living status.

A higher prevalence of female undergraduate health science students (42.3%) than male undergraduate health science students (26.7%) were classified as sufficiently physically active. A higher prevalence of physical activity was reported by White undergraduate health science students (78.6%) than by Indian/Asian undergraduate health science students (40.9%). A lower prevalence of 18-24 year old undergraduate health science students (60.4%) than 25-29 year old undergraduate health science students (78.6%) were classified as physically active. A higher prevalence of undergraduate health science students who reported the head of their household to have none or primary schooling (66.7%) than secondary schooling (59.8%) reported being physically active. A higher prevalence of undergraduate health science students living at their parents/guardian's home (66.4%) than undergraduate health science students staying on campus (56.8%) reported being physically active.

4.5 KNOWLEDGE OF CONSEQUENCES OF HEALTH RISK BEHAVIOURS

The fourth objective of the study attempted to determine undergraduate health science students of the University of the Western Cape's knowledge of consequences when participating in health risk behaviours.

Figure 4.9 Percentage of undergraduate health sciences students reporting lifetime and current cigarette smoking by knowledge of consequences of these on their health

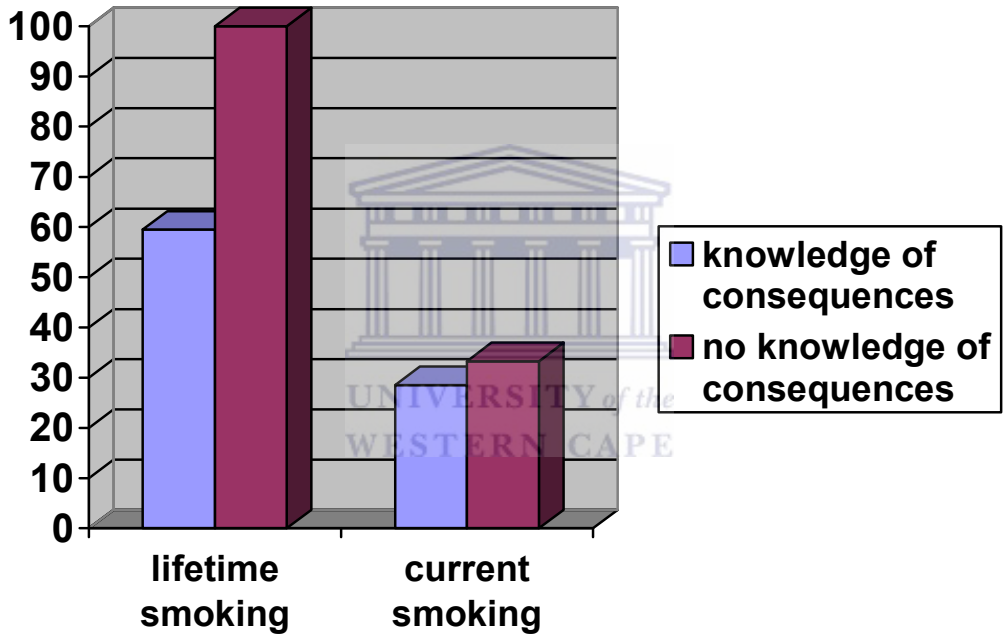


Figure 4.9 summarizes the prevalence of lifetime and current smoking among undergraduate health science students by knowledge of consequences of these behaviours on their health. Below follows a brief description of these behaviours as reported by the study sample.

4.5.1 Smoking: Overall 96.6% [95% CI: 93.9-99.3] of the study sample knew what the effect of smoking was on their health. There was a significant

difference in the frequency of undergraduate health science students who reported lifetime smoking based on their knowledge of the consequences of smoking on their health ($\chi^2 = 3.987$, $p<0.05$).

Figure 4.10 Percentage of undergraduate health science students reporting lifetime and current alcohol use by knowledge of consequences of these on their health

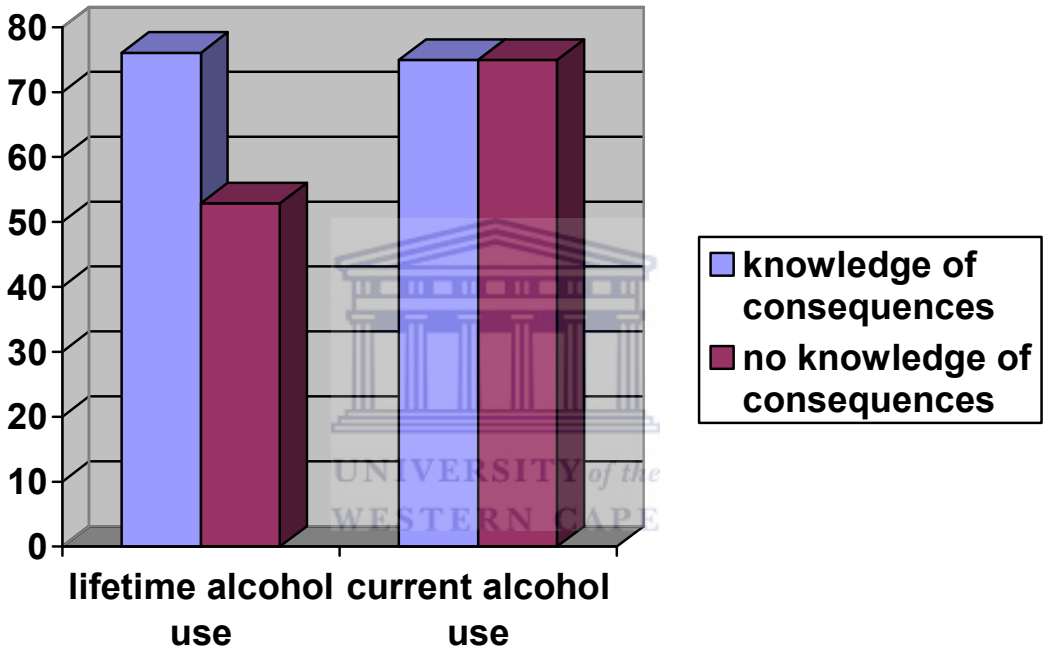


Figure 4.10 summarizes the prevalence of lifetime and current alcohol use among undergraduate health science students by knowledge of consequences of these behaviours on their health. Below follows a brief description of these behaviours as reported by the study sample.

4.5.2 Alcohol use

Overall 97.8% [95% CI: 95.7-99.9] of the study sample knew what the effect of alcohol use was on their health. No significant difference was found in the frequency of undergraduate health science students who reported lifetime and current alcohol use based on their knowledge of the consequences of alcohol use on their health. A higher prevalence of those that reported lifetime alcohol use reported no knowledge (75%) than knowledge (52.9%) regarding the consequences of alcohol use on their health.

Figure 4.11 Percentage of undergraduate health science students reporting lifetime and current drug use by knowledge of consequences of these on their health

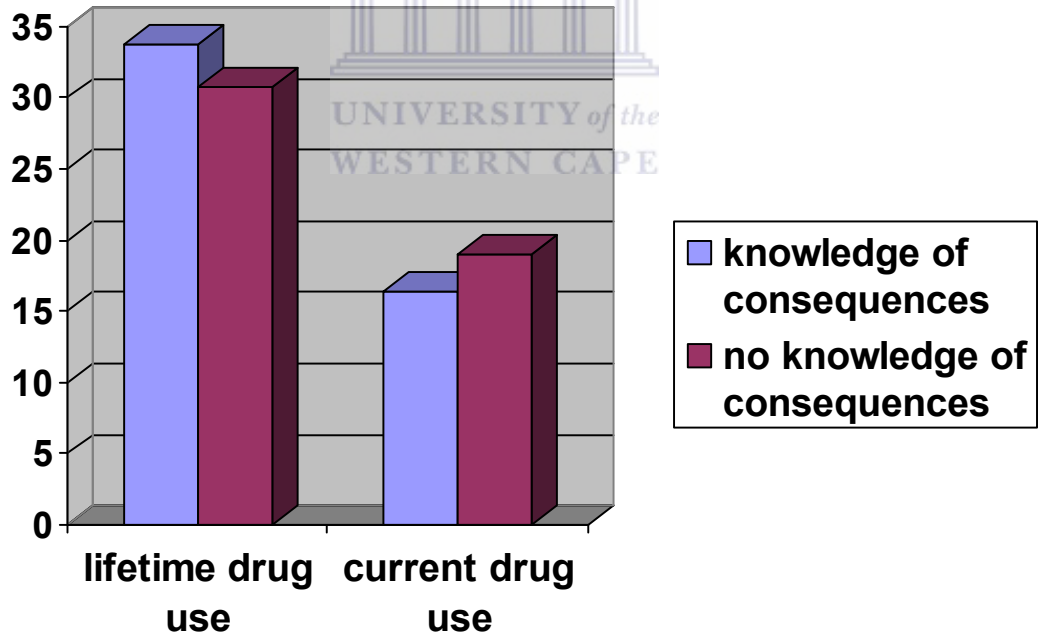


Figure 4.11 summarizes the prevalence of lifetime and current drug use among undergraduate health science students by knowledge of consequences of these

behaviours on their health. Below follows a brief description of these behaviours as reported by the study sample.

4.5.3 Drug use: Overall 85.3% [95% CI: 80.1-90.5] of the study sample knew what the effect of drug use was on their health. There was no significant difference found in the frequency of undergraduate health science students who reported lifetime and current drug use based on their knowledge of consequences of drug use on their health. A higher prevalence of those reporting lifetime drug use reported knowledge (33.8%) than no knowledge (30.8%) regarding the consequences of lifetime drug use on their health.

Figure 4.12 Percentage of undergraduate health science students reporting risky sexual behaviour by knowledge of consequences of these on their health

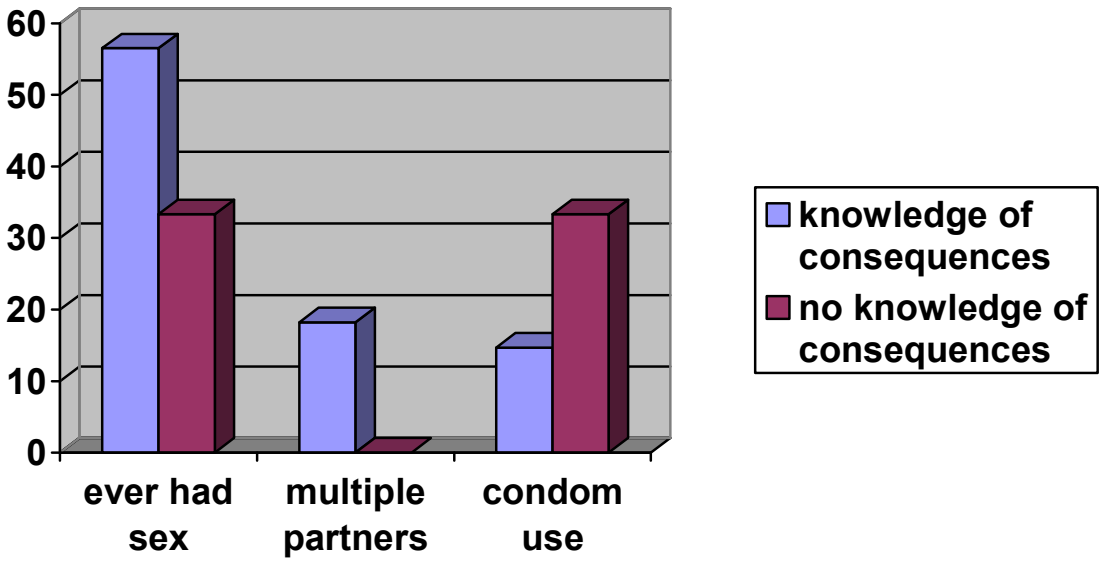
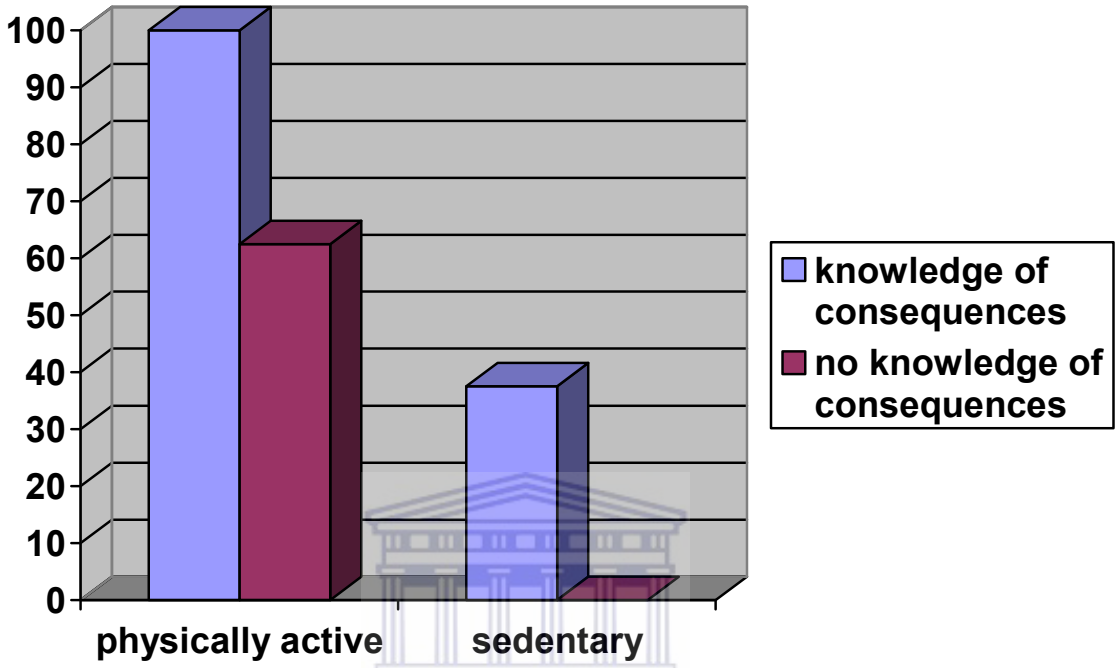


Figure 4.12 summarizes the prevalence of risky sexual behaviours among undergraduate health science students by knowledge of consequences of these behaviours on their health. Below follows a brief description of these behaviours as reported by the study sample.

4.5.4 Sexual risks: Overall 98.3% [95% CI: 96.4-100.0] of the study sample knew what the effect of risky sexual behaviour was on their health. No significant difference was found in the frequency of undergraduate health science students who reported ever having had sex, multiple partners and condom use based on their knowledge of the consequences of sexual risks on their health. A higher prevalence of those reporting multiple partners, reported knowledge (18.2 %) than no knowledge (0%) regarding the consequences of multiple partners on their health.

Figure 4.13 summarizes the prevalence of physically active and sedentary lifestyles among undergraduate health science students by knowledge of consequences of these behaviours on their health. Below follows a brief description of these behaviours as reported by the study sample.

Figure 4.13 Percentage of undergraduate health science students reporting physical activity by knowledge of consequences of these on their health



4.5.5 Physical activity: Overall 97.8% [95% CI: 95.7-99.9] of the study sample knew what the effect of physical activity was on their health. No significant difference was found in the frequency of undergraduate health science students who reported being physically active and sedentary based on their knowledge of the consequences of physical activity on their health. Knowledge of the consequences of physical inactivity on their health was reported by 100% of the study sample.

4.5.6 Violent behaviour

The majority (98.3% [95% CI: 96.4-100.0]) of the undergraduate health science students new what the effect violence had on their health.

4.6 ACTUAL VERSUS PERCEIVED HEALTH RISK BEHAVIOURS

The fifth objective of the study attempted to determine if an association exists between actual risk behaviour and perceived risk behaviour among undergraduate health science students of the University of the Western Cape.

Table 4.19 Reported substance use and perception of typical student substance use in the past 30 days

	% Reported use (d)		% Perceived typical use (d)	
Substance	**0**	**1-30**	**0**	**1-30**
Cigarettes	72.5	27.5	4.0	96.0
Alcohol	45.2	54.8	6.5	93.5
Drugs	83.0	17.0	17.5	82.5

Table 4.19 summarizes the reported substance use and perception of typical student substance use in the 30 days preceding the study. When perceptions of typical student behaviour were compared to actual reported behaviour overestimated consumption patterns for the typical student was found. Almost three quarters (72.5%) of the students reported not smoking cigarettes in the past 30 days, whereas 96.0% believed that the typical student smoke cigarettes on one or more days during the 30 days preceding the study. Furthermore, 54.8% of the students reported using alcohol on one or more of the 30 days

preceding the study, whereas 93.5% indicate that the typical student consumed alcohol on one or more of the 30 days preceding the study. The majority (83.0%) of the students reported not using drugs in the 30 days preceding the study, whereas 82.5% believed that the typical student use drugs on one or more of the 30 days preceding the study.

Table 4.20 Number of alcohol drinks students reported consuming versus perceived drinks consumed the last time they partied

Number of drinks	Reported (%)	Perceived (%)
0	34.9	0.5
1-4	31.8	12.0
5-8	15.4	40.1
≥9	17.9	47.4

Table 4.20 summarizes the comparison between the reported number of alcoholic drinks versus perceived number of alcoholic drinks consumed the last time students partied. More than one third (34.9%) of the students reported consuming no drinks the last time they partied, whereas 0.5% believed that the typical student consumed no drinks the last time they partied. Almost half (47.4%) of the students believed that the typical student consumed ≥9 alcoholic drinks the last time they partied, whereas 17.9% reported to consume ≥9 alcoholic drinks the last time they partied.

Table 4.21 Reported sexual behaviour and perceptions of typical student behaviour

Behaviour	Reported (%)	Perceived (%)
Condom use	67.0	56.3
Multiple partners	19.6	82.8

Table 4.21 summarizes the comparison between actual reported sexual behaviour and perceptions of typical student behaviour. Two-thirds (67.0%) of the students reported condom use during last sexual intercourse while 56.3% of the students believed that the typical student use condoms during last sexual intercourse. The majority of the students (82.8%) believed that the typical student have more than one sexual partner in the year preceding the study, whereas 19.6% of the students reported having had more than one sexual partner in the year preceding the study.

Table 4.22 Comparisons of actual versus perceived health risk behaviours by frequency of individual use

Health risk behaviour	χ^2	n	df	p	Cramer's V
Smoking	3.206	198	1	>0.05	.13
Alcohol use	5.557	198	1	<0.05	.17
Drug use	2.062	164	1	>0.05	.11
Multiple sexual Partners	15.145	196	4	<0.05	.20
Condom use	0.221	199	2	>0.05	.03
Physical inactivity	1.407	201	1	>0.05	.08

Table 4.22 summarizes the comparisons of actual versus perceived health risk behaviours by frequency of individual use. A statistically significant chi-square emerged for the alcohol use and multiple sexual partner analysis. For all analysis a larger than expected number of students who engaged in health risk behaviours, reported that the typical student engaged in these risk behaviours. However, as can be seen from the Cramer's V statistic effect sizes were all fairly low. Using guidelines of .1 corresponding to a small effect and .3 corresponding to a medium effect, all effect sizes were in the small range, with the effect size of multiple sexual partners the largest (.20)

4.7 SUMMARY

The current study aimed to assess the health risk and health promoting behaviours among undergraduate health science students. A significant number of undergraduate health sciences students engaged in these risk behaviours and significant differences exist between groups such as males and females as well

as different ethnicity groups. Due to the consequences of these health risk behaviours it is important to identify means of interventions appropriate for these students. The next chapter will present an integrated discussion of the data outlined in this chapter.

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

This chapter discusses the findings of the current study and compares the results with similar studies. The discussion follows a thematic approach rather than a discussion of individual objectives as stated in Chapter one. Four themes are discussed: substance use (alcohol use, cigarette smoking and drug use), sexual risk behaviours, behaviours contributing to violence and physical activity.

5.2 SUBSTANCE USE

Substance use in youth in all parts of the world continuous to be a significant health problem. Engaging in health-related risk behaviour such as smoking, alcohol use and drug abuse can alter their economic prospects as well as their future health. The evidence of ill-health effects from these behaviours is mounting. This study provides evidence that the prevalence of substance use remain a public health concern. The prevalence and factors influencing substance use among undergraduate health professional students at the University of the Western Cape will be discussed under the headings smoking, alcohol use and drug use.

Smoking

Tobacco smoking is on of the most significant causes of morbidity and mortality in modern society. Based on current smoking patterns, it is projected that by 2030, smoking-related illnesses will result in the death of 10 million people annually worldwide (Call et al., 2002). The present study highlights that cigarette smoking among health professional university students is a critical public health problem.

Kamwendo et al. (2000) alerted us to the fact that aspects of healthy lifestyles should be viewed not only from a patient/disease point of view, but also from a student/educator point of view. Therefore for health professionals who do smoke, there is always a risk of conflict of credibility when seeking to influence patients to give up smoking. Puska, Barrueco, Roussos, Hider and Hogue (2005) and Ohida et al. (2001) stated that health professional who smoke tend to underestimate the health hazards associated with smoking compared to their non-smoking counterparts. Furthermore those health professionals who smoke regularly tend to convey a more negative attitude towards smoking-cessation programs, as they often downplay their role in highlighting the health risks associated with smoking.

The overall prevalence for lifetime and current smoking in the present study is 58.7% and 27.5% respectively. These prevalence rates for lifetime smoking are less than findings from international studies (Loukas et al., 2006; Ott et al., 2005; Patterson et al., 2004; Grunbaum et al., 2003 and Hestick, Perrino, Rhodes & Sydnor, 2001). The prevalence rates for current smoking however concurred with findings from international studies (Loukas et al., 2006; Ott et al., 2005; Patterson et al., 2004; Grunbaum et al., 2003) and local studies (Frantz, 2006; Peltzer, 2000). Although these comparisons should be made with caution as these studies might differ methodologically, most of the studies used the same definition for both lifetime and current smoking. Most of the international studies and some of the local studies adapted their questions regarding smoking

behaviour from the YRBSS questionnaire of the United States Centre for Disease and Control (Kann et al., 1999). Furthermore the current study sample was health professional students and they may thus differ from less-informed students in their behaviour.

Both lifetime and current cigarette smoking varied significantly with gender, race and age in the present study. Significantly more male than female students reported lifetime (77.8%) and current (40.0%) cigarette smoking. Furthermore, a significant higher prevalence of Coloured (72.7%) than African/Black (37.5%) and White (28.6%) students reported lifetime smoking. Both the gender and race differences found in this study concurred with other local studies (Phillips 2005, Peltzer et al., 2002; Reddy, Meyer-Weitz, Abedian, Steyn & Swart, 2001 and Peltzer, 2000). The gender differences found in this study was similar to that of other studies (Baldwin et al., 2006; Benton, Benton & Downey, 2006; Boyle & Boekeloe, 2006 and Windle, 2003), but the race differences differed from those of international studies. In contrast to this study several researchers found a higher prevalence of lifetime cigarette smoking among White students (Baldwin et al., 2006, Loukas et al., 2006 and Patterson et al., 2004).

Noteworthy is the findings of several local and international studies regarding the increasing prevalence of smoking among female university/college students. A local study by Reddy et al., (2001) found a sharp increase in cigarette smoking among Coloured women over the past two decades in the Western Cape. National trends in the USA also pointed to a sharp increase in cigarette smoking

particularly in female college/university students. Ott et al. (2005) and Patterson et al. (2004) reported female students to smoke more to control their weight as well as to feel less anxious. These findings are cause for great concern as the Medical Research Council of South Africa reported a sharp increase in cancer mortality rates among Coloured women over the past 20 years in the Western Cape (Reddy et al., 2001).

The present study extends prior findings by showing students aged 18-24 years being the largest to report lifetime (65.1%) and current (30.4%) cigarette smoking. These findings concur with several researches both internationally and locally (Loukas et al., 2006; Ott et al., 2005; Lenz 2004 and Reddy et al., 2001). Worth mentioning are the intensive marketing strategies targeting this population which may influence the smoking practices of university students (Global Youth Tobacco Survey Collaborating Group, 2003; Watson, Clarkson & Gikes-Corti, 2003). University students are an ideal market for the tobacco industry as they can legally buy tobacco products. However they are still impressionable and research highlighted that many university campuses have not yet set tobacco prevention and cessation as health care priorities (Ott et al., 2005 and Patterson et al., 2004). This is highlighted by the only 33.8% of the students in the current study reporting that they received information regarding tobacco use prevention in comparison to the 78.1% that reported that they have received information regarding HIV/AIDS infection prevention. According to Everett et al. (1999) only 32% of college students in the USA also reported they received information about preventing tobacco use at their college or university. Furthermore the

majority of students reported that they received smoking-related information from magazines (75.1%) and television (72.1%). This is concerning as it is known that the media portrays smoking to be sophisticated among youth.

Another factor that must be taken into consideration is the fact that cigarette smoking is highly addictive. Research has shown that once addicted to nicotine, students have difficulty quitting smoking. Furthermore adolescents who become smokers will smoke for at least 16 to 20 years (Everett et al., 1999; Pierce & Gilpin, 1996). Although most young adults eventually discard or modify risky behaviours but because of its addictiveness, smoking is less susceptible to cessation or modification than other risk behaviours. As Keeling (1999) stated in his study: "Therein lies the great wisdom of cigarette marketing: hooking young customers usually results in a prolonged and chemically induced form of 'product loyalty''.

It could be assumed that knowledge will have an impact on engaging in risky behaviour. Since the study sample was health professional students it could be assumed that they are supposedly knowledgeable about the consequences of smoking on their health. Overall, 96.6% of the current study sample knew of the personal health consequences of smoking. These findings are in line with several other studies among university students (Patterson et al., 2004 and Keeling, 1999). Knowledge of the consequences of smoking on health however only had an effect on lifetime smoking in the present study. Students with knowledge of the consequences of smoking on health were significantly less

likely to report lifetime smoking. Knowledge had no impact on current smoking behaviour however. This therefore provides evidence that interventions that rely primarily on increasing students' knowledge of negative consequences of smoking will inevitably be unsuccessful. It is also clear that other factors, whether personal or environmental, support risky behaviours that students adopt even though these behaviours are not consistent with their knowledge. What are these factors then that stand in the way of adopting safer behaviour even if basic knowledge about smoking has been acquired?

Several researchers have highlighted that students generally misperceive the frequency with which their peers engage in smoking and that these misperceptions have a causal effect on individual behaviour (Martens, Page, Mowry, Damann, Taylor & Cimini, 2006; Page, Hammermeister & Scanlan, 2000; Perkins, 2002 and Perkins & Wechsler, 1996). It is further believed that students may be more likely to engage in behaviour when they view the behaviour as typical or normative. In the current study 27.5% of the study sample reported current cigarette smoking whereas 96.0% believed that the typical student smoked currently. It is thus clear from these results that the students in the current study viewed smoking as typical or normative of students. Smoking is often portrayed by various media outlets as being typical or normative of college life. Therefore students may perceive that smoking are engaged in more frequently than what it actually is. These misperceptions of peer norms clearly have important educational or prevention program implications.

Alcohol use

Alcohol has been consumed in human populations for centuries, but the considerable and varied adverse health effects have only been characterized recently (Rehm, Gutjahr & Gmel, 2001). According to the World Health Report 2002 (WHO, 2002), global consumption has increased in recent decades with most of this increase occurring in developing countries. National epidemiological studies in the USA have investigated the prevalence of substance use among college/university students and found that alcohol is the most commonly used drug (Casswell, Pledger & Hooper, 2003). Windle (2003) attributed these high rates of alcohol consumption among university students to the role transitions such as moving away from the family home and residing with other students in their study sample.

The current study provides evidence of this increase with a prevalence of 76.6% and 54.8% for lifetime and current alcohol use respectively among health professional students. These findings concur with both international (Johnston et al., 2003; CDC, 1997) and local studies (Frantz, 2006). As was the case with the smoking studies, these comparisons should be viewed with caution as these studies might differ methodologically. Firstly it was not clear from the studies how they measured lifetime and current alcohol use. Secondly these studies except the one from Frantz (2006) included non-health and health professional students.

Alcohol use varied significantly with race and age, but no significant difference between male and female students were observed in the current study. This

significant variation by race and age are consistent with international studies (Benton et al., 2006; Dantzer et al., 2006 and Everett et al., 2001). Significantly more White undergraduate health sciences students and students aged between 18-24 years, reported lifetime and current alcohol use. Windle (2003) also reported that the age group 18-24 years had a higher prevalence of drinking than did people 25 years and older.

Very little differences were observed between the prevalence rates of current and lifetime alcohol use between males (77.8%) and females (76.3%) in the present study. Recently various researchers has highlighted that the levels and patterns of women's alcohol use has undergone substantial changes (Roche & Deehan, 2002; Jones, Oeltmann, Wilson, Brener & Hill, 2001). Female alcohol consumption has been noted to be on the increase, particularly among women in the younger age groups. This trend is an international phenomenon and is cause for concern as researchers has emphasized that a particular burden of disease is associated with the increase in alcohol consumption among women. Physical problems are experienced earlier in women than men, women metabolize alcohol at a slower rate than men, women are more vulnerable than men to tissue damage and the onset of certain disease such as cirrhosis of the liver (Roche & Deehan, 2002).

Alcohol use among youth is associated with a large number of negative consequences, including hangovers, getting into arguments, behaving in ways they regretted and alcohol-related motor vehicle accidents. More than a quarter

(26.9%) of the students in the current study reported doing something they later regretted. Furthermore this study found a prevalence rate of 34.3% for binge drinking, i.e. having more than 5 drinks at a sitting. This prevalence rate is slightly lower than the 41.5% found by Jones et al. (2001) and the 44.4% found by Wechsler et al. (2002) among American university/college students. Male students were significantly more likely than female students to binge drink and White students more likely than Black students to binge drink in the current study. These findings are similar to those reported by Jones et al. (2001) and Wechsler et al. (2002). Various researchers have cautioned that binge drinking is associated with major contributors to youth mortality, e.g. motor vehicle accidents and suicide. Furthermore several studies revealed that binge drinking significantly impacts the academic performance and health status of university students and their peers (Boyle & Boekeloo, 2006; Jennison, 2004; O'Neill et al., 2001).

Many researchers have pointed to the fact that college or university students are at a higher risk for binge drinking than their same-aged peers who do not attend college or university (Jones et al., 2001; Johnston et al., 1998). Although it is recognized that most students have their first drink of alcohol before attending university (72.5% of the current study sample had their first drink before the age of 17 years) many students increase their use of alcohol while attending university. Researchers have stated that the university/college culture views extreme drinking as a risk of passage, encouraging behaviour that is destructive to the university subculture and the general population. A huge amount of social

activities such as university parties also take place that may lead to the excessive alcohol use.

The study also highlights a significant association between binge drinking and driving after alcohol use. More than one-tenth (11.9%) of the study sample reported driving after alcohol use. This is of great concern as various researchers have cautioned that students who drink large quantities are at greater risk for experiencing harmful consequences such as impaired driving (Benton et al., 2006). This was highlighted by the South African Health Review (2000), which showed that 50% of the victims of homicide and fatal traffic collisions had raised blood alcohol levels in South Africa. Alcohol use thus not only has a negative impact on the health sector, but also impacts negatively on the family and society in terms of crime and negative effects on economic and social development (Gruenewald, Johnson, Light & Saltz, 2003) .

The study further highlighted that students who binge drink are significantly more likely than those that do not binge drink to report cigarette smoking and drug use. These findings are similar to that of Jones et al. (2001) and Wechsler et al. (2002) that also reported a strong relationship between binge drinking and other substance use. It is thus clear that any prevention/education programme developed to address binge drinking should also address the association between binge drinking and substance use.

As already discussed under smoking in this chapter, several researchers have cautioned that perceived risk behaviour have an influence on actual behaviour (Martens et al., 2006; Jones et al., 2001). Jones et al. (2001) further stated that many college/university students overestimate the extent to which their peers use alcohol. This was also evident in this study which found that 93.5% of the study sample indicated that the typical student consumed alcohol on one or more of the 30 days preceding the study, whereas only 54.8% reported current alcohol use. Furthermore almost half (47.4%) of the students believed that the typical student consumed ≥ 9 alcoholic drinks when they party, whereas only 17.9% reported to consume this number of alcoholic drinks. These findings clearly indicate that educational and awareness programs regarding alcohol use should take perceptions of peer alcohol use into consideration. Baldwin et al. (2006) are also of the opinion that normative re-education in which students' beliefs about peer drinking rates are higher, are challenged.

Knowledge of the consequences of alcohol use on health had no effect on the study sample's lifetime or current alcohol use. It is clear that other factors such as environmental or personal, support alcohol use even though the students are knowledgeable about the consequences. Rigotti et al. (2001) pointed out that one of these environmental factors is the fact that university students are target by industry marketing. These authors further stated that promotional efforts include promotional items such as clothing and brand-sponsored musical events. Furthermore another environmental determinant of drinking and binge drinking is pricing and promotion of alcoholic beverages. According to Kuo, Wechsler,

Greenberg and Lee (2003) low prices and easy access promote alcohol use. These factors should be taken into consideration when planning alcohol prevention efforts. Residences where students are prohibited from using alcohol are associated with less alcohol and fewer second hand effects of alcohol (Wechsler et al., 2001).

Drug use

Illicit drug consumption and drug related problems in South Africa have increased dramatically during the middle 1990's, as the country has emerged from political isolation, opening itself up to worldwide travel and trade links. The presence of illicit drug use on college and university campuses has well been documented (Gledhill-Hoyt et al., 2000; Douglas 1997 and Presley et al., 1996). The college and university student's absence for the first time of parental supervision and the tendency of students to try new, previously prohibited behaviours, make the college years a time of greater risk for the development of behaviours such as illicit drug use.

The overall prevalence for lifetime and current drug use is 32.8% and 17.0% respectively in the current study. These prevalence rates are similar to findings in other local and international studies (Ellikson et al., 2004; Reddy et al., 2003; Madu and Matla, 2003; Peltzer, 2003). More than four-fifths (82.1%) of the students reported initiation of drug use before the age of 17 years. Although these results is of great concern as it evidently shows that a great number of college and university students enter the university setting with drug habits, it is

important to note that 17.9% of the students initiated drug use after entering university. These findings are in stark contrast with international studies where more than one-third of the students reported first time drug use after entering the university (Gledhill-Hoyt et al., 2000). The findings of the current study still point to the fact that a significant percentage of university students become regular drug users once at university.

Lifetime and current drug use varied by gender, race, education of the head of household and living arrangement. A higher prevalence of male (53.3%) than female (26.9%) students reported participation in drug use. More White (42.9%) and Coloured (40.9%) undergraduate health sciences students reported drug use. Although the differences in prevalence rates by gender and race are in line with other local and international studies (Brook et al., 2006; McArdle et al., 2005; Peltzer, 2003; Gledhill-Hoyt et al., 2000 and Simon, 1998), the current study found significantly lower prevalence rates than the studies mentioned. This could be attributed to the fact that researchers have noted a marked increase of illicit drug use among young adults in the USA (Gledhill-Hoyt et al., 2002).

A trend for higher prevalence rates of lifetime and current drug use was observed for students living at their parents and those who reported the head of their household to have post-secondary schooling. These findings are in stark contrast to international studies that documented that drug use was associated with lower socio-economic status, living on campus and lower educational attainment (Brook et al., 2006; Peltzer, 2003 and McArdle et al., 2002). These

trends in the present study could be attributed to the fact that these students have more money available to support drug use. This notion is supported by Gledhill-Hoyt et al. (2002) who stated that the university students' economic ability to purchase illicit drugs have an influence on the prevalence rates of drug use. Several studies have indicated that living circumstances and affluence are major contextual influences on drug use (Dantzer et al., 2006; Windle, 2003 and Perkins, 2000). These studies have further indicated that these trends could be because of greater disposable income and lesser parental control.

Once again it could be assumed that knowledge will have an impact on engaging in risky behaviour. Knowledge of the consequences of drug use on health however had no effect on lifetime and current drug use in the present study. The percentage of students (85.3%) reported knowledge regarding the consequences of drug use however is much lower than the other risk behaviours. This therefore provides evidence that interventions that rely primarily on increasing students' knowledge of negative consequences of drug use will inevitably be unsuccessful. Furthermore only 37.8% of the current study sample reported that they received health promotion information regarding drug use prevention. This is thus an area that should be looked at by the university policy makers.

Epidemiological data points to the fact that peer influences are one of the factors that underlie drug use. Brook et al. (2006) also stated that peer substance use is one the major well-established predictors of drug use. This study highlighted that a larger than expected number of students who used drugs, reported that the

typical student used drugs. No significance was however found between the students' own drug use and the perceptions of drug use. Martens et al. (2006) suggested that this could partly be explained in terms of cultural acceptance and expression by various media outlets. Drug use is not always shown in a positive light as opposed to alcohol use that is often glorified in movies.

Noteworthy is the co-occurrence of smoking, alcohol and drug use. Several researchers have reported on their finding that cigarette smoking in adolescence represents a crucial entry-point to illicit drug and alcohol use (Flemming et al., 2002; Őzcan & Őzcan, 2002; Gledhill-Hoyt et al., 2000 and Webb et al., 1996). Gledhill-Hoyt et al. (2000) furthermore reported that students who engage in polydrug use are at greater risk for alcohol-related motor vehicle accidents as well as problems such as property damage and getting in trouble with the police than are students that only use one substance or binge drink. These findings should be kept in mind when preventative programs are developed. It goes without saying that these programs cannot only concentrate on one risk behaviour but multiple risk behaviours.

While the full aetiology of diseases such as cancer, heart disease and strokes has yet to be understood, behavioural factors such as tobacco use, alcohol use and drug consumption are strongly implicated as risk factors (Peltzer, 2000).

5.3 SEXUAL BEHAVIOUR

Sexual behaviour is another important domain in which youth are jeopardizing their future health prospects. Although American and European countries have witnessed positive changes such as increased condom use since 2000, their youth still has alarming high rates of STD's and unwanted pregnancies (Arnett, 2002; +Ozer, MacDonald & Irwin, 2002). Brown, Larson and Sarawathi (2002) and Peltzer (2003) however found the opposite in developing countries where premarital sexual activity and high rates of unprotected sex is reported.

Results from the present study highlight the fact that a substantial number of students, as a result of their sexual choices they make, are at risk in terms of their sexual health. In this study 59.7% of the undergraduate health sciences students reported lifetime sexually activity. The prevalence of lifetime sexual activity in the current study is significantly lower than international studies among college/university students (Rozmus et al., 2005; Eaton, Flisher & Aarø, 2003, Akande, 2001 and Douglas and Collins, 1997) but higher than that of a local study among health professional students (Frantz, 2006). Comparisons should nevertheless be made with caution as these studies might differ methodologically. It is not clear what definition of sexual activity is used by all the studies. Literature differentiates between sexual experience (ever having had sex in lifetime), current sexual activity (having had sexual intercourse during the 3 months preceding the study) and recent sexual activity (having had sexual intercourse during the 30 days preceding the study). The results of the current

study should also be viewed in the light of the fact that 7% of the study sample reported being married.

The current study clearly indicates that university students often fail to protect themselves from exposure to sexually transmitted diseases (STDs), including HIV infection and unwanted pregnancies. Of those sexually active, 39.8% reported having had more than one sexual partner in the year preceding the study. More than two-thirds (67.0%) of the sexually active students reported condom use the last time they had sexual intercourse. A much higher prevalence of students in the current study reported condom use when compared to other studies (Rozmus et al., 2005; Douglas, Collins, Warren, Gold & Clayton; 1997). These findings are contradicting the statements made by Brown et al. (2002) that higher rates of unprotected sex is reported in developing countries as opposed to developed countries. These findings are of great concern as research has pointed out that 15.6% of South African youth between the ages of 15-24 years is infected with HIV (Hartell, 2005).

A trend for a higher prevalence rate of male students compared to female students for lifetime sexual activity, age of first sexual intercourse and having had more than one sexual partner was observed. These findings are in line with both international (Gillmartin, 2006; Grunbaum et al., 2002) and local studies (Hartel, 2005). Research on school going adolescents has also indicated that males are more likely to engage in risky sexual behaviour than females (Phillips & Malcolm, 2007). This is not an uncommon trend as Risman & Schwartz (2002) and Paul &

Hays (2002) highlighted the fact that women see sex as part of being in love. Gilmartin (2006) also stated that women presage desire alone to promiscuity. Clare (2000) however documented that men focus on sex, not love. Therefore men's competitiveness, emotional detachment and sexual objectification of women justify themselves a privileged social position with regard to sexual behaviour.

Significantly more African/Black (91.7%) than Coloured (50%) students reported ever having had sex. These findings are similar to the findings of Phillips & Malcolm (2007) in their study on sexual risk behaviours among school-going adolescents. South African researchers have indicated a link between poverty, unemployment and higher levels of youth sexual activity (Wood, Maepa & Jewkes, 1997; Du Plessis, Meyer-Weitz & Steyn, 1993). It is recognized that radicalized social stratification still characterizes South Africa, therefore problems associated with poverty mostly affect "African Black" youth. Furthermore Whitefield (1999) suggested that poverty may also be linked to discourses that support an unequal distribution of sexual power between men and women.

It is thus clear from the results above that these students put themselves at risk for HIV infection through unprotected sex and having multiple sexual partners. HIV and AIDS represent a devastating pandemic among the South African youth. Coombe (2002) found that more than 15.6% of the youth between 15-24 years are infected with AIDS and Hartell (2005) and Stephenson (2000) further report that more than 60% of new HIV infections in South Africa occur in this age group,

especially females. On examination of the knowledge regarding unprotected sexual activity among undergraduate health sciences students, 98.3% of the students in the present study reported that they knew what the consequences of unprotected sex were. Almost 80% of the students further indicated that they received HIV and AIDS education from their university. Television, magazines and friends were reported to be sources of information regarding sexual practices. The credibility of these sources however was not assessed. Ward and Friedman (2006) stated that the lessons television conveys about sexuality are not always ideal. These authors further stated that television often emphasizes a "recreational" orientation to sexual relationships, one in which sex is portrayed as a casual leisure activity motivated solely by physical pleasure and personal gain. It is thus assumed from the results that the students have a good knowledge of the consequences of unsafe sex, but not necessarily the transmission of HIV/AIDS. However, as shown in this study, as was the case with others (Hartell, 2005; Michels et al., 2005; Akande, 2001; Peltzer, 2000), it seems that their knowledge does not protect them from participating in risky sexual practices.

Gilmartin et al. (2006) are also of the opinion that safer sexual behaviours demands negotiating with a sexual partner. This author and Michels et al. (2005) suggests that students get taught negotiation skills to feel confident to refuse sexual intercourse. Therefore women need to be empowered and men need to be taught respect for women.

Less than one-fifth of the study sample reported that they had more than one sexual partner in the year preceding the study. This percentage is considerably lower than the perception of the prevalence of more than one sexual partner. More than 80% of the study sample believed that the typical student have more than one sexual partner in the year preceding the study. These findings are alarming when taking into consideration that what students believe to be the behaviours of peers is an important influence on their own behaviour. Page et al.(2000) also stated that students may be more likely to engage in behaviour when they view the behaviour as typical. Also holding the perception that "everyone is doing it" was found to be significantly associated with higher risk of "doing it". Correcting misperceptions of peer behaviour is thus an important aspect that must be addressed in any educational approach.

5.4 BEHAVIOURS CONTRIBUTING TO VIOLENCE

Adolescent violence is a serious issue which has gained attention nationally. Witnessing or being victimized by violence is associated with increase likelihood of alcohol and cigarette use, a greater number of sexual partners and decreased condom use (Brady, 2006). Data from international and South African studies imply that violence is a problem of epidemic proportion among adolescents (Soriano et al., 2004 and Burrows et al., 2001). A continuous growth of research on dating violence focusing on high school and college students have been noted (Ramisetty-Mikler et al., 2006). These findings should be viewed with worry as dating violence is a major public health concern. Furthermore Daane (2003)

reported that violence causes both emotional scars and delinquent behaviour among youth.

In the present study dating violence or violence in an intimate relationship was experienced by some of the students. It is of great concern as Ramisetty-Mikler et al. (2006) acknowledged dating violence to be the antecedent for partner violence in adult relationships. Overall 17.7% of the undergraduate health sciences students reported having been hit, slapped or physically hurt on purpose by a boyfriend or girlfriend in their lifetime. Less than one-tenth (6.5%) of the students in the present study reported having been forced to have sexual intercourse against their will. Furthermore, one-fifth (20%) of the study sample that reported having had forced sex in their lifetime, reported the head of their household to have none or secondary schooling. These findings are in line with other studies as it is well known and documented that a lower education and socio-economic status are connected with a higher participation rate in risky behaviours such as violence (Brady, 2006).

A higher prevalence of African/Black and students staying on campus reported having been forced to have sex in their lifetime. These findings concur with an international study by Makepeace (1999) but in stark contrast by a study by Harned (2001) and Halpern, Oslak, Young, Martin & Kupper (2001) where between 25 and 60% of the participants reported abusive behaviour from their partners. Overall a higher prevalence of female (7.1%) than male (4.4%) undergraduate health sciences students reported having been forced to have sex

in their lifetime. These findings are in line with several international and local studies which emphasize the fact that women experience the highest rates of violence (Ramisetty-Mikler et al., 2006; Soriano et al., 2004; Peltzer et al., 2003 and Burrows et al., 2001). Jewkes et al. (2002) remarked that one of the most remarkable features of gender-based violence in South Africa is that within certain boundaries of severity, the society is extremely tolerant of it. They further stated that this widespread tolerance often reflects the idea that the use of violence is "normal".

Of great concern is the broad array of psychological problems that might develop due to dating violence (Soriano et al., 2004; Lyles and Winston, 2003; Krug et al., 2002; Arias & Pape, 2001 and Goodman & Bennet, 2001). These problems range from major depression, alcohol and other drug use, anxiety and a lowered self-esteem. Overall 18.9% of the present study sample reported emotional violence, i.e. verbal abuse. Ramisetty-Mikler et al. (2006) reported an overall prevalence rate of 58.5% for emotional abuse among college students in Hawaii. More male (40.0%) and White (42.9%) undergraduate health sciences students reported being verbally threatened in their lifetime. This gender finding is in stark contrast with several studies which reported women more often to be the victim of verbal or emotional abuse (Ramisetty-Mikler et al., 2006; Lyles & Winston, 2003 and Peltzer et al., 2003).

Besides dating or intimate partner violence, the prevalence of behaviours contributing to violence was very low in the current study. An insignificant

prevalence rate was found for students that reported being threatened (1.5%) or hurt with a weapon (0.5%) on campus. These findings are promising as literature indicates exposure to violence at school or university as a significant predictor of aggression.

5.5 PHYSICAL ACTIVITY

Regular physical activity has been linked to a wide range of physical and mental health benefits. Some of the benefits of physical activity include helping to build and maintain healthy bones and muscles, control body weight, reduce feelings of depression and anxiety, and promote psychological well-being. Ferrucci, Izmirlian, Leveille, Phillips, Corti and Brock (1999) stated that persons who are regularly active enjoy enhanced longevity and are at lower risk of developing myocardial infarction, stroke, cancer, respiratory disease and osteoporosis. In general physical activity improves glucose metabolism, reduces body fat and lowers blood pressure.

The results from the present study highlights that 80.6% of the undergraduate health sciences students are physically active. Given the numerous benefits of being physically active, these findings are encouraging. This prevalence is much higher than the 38% observed by CDC (2001(a)) but on par with results from Keating et al. (2005), Bray & Born (2004) and Stone et al. (2002). The findings of the current study further differs from the 59% found in a study among health professional students in Uganda (Nizeyimana & Phillips, 2006) and the 28.3% among health professional students in Rwanda (Tumusiime, 2004).

Only 8.5% of the study sample did not participate in any physical activity in the 7 days preceding the study. The reasons given by the students in the study for not participating in physical activity included lack of time (80.6%), lack of money (5.0%) and lack of facilities (4.0%). Research has indicated that the most common reason for adolescent inactivity is lack of time (Terguson & King, 2002). Identifying constraints to physical activity remains an important goal in health promotion planning programs. It has been reported that an individual's perceived constraints to exercise are an important determinant of how active he or she becomes. Therefore, understanding those constraints is the first step in removing them (Nizeyimana & Phillips, 2006).

Could sedentary activities be blamed for lack of time to participate in physical activities? It is possible that those students who chose a sedentary lifestyle are unaware of the health benefits of regular physical activity. Overall 38.3% of the students reported that they watched television for 3 hours or more on a normal university day. This finding is in line with a study by Buckworth & Nigg (2004). Phillips (2006) also stated that if students are not optimizing the health benefits of physical activities, they may become prone to the possibilities of developing chronic diseases of lifestyle.

A trend for participation in physical activity to decline by age is well documented (Buckworth & Nigg, 2004; Stone et al., 2002 and Sallis , Prochaska & Taylor, 2000). The level of physical activity is known to decrease throughout the entire

age span. Younger adolescents were more active than their older counterparts (Buckworth & Nigg, 2004). The current study however found the opposite. Undergraduate health sciences students in the age group 25-29 years (78.6%) were more likely than those in the age group 18-24 years (60.4%) to participate in sufficient physical activity in the week preceding the study. Could this be due to the older students being more knowledgeable about the consequences of physical inactivity on their health?

Associations between gender and level of physical activity reflect in the literature: men were more physically active than women (Nizeyimana & Phillips, 2006; Bray and Born, 2004; Buckworth & Nigg, 2004; Stone et al., 2002 and Wallace et al., 2000). The overall prevalence for male (73.3%) and female (57.7%) undergraduate health sciences students in the present study is higher than those in the abovementioned research. Nizeyimana & Phillips (2006) speculated that the difference observed between males and females' levels of physical activity are likely because of each gender group's perceptions of the reasons for participation in physical activity. Therefore, it is very important for health promoters interested to promote physical activity among health sciences students to put more emphasis on individual change of behaviour before tackling environmental factors as constraints to physical activity.

5.6 SUMMARY

This chapter presented a discussion of the results outlined in the previous chapter. The implications of the findings discussed are that the other factors such

as knowledge and perceptions have the potential to underpin risk behaviour. It is also clear that unless education is directed to the entire at-risk audience, success in changing individuals and effecting behaviour change will be limited.

CHAPTER SIX

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

6.1 CONCLUSION

Youth, including university students, jeopardize their current and future health status. On the assessment of data internationally and locally on health risk behaviours among youth, it became clear that they are using tobacco, alcohol and drugs, they are engaging in unprotected sex and they are physically inactive. These data suggest that many students' behaviours increase their probability of negative health outcomes.

The present study aimed to determine the prevalence of health risk and health. The study further aimed to identify the factors influencing these students' engagement in these risk behaviours. Results from the cross-sectional data clearly illustrate that many undergraduate health professional students are engaging in numerous health risk behaviours. However, the results further illustrated that these students receive health promoting information from their university and that many of them have protective strategies in place.

The study further highlighted that prevention programs should be started in early adolescence as literature suggests that the engagement of many health risk behaviours among university students are a continuation of engagement in such behaviours in high school. This however does not mean that health promotion activities at university level are useless as universities offer an important avenue

for health-related services and education to a large number of young adults. Since the participants in this study were health professional students, a population that is theoretically knowledgeable about the risks of engaging in these behaviours, it is clear that prevention or health promotion programs should take the factors influencing engagement in risk behaviours into consideration.

Health education has become an increasingly important part of health and medical care. Health professional students are potentially well suited to be health educators. The health professional students included in this study traditionally spend more time with their patients than do, doctors for instance. Furthermore they are knowledgeable about the causes and risk factors of diseases. Kamwendo et al. (2000) however noted that the educator's role is complicated by the fact that he or she is not only a conveyer but also a recipient of information. Furthermore the educator will have to make a decision about his or her own health behaviour. If they do not adhere to the advice advocated by medical authorities, they end up in the awkward position or conveying conflicting message to patients or clients; one in accordance with medical knowledge and one based on the educator as role model.

6.2 RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

1. Health promotion programs should start at school and continue to university. This will enable the students to engage in a successful

transition to university. Furthermore intervention programs should encompass both knowledge and skills and factual information should constitute the core of the program. Counselors should guide students and provide education in coping mechanisms, effective communication and responsible decision-making strategies through on-campus orientation and first -year programs. Emphasis should be placed on attitudes and the confidence to adapt and maintain healthy lifestyles.

2. Literature clearly indicates that youth are more likely to engage in risk behaviour when they view the behaviour as a normative. Therefore social norms-based intervention programs should be implemented at tertiary institutions. Such programs provide a remedial effect by decreasing the frequency of engaging in risky behaviours by persons who already do so, as well as a preventative effect by correcting misperceptions by those who not yet frequently engage in risky behaviour.

3. Culturally relevant programs need to be developed within the context of the specific cultural beliefs and values of the target group. Health educators should invite youth to help plan, implement and evaluate the programs.

4. Parents should also be targeted to improve their knowledge regarding health risk behaviours and health promotion. They should be invited to

voice their concerns and suggestions. A combined health promoting programme can be initiated to include the students and their parents.

5. Although prevention and control efforts should be aimed at all university students, special consideration should be given to those students at increased risk for health risk behaviours and those who holds the most negative attitudes towards health promotion policies.

6. Medical professionals or primary care providers such as physiotherapists, medical doctors and psychologists can be invited to the universities to target the students as well as the parents. They can educate students, parents and staff on the benefits of a healthy lifestyle relating to their chosen profession. Thereby an interdisciplinary and holistic approach is given to the health education program.

7. Campus environment and buildings should be smoke-free, for both students and staff. There are no data suggesting that making campus spaces smoke free depletes applicant pools or chases good students away. It almost goes without saying that every college/university should be absolutely and completely smoke free.

8. At national level, health promoting programs needs to be developed by the Department of Education. Collaboration between the Education Department and universities is required to develop policies around health

promotion as well as the implementation of such policies at the universities.

9. Continuous evaluation of these health promoting programs is needed to identify the most successful and cost-effective way of promoting a healthy lifestyle.

6.3 LIMITATIONS

The results of the present study should be interpreted in the light of the following limitations:

1. Cross-sectional data collection may consistently describe patterns of association but not causality. A student currently engaging in one form of risk taking behaviour will not necessarily continue to do so. Thus caution should be employed when interpreting the results of a cross-sectional study when longitudinal data is not present.

2. Although the students were selected randomly, data were drawn from only the health science faculty, therefore the results cannot be generalized to all university students. Furthermore, health science students are supposedly knowledgeable about health risk behaviours but they may differ from less-informed students in their behaviour. Evidence also exist that the prevalence of health risk behaviours are higher for youth not

attending university/college. Therefore generalization of the findings to other young adult populations is thus limited.

3. The study is limited by population size since it was voluntary. Students were not pressured to participate in the study, thus the results are valid only for the participating population.

4. Data of this study was based on self-reported data and is therefore subject to several sources of error. Students who intentionally or unintentionally distorted their answers may represent a source of bias. Therefore, recall bias and pressure to give socially desirable answers may represent sources of error. Self-report surveys however are common in studies of this nature and are generally considered reliable (The American College Health Association National College Health (ACHA-NCHA), Spring 2003 Reference Group Report, 2005).

6.4 SUMMARY

This final chapter summarized and outlined relevant points of the current study. It made recommendations for future actions.

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Appendix 1

University of the Western Cape

Private Bag X17 Bellville 7535 South Africa
Telephone: (021) 959 2542 Fax: (021) 959 1217

DEPARTMENT OF PHYSIOTHERAPY

The Registrar
University of the Western Cape 28 August 2006

Subject: **Request to conduct a research study amongst 2nd year Community and Health Sciences students at the University of the Western Cape**

I am a postgraduate student doing a Masters Degree in Physiotherapy at the University of the Western Cape. The title for my research thesis is **"An analysis of health promotion and risk behaviours of health sciences students at the University of the Western Cape"**.

The aim of the study is to determine the prevalence of health risk behaviours among students in the Faculty of Community and Health Sciences. By understanding the prevalence and co-occurrence of health risk behaviours, the factors influencing these behaviours and their knowledge of the consequences of these risk behaviours, suitable health programmes for students can be provided.

I hereby wish to request permission from the University for the participation of all 2nd year undergraduate, full time Community and Health Sciences students in the abovementioned project. The students have the right to decline to participate in the study and they have the right to withdraw from the study at any time. Their responses are anonymous as they are not required to provide any identifying information.

The students will be expected to complete a self-administered questionnaire. The results will be made available as soon as they have been analyzed.

Thank you very much and I hope the response from the University will be positive.

Yours Sincerely

……

Tania Steyl

Appendix 2

University of the Western Cape

Private Bag X17 Bellville 7535 South Africa
Telephone: (021) 959 2542 Fax: (021) 959 1217

DEPARTMENT OF PHYSIOTHERAPY

The Head of Department
University of the Western Cape

28 August 2006

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Yours Sincerely

……

Tania Steyl

Appendix 3

University of the Western Cape

Private Bag X17 Bellville 7535 South Africa
Telephone: (021) 959 2542 Fax: (021) 959 1217

DEPARTMENT OF PHYSIOTHERAPY

CONSENT FORM

Dear Participant

You have been randomly selected to participate in this study, about health risk behaviours among university students. The aim of the study is to determine the prevalence of health risk behaviours among students in the Faculty of Community and Health Sciences. By understanding the prevalence and co-occurrence of health risk behaviours, the factors influencing these behaviours and your knowledge of the consequences of these risk behaviours, suitable health programmes for students can be provided.

You will be asked to complete a questionnaire dealing with smoking, alcohol use, drug use, behaviours that result in violence, sexual risk behaviours, physical inactivity and unhealthy dietary habits. You are urged to answer all questions truthfully.

You have the right to decline to participate in the study and you have the right to withdraw from the study at any time. Your responses are anonymous as you are not required to provide any identifying information.

Feel free to ask any questions about the study and to request a copy of the results once the study is completed.

Thank you for agreeing to participate in the study.

Yours sincerely

Ms. T Steyl
MSc. Physiotherapy student
Department of Physiotherapy
University of the Western Cape

I understand what has been explained to me as a participant in the study about health risk behaviours among university students. I accept the conditions that have been explained to me regarding my participation.

I agree to participate in the study and accept that I have the right to withdraw from the study at any time without fear of any consequences.

Signed: Date:

Appendix 4

HEALTH RISK BEHAVIOUR QUESTIONNAIRE

- This questionnaire is about health risk behaviours.
- It has been developed so that you can tell us what you do that may affect your health.
- This questionnaire is **completely voluntary.** You may choose not to participate or not to answer any specific question. You may skip any question you are not comfortable in answering.
- This questionnaire is **completely anonymous.** Please make no marks of any kind on the survey which could identify you individually.
- Composite data will be shared with your campus for use in health promotion activities.

INSTRUCTIONS

- Please answer the questions based on what you really do.
- Select only one response, unless instructed otherwise.
- Please tick the appropriate answer e.g. □√

Thank you very much for your co-operation

THE FOLLOWING QUESTIONS ASK ABOUT YOUR DEMOGRAPHIC CHARACTERISTICS

Question 1

How old are you today?

□ 18 years □ 19 years □ 20 years

□ 21 years □ 22 years □ 23 years

□ other (specify)……..

Question 2

What is your gender?

□ male □ female

Question 3

How do you describe yourself?

□ African/Black □ Coloured □ White

□ Indian/Asian □ other (specify)……..

Question 4

Are you an international student?

□ yes □ no

Question 5

Are you a member of a religious organization (e.g. church / mosque)?

□ yes □ no

Question 6

What is your current relationship status?

□ single □ married / domestic partner □ engaged

□ separated □ divorced □ widowed

Question 7

Where do you currently live?

□ university housing □ off-campus housing

□ parent / guardian's home □ other (specify)……..

Question 8

Which one person is in charge of or is the head of your household?

□ father □ mother

□ other (specify)……..

Question 9

What is the number of persons living in your household?……..

Question 10

What type of work does the head of your household do?

□ unemployed □ employed (specify)……..

Question 11

What is the highest level of education completed by the head of your household?

□ no schooling □ primary school

□ secondary school □ post secondary

THE FOLLOWING QUESTIONS ASK ABOUT YOUR HEALTH, HEALTH EDUCATION AND SAFETY.

Question 12

Considering your age, how would you describe your general health?

□ excellent □ very good □ good

□ fair □ poor □ don't know

Question 13

On which of the following topics have you ever received information from your university? **(Select all that apply)**

□ tobacco use prevention
□ alcohol prevention
□ drug use prevention
□ violence prevention
□ relationship violence prevention
□ injury prevention and safety
□ pregnancy prevention
□ AIDS or HIV infection prevention
□ physically activity and fitness
□ none of the above

Question 14

Which source of health information do you belief is reliable? **(Select all that apply)**

□ leaflets, pamphlets, flyers
□ campus news paper articles
□ health centre medical staff
□ lecturers
□ friends
□ parents / family

Question 15

Do you usually get health-related information from any of the following sources?
(Select all that apply)

□ parents / family
□ religious centre
□ television
□ magazines
□ friends
□ internet
□ other (specify)……..

Question 16

Within the last year, were you in a physical fight?

□ yes
□ no

Question 17

Within the last year, were you physically assaulted (do not include sexual assault)?

□ yes
□ no

Question 18

Within the last year, have you experienced verbal threats against your will?

□ yes □ no

Question 19

Within the last year, have you been in a relationship that was abusive? **(Select all that apply)**

□ sexually abusive □ emotionally abusive □ physically abusive

THE FOLLOWING QUESTIONS ASK ABOUT TOBACCO USE.

Question 20

Have you ever smoked?

□ yes □ no

Question 21

How old were you when you smoked a cigarette for the first time?

□ never smoked a cigarette □ 8 years old or younger □ 9 or 10 years old

□ 11 or 12 years old □ 13 or 14 years old □ 15 or 16 years old

□ 17 years or older

Question 22

Within the past 30 days, on how many days did you smoke cigarettes?

□ never smoked □ 1 – 7 days □ 8 – 14 days

□ 15 – 21 days □ all 30 days

Question 23

Within the past 30 days, how often do you think the typical student at your university smoked cigarettes? **(State you best estimate)**

□ never smoked a cigarette □ one or more days

□ smoked cigarettes daily

Question 24

What is the main effect of smoking on one's health?

□ no effect □ diseases of the lungs □ back pain

□ stomach ache □ others (specify)……..

Question 25

Do you usually get information or advice about smoking from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

THE FOLLOWING QUESTIONS ASK ABOUT ALCOHOL USE.

Question 26

Have you ever had a drink of alcohol?

□ yes □ no

Question 27

How old were you when you had your first drink of alcohol?

□ never had a drink of alcohol □ 8 years old or younger □ 9 or 10 years old

□ 11 or 12 years old □ 13 or 14 years old □ 15 or 16 years old

□ 17 years or older

Question 28

Within the last 30 days, on how many days did you have at least one drink of alcohol?

□ never had a drink of alcohol □ 4 or more times a week □ 2 – 3 times a week

□ once a week □ once a month □ twice a month

Question 29

Within the last 30 days, how often do you think the typical student at your university use alcohol?

□ never use alcohol □ one or more days □ use alcohol daily

Question 30

What is the main effect of alcohol use on one's health?

□ no effect □ depression □ back pain

□ liver disease □ others (specify)……..

Question 31

Do you usually get information or adv ice about alcohol use from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

Question 32

Within the past 30 days, did you drive after drinking any alcohol at all?

□ yes □ no

Question 33

The last time you 'partied' / socialized, how many alcoholic drinks did you have? **State your best estimate.**

……..

Question 34

How many alcoholic drinks do you think the typical student at your university had the last time he / she 'partied' / socialized?

……..

Question 35

Think back over the last two weeks. How many times, if any, have you had five or more alcoholic drinks at a sitting?

□ none □ 1 time □ 2 times

□ 3 times □ 4 times □ other (specify)……..

Question 36

During the last year, if you 'partied' / socialized, did you do one of the following?
(Select all that apply)

□ choose not to drink alcohol □ pace your drinks to 1 or fewer per hour

□ avoid drinking games □ Use a designated driver

□ determine, in advance, not to exceed a set number of drinks

Question 37

If you drink alcohol within the last year, have you experienced any of the following as a consequence of drinking? **(Select all that apply)**

□ physically injured yourself □ been involved in a fight

□ had unprotected sex □ physically injured another person

□ did something you later regretted

THE FOLLOWING QUESTIONS ASK ABOUT DRUG USE (e.g. dagga, cocaine etc.)

Question 38

Have you ever used drugs?

□ yes □ no

Question 39

How old were you when you used drugs for the first time?

□ never used drugs □ 8 years old or younger □ 9 or 10 years old

□ 11 or 12 years old □ 13 or 14 years old □ 15 or 16 years old

□ 17 years or older

Question 40

During the last 30 days, how many times did you use drugs?

□ never used drugs □ 4 or more times a week □ 2 – 3 times a week

□ once a week □ once a month □ twice a month

Question 41

Within the past 30 days, how often do you think the typical student at you university used drugs? **State you best estimate.**

□ never use drugs □ one or more days

□ use drugs daily

Question 42

What is the main effect of drugs on one's body?

□ no effect □ depression □ back pain

□ liver disease □ others (specify)……..

Question 43

Do you usually get information or advice about how to overcome drug use from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

THE FOLLOWING QUESTIONS ASK ABOUT BEHAVIOURS THAT CAN CONTRIBUTE TO VIOLENCE.

Question 44

During the past 30 days, on how many days did you not go to university because you felt you would be unsafe at university or on your way to or from university?

□ 0 days □ 1 day □ 2 – 3 days

□ 4 – 5 days □ 6 days or more

Question 45

As a university student, how many times has someone threatened you **on campus** with a weapon such as a gun, knife or stick?

□ 0 times □ 1 time □ 2 – 3 times

□ 4 – 5 times □ 6 – 7 times □ 8 or more times

Question 46

As a university student, how many times has someone injured you **on campus** with a weapon such as a gun, knife or stick?

□ 0 times □ 1 time □ 2 – 3 times

□ 4 – 5 times □ 6 – 7 times □ 8 or more times

Question 47

As a university student, how many times were you in a physical fight **on campus**?

□ 0 times □ 1 time □ 2 – 3 times

□ 4 – 5 times □ 6 – 7 times □ 8 or more times

Question 48

As a university student, how many times were you in a physical fight **on campus** in which you were injured?

□ 0 times □ 1 time □ 2 – 3 times

□ 4 – 5 times □ 6 – 7 times □ 8 or more times

Question 49

Did your boyfriend / girlfriend ever hit, slap or physically hurt you on purpose?

□ no boyfriend / girlfriend □ yes □ no

Question 50

Have you ever been physically forced to have sexual intercourse when you did not want to?

□ yes □ no

Question 51

What is the main effect of a violent behaviour on one's health?

□ no effect □ depression □ back pain

□ liver disease □ others (specify)……..

Question 52

Who do you inform about violent acts, if any occurred?

□ never involved □ a friend □ teacher

□ parent / guardian □ doctor / nurse □ no one

Question 53

Do u usually get information or advice about violence from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

THE FOLLOWING QUESTIONS ASK ABOUT SEXUAL BEHAVIOUR.

Question 54

Have you ever had sexual intercourse?

□ yes □ no

Question 55

How old were you when you had sexual intercourse for the first time?

□ never had sexual intercourse □ 8 years old or younger □ 9 or 10 years old

□ 11 or 12 years old □ 13 or 14 years old □ 15 or 16 years old

□ 17 years or older

Question 56

Within the past year, with how many partners, if any, have you had sex?

□ never had sexual intercourse □ 1 person □ 2 people

□ 3 people □ 4 people □ 5 people

□ 6 or more people

Question 57

Within the past year, with how many partners do you think the typical student at your university has had sex?

□ never had sexual intercourse □ 1 person □ 2 people

□ 3 people □ 4 people □ 5 people

□ 6 or more people

Question 58

Within the past 30 days, if you had sexual intercourse, did you or your partner use a condom?

□ never had sexual intercourse □ yes □ no

Question 59

Do you think the typical student at your university use a condom during sexual intercourse?

□ yes □ no

Question 60

The **last time** you had sexual intercourse, what one method did you or your partner use to **prevent pregnancy**?

□ never had sexual intercourse □ no method used to prevent pregnancy

□ birth control pill □ condoms

□ Depo-Provera (injection) □ withdrawal

□ not sure □ diaphragm / implant

□ other (specify)……..

Question 61

How many times have you or your partner been pregnant?

□ never had sexual intercourse □ never □ 1 time

□ 2 or more times □ not sure

Question 62

Within the past year, if you are sexually active, have you or your partner(s) used emergency contraception ('morning after pill')?

□ not sexually active □ yes

□ no □ don't know

Question 63

Have you ever been taught about AIDS or HIV infection and sexually transmitted infections at school?

□ yes □ no □ not sure

Question 64

Have you ever been tested for HIV-infection or sexually transmitted infection?

□ yes □ no □ not sure

Question 65

What is the main effect of unprotected sex on one's health?

□ no effect □ depression □ HIV / AIDS

□ liver disease □ pregnancy □ others (specify)…….

Question 66

Do you usually get information or advice about sexual behaviour from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

THE FOLLOWING QUESTIONS ASK ABOUT PARTICIPATION IN PHYSICAL ACTIVITY.

Question 67

On how many of the past 2 weeks did you participate in physical activity (such as walking, cycling, dancing or swimming) for at least **20 minutes**?

□ never □ 1 day □ 2 days

□ 3 days □ 4 days □ 5 days

□ 6 days □ 7 days □ 8 or more days

Question 68

On how many of the past 2 weeks do you think the typical student at your university participated in physical activity (such as walking, cycling, dancing or swimming) for at least **20 minutes**?

□ never □ 1 day □ 2 days

□ 3 days □ 4 days □ 5 days

□ 6 days □ 7 days □ 8 or more days

Question 69

During the past 2 weeks, what prevented you from taking part in physical activity?

□ lack of time □ lack of money □ lack of facilities

□ other (specify)……..

Question 70

On an average university day, how many hours do you watch television?

□ do not watch television □ less than 1 hour per day □ 2 hours per day

□ 3 hours per day □ 4 hours per day □ 5 or more hours per day

Question 71

On an average university day, how many hours do you spend playing computer / video games?

□ do not play computer / video games □ less than 1 hour per day □ 2 hours per day

□ 3 hours per day □ 4 hours per day □ 5 or more hours per day

Question 72

What is the main effect of being physically inactive on one's health?

□ no effect □ overweight □ back pain

□ heart disease □ others (specify)…….

Question 73

Do you usually get information or advice about being physically inactive from any of the following sources? **(Select all that apply)**

□ parents / family □ religious centre □ television

□ magazines □ friends □ internet

□ other (specify)……..

THANK YOU FOR TAKING THE TIME AND THOUGHT TO COMPLETE THIS QUESTIONNAIRE. WE APPRECIATE YOUR PARTICIPATION!