

Smoking prevalence, knowledge, attitudes and beliefs about health risks of tobacco smoking among female Psychology 1 students at the University of the Western Cape

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A mini-thesis submitted in partial fulfilment of the requirements for the degree of Masters of Arts, Department of Psychology, Faculty of Community and Health Sciences, University of the Western Cape



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ABSTRACT

Tobacco smoking is the second major cause of preventable deaths in South Africa. The Western Cape has the second highest smoking rates in South Africa and the highest smoking rate among young women. Previous studies indicate that female smokers are more vulnerable to the harmful effects of smoking than males. The aim of this study was to investigate the knowledge, attitudes and beliefs regarding health risks of tobacco use among female undergraduate students at the University of the Western Cape. A sample of 210 female psychology 1 students were recruited and served as research participants. Data was collected using a self-administered questionnaire adapted from instruments measuring knowledge, attitudes and beliefs regarding the health risks of tobacco smoking. Descriptive and Inferential statistics were used to analyse the data. The Health Belief Model was used as the theoretical framework for this study. The results showed a 20% prevalence of smoking among the students. Differences were found among smoking and non-smoking participants regarding their knowledge, attitudes and beliefs about the health risks of tobacco smoking. The results of the study may inform smoking prevention and intervention strategies aimed at female students on campus.

DECLARATION

I declare that *Smoking prevalence, knowledge, attitudes and beliefs about health risks of tobacco smoking among female first year Psychology students at the University of the Western Cape*, is my own work, that it has not been submitted before for any degree or examination in any other tertiary educational institution, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Mandisa Malinga

November 2011

Signature:.....



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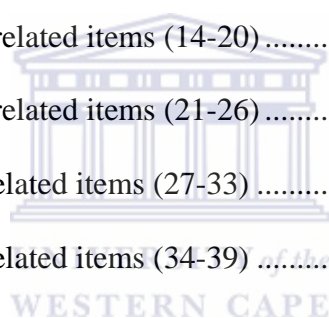
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CHAPTER 1: INTRODUCTION

1.1 Background

Active and passive smoking both contribute to the development of chronic diseases and increased mortality worldwide. Tobacco smoking is responsible for a large burden of disease and is the second major cause of preventable deaths in South Africa and the rest of the world (Groenewald, Norman, Laubscher, van Walbeek, Saloojee, Sitas & Bradshaw, 2007). In 2000, an estimated 4.83 million premature deaths were attributed to smoking, with almost 50% occurring in developing countries (Khan, Husain, Laeeq, Awais, Hussain & Khan, 2005). The 2009 WHO report on women noted that tobacco smoking was responsible for about 6% of the premature female deaths worldwide (WHO, 2010).

The smoking rates among women in South Africa are higher than those in countries such as the USA and thus much importance is placed on the role of health professionals to educate women about the risks of smoking towards their health (Stewart, 2007). In South Africa, 44 400 people die from tobacco related diseases annually, 4% of which are women (HSFSA, 2010). According to the WHO (2010), smoking prevalence among women is currently at 9.4% among adults and 20.1% among adolescents.

The increase in smoking for younger women is alarming as early initiation leads to long-term if not life-long smoking. Early initiation of smoking and constant exposure to tobacco products increases the relative risk factor in the occurrence of serious acute or chronic health disorders (Vasilopoulos, Roupas & Gourgoulis, 2011). Young children are taking up smoking at an earlier age than before, and this increases smoking years which results in an increased risk for smoking related disease (Mashita, Themane, Monyeki & Kemper, 2011). It is stated that the majority of people who suffer morbidity later in life had initiated smoking as

adolescents and young adults and this places much emphasis on the increased risk of early smoking initiation (Jamison, Muula, Siziya, Graham & Rudatsikira, 2010).

It is expected that smoking rates among the youth in South Africa will increase as the tobacco industry targets marketing towards this age group in developing countries (Fernander, Flisher, King, Noubary, Lombard, Price & Chalton, 2006).

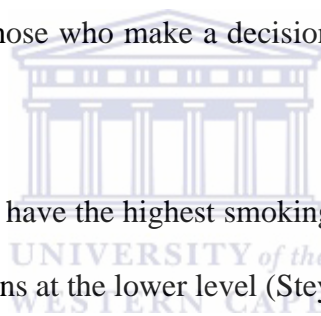
Over 7 million South Africans are current smokers. According to the Heart and Stroke Foundation of South Africa, of the 7 million, 90% started smoking before the age of 18, and 20% started smoking before the age of 10 (Mujuzi, 2010). The Western Cape has one of the highest smoking rates at 28.7% among adult women, and 18.9% among adolescent women, which is more than one quarter of the women in this province (Mujuzi, 2010).

Another area of concern is the prevalence of smoking among pregnant coloured¹ women which is at 46% and results in low birth weight (LBW) babies and complications during pregnancy for both mother and child (HSFSA, 2010).

If the current trends continue, it is expected that smoking will kill over 50% more people than HIV/AIDS by 2015 which is likely to increase to 8.3 million by 2030 (Mathers & Loncar, 2006). According to Jha, Chaloupka, Corrao and Jacobs (2006), this risk is estimated at 10 million deaths by 2030 which is higher than the estimation by Mathers *et al.* (2006). If no action is taken to reduce smoking, deaths among women aged 20 years and over may rise from 1.5 million in 2004 to 2.5 million by 2030 (WHO, 2010). According to the WHO's 2009 report on women, almost 75% of these deaths will occur in developing countries.

¹ The term 'Coloured' was developed during the Apartheid era in South Africa and refers to individuals who are of mixed origin. In order to keep a race-focused and divided society, the term was introduced as one of the four racial categories under the law of the time which included Blacks, Whites, Coloureds and Indians.

This manmade pandemic results in many diseases which shorten and threaten the life of its consumers. Tobacco smoking is now increasingly taken up by young women especially in developing countries. Studies have indicated that women are more biologically vulnerable to the harmful effects of cigarette smoking than men (Langhammer, Johnsen, Gulsvik, Holmen & Bjermer, 2003; Sørheim, Johannessen, Gulsvik, Bakke, Silverman & DeMeo, 2010). These tobacco-related diseases do not only occur in smokers but also those exposed to tobacco polluted air. The harmful effects of second-hand smoke have been recorded since 1928 and have since then resulted in adverse health effects. Evidence about ill health because of second-hand smoke has also accumulated from many studies conducted in different parts of the world (Oberg, Jaakkola, Woodward, Peruga & Pruss-Ustun, 2010). This shows that smoking is not only harmful to those who make a decision to consume the product, but also to those around them.



In South Africa, coloured women have the highest smoking rates among females followed by white females, Africans and Indians at the lower level (Steyn, Yach, Stander & Fourie, 1997). Diseases caused by tobacco smoking include cancer (of the cervix, lungs, bladder, pancreas, oesophagus, kidneys and pharynx), infertility, premature menopause, osteoporosis, cardiovascular disease (CVD), and pulmonary problems (Seltzer, 2003). Women who smoke are at double the risk of developing cervical cancer as compared to non-smoking women. Smoking has adverse reproductive outcomes especially in women and can lead to an increased risk of infertility and premature labour in pregnant women.

Research has indicated that the use of oral contraceptives (OC) along with smoking can increase the risk of heart disease, fertility problems and may lead to ectopic pregnancy and spontaneous abortion (Smith, Green, de Gonzalez, Appleby, Petro, Plummer & Francheschi,

2003). Infants born to mothers who smoke have a lower average birth weight than those born to women who do not smoke (Barret, Anda, Escobedo, Croft, Williamson & Marks, 1994).

With the Western Cape having the highest smoking rates among young women, it is important to note that it also has the highest rate of deaths related to smoking diseases. The rate of coloured women is at 200 out of every 100 000, white females at 104 out of every 100 000, Africans at 36 out of every 100 000, and lastly Indians at 34 out of every 100 000 women dying of smoking related diseases (Steyn, 2007). The highest cancer rate in South Africa has been found among coloured male and female smokers and this is indicative of their smoking rates. The increase in the smoking of younger women raises much concern and needs to be addressed early to reduce the burden of disease attributable to smoking. It is important to reduce the uptake of smoking especially at university level where smoking has been shown to be the trend with more and more young women embracing this practice (Sitas, Urban, Bradshaw, Kielkowski, Bah & Peto, 2004). This educational environment inspires autonomy which means women can make their own decisions regarding their health-related behaviour.

There is a notable disappearance of traditional gender differences, particularly on account of increased prevalence of tobacco use among girls. In most recent studies, no differences have been found in current cigarette smoking among boys and girls (Baska, Warren, Baskova & Jones, 2009).

1.2 Rationale

Smoking among women is increasing in South Africa and particularly among university students (Marks, Steyn & Ratheb, 2001). This study seeks to determine prevalence rates, establish knowledge, attitudes and beliefs of young women regarding the adverse effects of smoking. It is expected that the results will assist and inform effective intervention and

prevention strategies targeted at young women. Infertility, CVD and cancer are only few of the major health problems threatening young women in South Africa. The increasing number of first year female university students taking up smoking makes it important to understand the knowledge, attitudes and beliefs of this group as it influences their behaviour. It is also important to understand students' knowledge of these diseases and the role of tobacco smoking as a key causal factor shared by all these diseases (Yach, Hawkes, Gould, & Hoffman, 2004).

According to Amos (1996), whether a young woman becomes a smoker depends on her knowledge of the harmful effects of the practice, whether she feels that these are personally relevant and whether these effects outweigh the perceived benefits of not smoking.

1.3 Aim and objectives of the study

The aim of the study was to examine students' knowledge, attitudes and beliefs about the smoking-related health risks with the following objectives in mind:

1. To determine the prevalence rate of smoking among female Psychology 1 students.
2. To determine students' knowledge regarding the health risks of tobacco smoking.
3. To establish students' attitudes towards smoking and the health risks involved.
4. To establish students' beliefs about the effects of tobacco smoking.
5. To compare knowledge, attitudes and beliefs of smokers with that of non-smokers.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter consists of a review of studies conducted in the topic of tobacco smoking with their findings and implications. The purpose of a literature review is to give the reader more insight into the topic area which in this case includes knowledge, attitudes and beliefs about the health effects of tobacco smoking, and a review of a few specific diseases related to tobacco smoking. The study focuses primarily on females and therefore the literature reviewed will focus specifically on this group. A summary of the anti-smoking legislation and its significance in the prevalence rates of tobacco smoking is presented. Also included in this chapter is a review of the theoretical framework used to validate, make sense of, and give meaning to the finding of this study.

2.2 Female smoking

Tobacco smoking was not common among women until intense tobacco marketing specifically addressed to women started in the mid 19th century towards the early 20th century. Before this, tobacco smoking was mainly a male practice.

While the epidemic of tobacco use among men is in slow decline in some countries, use among women in developing countries is increasing rapidly (WHO, 2010). Mcdermett, Russel and Dobson (2002) conducted a study in Australia to explore the smoking trends of women and they suggested that in this particular part of the world, women started smoking in the early 20th century and this is consistent with other research conducted in other parts of the world. The tobacco industry has been extensively investing in advertising and marketing campaigns that foster the false idea that tobacco is linked to women's empowerment by suggesting that cigarette smoking symbolizes high fashion, freedom, modern styles and values, independence, desirable body image, glamour, and romance, and it even promises

weight reduction, all these campaigns target girls and women (Minh, Hai, Giang & Kinh, 2010; WHO, 2010).

According to Chan Tan Mui (2000-2001), the burden of tobacco use will increase in the near future where 11% of females who never smoked are susceptible to initiating smoking. It is evident that the social and cultural constraints that have prevented many women from smoking in previous years are weakening in some countries such as South Africa (WHO, 2010). One other country in which these social and cultural constraints may be weakening is Malaysia. Cigarette smoking among young women was traditionally unacceptable by most Malaysian people. For a long time, this has served as a protective factor preventing women from smoking. However, rapid development and social changes that came along with modernization have eroded these protective barriers making it more common to see young urban women smoking in public places (Manaf & Shamsuddin, 2008).

It is estimated that 24% of women in developed countries smoke, and 7% of women in developing countries smoke. In developing countries, these rates are not only increasing but women are starting to smoke at a younger age (WHO, 2010). If current smoking trends among women continue, it is estimated that 20% of women in developing countries will be smokers by the year 2025 (Seltzer, 2003).

The prevalence of smoking particularly among black women has increased markedly. The proportion of black women who smoke is still low; however, the age of smoking initiation appears to be dropping (Yach & Paterson, 1994). In South Africa, black women have become a strategically important market for tobacco companies. Comprising over 39% of the South African population, they constitute a key market for 'fast-moving-consumer-goods' products like cigarettes and snuff. Women once had the lowest rates in smoking but are now increasingly being targeted by tobacco companies and exposed to tobacco marketing aimed at

them (Marks, Steyn, Ratheb, 2001). Marks *et al.* (2001) suggested that within the next decade smoking will be more common among women than men. Health authorities believe that advertising contributes to the initiation and maintenance of smoking habits in adolescents particularly in countries such as South Africa where smoking rates are increasing rapidly (Yach & Paterson, 1994).

The prevalence of smoking among teenage girls is no longer declining and this suggests that future proportions of young female smokers may be higher. According to Lennon, Gallois, Owen and McDermott (2005), the apparent halt in decline of smoking prevalence for younger women suggests that the impact of smoking-related disease is likely to increase for some time into the future. This has implications for women's health for many years to come.

2.3 Knowledge, attitudes and beliefs of tobacco health risks

Even though the health hazards of tobacco use are known, women are becoming increasingly addicted to it (WHO, 2010). Tobacco smoking harms nearly every organ in the body. It causes many adverse reproductive and early childhood effects, including an increased risk for infertility, cervical cancer, preterm delivery, still birth, low birth weight and sudden infant death syndrome. The ASRM Practice Committee (2004) lists conception delay and ovarian follicular depletion (which leads to early menopause as the chemicals in tobacco speeds this process) as other consequences of cigarette smoking among females. Of all these, cervical cancer remains the second leading cause of cancer deaths among women worldwide (Dunne *et al.*, 2007; WHO, 2008). A study by Smith *et al.* (2003) found that tobacco smoking together with the use of oral contraceptive (OC) increases the risk of cervical cancer, and in a different study Franceschi (2005) found a fourfold increase in risk of infertility among female smokers.

In a study by Reddy, Meyer-Weitz and Yach (1996) to determine the smoking status, knowledge of health effects and attitudes towards tobacco control in South Africa, it was found that the Northern Cape had the highest overall smoking rate at 55% followed by the Western Cape at 48% and the North West at 46%. They also found that 87% of smokers understood the harmful effects of smoking. Of these, 58% were aware of cancer as associated with smoking, but only 36% associated heart disease with smoking.

A study by Marteau *et al.* (2002) found that smokers did not believe that smoking causes illness and most of them thought that only those who smoke heavily were likely to get serious illness by smoking. This was completely the opposite in a study on attitudes towards smoking practices of female university students in Riyadh, Saudi Arabia where they found that nearly all of those studied both smoking and non-smoking, were aware of the hazards of smoking and smokers were aware of their increased risk (Felimban, 1993). It is also interesting to note that Merdad, Al-Zahrini and Farsit (2007) found in a study of smoking habits among Saudi female university students that although a high level of awareness and sufficient knowledge about health consequences of smoking was present among these students, it did not affect their smoking behaviour.

A survey of smoking prevalence and attitudes was conducted among 271 medical students at a Pakistani University and it was found that 14.4% were smokers, 3.8% of which were females. A majority of these students were aware of the harmful consequences associated with tobacco smoking towards their health (Khan *et al.*, 2005). Awotedu *et al.* (2006) conducted a study focusing on smoking habits, attitudes towards smoking and knowledge of tertiary students in the Eastern Cape about the health hazards of smoking. It was found that 15% of the total population of smokers was female. Of these, 94% understood that smoking was dangerous to their health and 73% stated a relationship between maternal smoking and

low birth weight (LBW). In the same study, coloured students constituted almost 50% of the population of which 40% were smokers. King *et al.* (2003) conducted a similar study in Cape Town and found that white students had the highest proportion of smokers (36.3%), followed by coloured students (29.7%) and lastly black students (9.7%). This is an interesting finding as most literature indicates that coloured students have the highest smoking rates and here the white students have been found to have the highest smoking rates. This difference could be attributed to the fact that these studies were conducted in two different provinces and therefore factors more than just demographics come into play.

Sieminska, Jassem-Bobowicz, Uherek, Wilanowski, Nowak and Jassem (2009) conducted a study involving medical students to determine their attitudes towards smoking. The results showed that smoking was significantly lower at senior levels than it was at first year levels. However, a similar study in Turkey found that the rate of smokers increased from 22% to 27%, moreover, 32% of non-smokers during the first year of their studies, had become smokers by the end of their studies.

In a study investigating the extent of smoking and knowledge of smoking habits among students in the University of KwaZulu-Natal campus residence, Kamanzi and Adejumo (2005) found that 25.7% of the students were smokers, 43.3% of which were females and this is a relatively high proportion. These students had sufficient knowledge of the harmful effects of tobacco but had little knowledge of the specific diseases caused by tobacco smoking, they also mentioned cancer as the major disease caused by smoking.

To assess the prevalence of tobacco smoking, beliefs about the health benefits of not smoking and the awareness of risks for lung cancer and heart disease among university students across 23 countries, a study was conducted by Steptoe and his colleagues (2002). The results of this study indicated strong negative associations between smoking and beliefs in the importance

of health and not smoking. The awareness of the risk factors was high but there was substantial variation in knowledge about the influence of smoking on heart disease. It was also found that the beliefs of students related to smoking behaviour predicted smoking independently of age, sex and awareness of the specific major health effects of smoking in all the country samples (Step toe, Wardle, Cui, Baban, Glass, Pelzer, Tsuda, & Vinck, 2002).

Worldwide, public awareness of the health risks of smoking have increased considerably especially among adolescents and this was reflected in declining smoking rates in numerous developed countries (Mashita *et al.*, 2011). Contrary to this, smoking among the youth continues to rise in developing countries.

Weinstein (1989, 1998) speaks of optimistic bias which he refers to as people's tendency to view the risks of various behaviours as lower for them than for others engaging in similar behaviours and this is evident in many smokers who believe that their risk for suffering from smoking-related disease is lower for them than it is for other smokers. Research has indicated that most smokers discount the increased personal risk they face by continuing smoking and this indicates high levels of optimistic bias (Ayanian & Cleary, 1999). This implies that even if they know that smoking is harmful, they tend to underestimate their own risk of suffering from the harmful health effects of smoking.

A study by Arnette (2000) examining optimistic bias among adolescents and adults found that majority of adolescent and adult smokers and non-smokers agreed that smoking is addictive and harmful. However, for themselves, adolescent and adult smokers were more likely than non-smokers to doubt that they would die from smoking even if they smoked for 30-40 years. Furthermore, majority of adolescent and adult smokers believed that they could smoke for a few more years and then quit if they wished to. Romer and Jamieson (2001) suggested that an optimistic bias regarding smoking risks appears to be held by both

adolescent and adult smokers and this could explain why so many smokers are aware of the risks of smoking but will not quit as they do not appreciate their own risk as compared to other smokers. It is stated that the misperception of smoking related risks among smokers is partly due to their mistaken belief that they will be able to stop smoking before health problems eventuate and this indicates that smokers underestimate the addictive properties of tobacco smoking (Cummings, Hyland, Giovino, Hastrup, Bauer, Bansal, 2004).

Looking at differences between smokers and non-smokers, a study in Australia found that while smokers could cite enjoyable aspects of smoking and benefits to themselves, non-smokers were not convinced of these enjoyable aspects at all (Lennon *et al.*, 2005). The same study found that while smokers talked about the physical enjoyment, stress relief, anxiety management and the social benefits of fitting in and having a conversation starter, non-smokers saw these reasons for smoking as trivial, immature and false. A similar study also found that smokers and non-smokers differ in terms of attitudes towards smoking and restrictions on smoking in public places (Poland, Cohen, Ashley, Adlaf, Ferrence, Pederson, Bull & Raphael, 2000).

Baker, Brandon and Chassin (2004) stated that adolescents form beliefs and attitudes about the effects of smoking before they experiment with it and these attitudes and beliefs prospectively predict both onset and escalation of smoking. Moreover, many adolescent smokers do not believe that there are health risks in the first few years and tend to believe that they will stop smoking before damage is done. This indicates the importance of attitudes and beliefs in the initiation, maintenance and escalation of smoking practices.

2.4 Smoking Health risks

Smoking and Cancer

When calling attention to public health problems, we must not misuse the word "epidemic." But there is no better word to describe the 600-percent increase since 1950 in women's death rates for lung cancer, a disease primarily caused by cigarette smoking. Clearly, smoking-related disease among women is a full-blown epidemic. – David Satcher, MD, PhD

The World Health Organization estimated that new cancer cases are expected to rise by 50% over the next 20 years resulting in an increase in cancer-related burden of disease. Of these, 56% of new cases and 63% of cancer deaths are estimated to occur in developing countries. The South African Medical Research Council listed cancer as the fourth leading cause of death and eighth major contributor to disability adjusted life years (DALYs) in South Africa (Bello, Fadahun, Kielkowski & Nelson, 2011).

Slight gender differences are still observable in the smoking prevalence rates, partly due to the fact that there was a delay in uptake of smoking among women. According to Bello, Fadahun, Kielkowski, and Nelson (2011), this uptake usually lagged behind that of men by approximately 25 years but this has changed and has been reflected in the increase in lung cancer mortality rates seen in women, while the rates in men have levelled off and are decreasing in many parts of the world.

According to Norman, Mqoqi and Sitas (2006), smoking-related cancers of the oesophagus, lung, larynx, stomach and cervix remain the leading cancer types among black South Africans. Lung cancer is the leading cause of cancer-related deaths in South Africa as a result of cigarette smoking. Smoking causes about 90% of lung cancer deaths in men and almost

80% in women (Martin, 2004; Seltzer, 2003). Compared to non-smokers, women who smoke are about 13 times more likely to develop lung cancer (Norman, Mqoqi & Sitas, 2006).

The age at which people start to use tobacco regularly is of great importance. It was reported in a study by Kuper, Boffetta and Adami (2002) that smokers who started smoking before the age of 14 had a fourfold risk of lung cancer than smokers who started at the age of 25 or later. It has also been suggested by these authors that the risk of cancer varies by the type of cigarettes and tobacco used.

Marteau, Hankins and Collins (2002) studied the perceptions of the risk of cervical cancer and attitudes towards cervical screening in which they compared smokers and non-smokers. They found that smokers did not believe that they were at greater risk of cervical cancer than non-smokers. These smokers seem unaware of their increased risk, as smoking actually doubles this risk for female smokers. Smokers were found to be more aware of the common health risks such as lung cancer and circulatory problems. A study of smoking habits and attitudes towards smoking among university students in Jordan found that the prevalence rate of smoking was 6.5% for females. The study also found that non-smokers had a more negative attitude towards smoking and were aware of the adverse effects of smoking (Haddad & Malak, 2002).

Castelao *et al.* (2001) conducted a study on gender and smoking-related bladder cancer risk and found that the risk for bladder and lung cancer was higher among women than among men and this confirms previous research suggesting that women are more biologically vulnerable to the effects of smoking than men. It was also found by Augood, Duckitt and Templeton (1998) that there is a higher risk of infertility among female smokers of reproductive age than among non-smoking females.

In South Africa, cervical cancer was found to be one of the most common type of cancer among females and the second leading cancer after breast cancer in a study conducted in 1999. The cervical cancer rates are expected to exceed the breast cancer rates as the leading cause of cancer deaths among women (American Cancer Society, 2010). Hoque and Hoque (2009) conducted a study to assess the knowledge of the risk factors associated with cervical cancer among female undergraduate students at Mangosuthu University of Technology. The results of this study indicated that 26 of 167 participants who had heard of cervical cancer did not know any of its risk factors, only 1 knew all the risk factors, and only 18% knew that smoking was a risk factor.

Tobacco smoking has been found to be the leading factor for most cancers. An association has also been found between smoking and oral and laryngeal cancer in sub-Saharan Africa (Pacella-Norman, Urban, Sitas, Carrara, Sur, Hale, *et al.*, 2002). According to Sadri and Mahjub (2007), smokers are six times more likely than non-smokers to develop oral cancer and much evidence have shown that the use of tobacco in all forms is the primary risk factor for oral cancer.

Among the many cancers caused by tobacco smoking is oesophageal cancer which is the eighth most common cancer in the world with a high incidence in Africa. Areas with lower tobacco consumption display low frequencies of oesophageal cancer, emphasising the role played by tobacco consumption as a causal factor for cancer (Hendricks & Parker, 2002).

Smoking and Cardiovascular Disease (CVD)

Tobacco smoking has long been established as a major preventable risk factor for CVD. There are several cardiovascular diseases that are associated with smoking and these include heart disease, stroke and peripheral vascular disease (Seltzer, 2003). It has been estimated that about 13% of CVD deaths are as a result of smoking and that deaths related to CVD

would increase to 17% by 2010 (Mayosi *et al.*, 2009). According to the Systemic Coronary Risk Evaluation (SCORE), the 10-year fatal cardiovascular disease risk is doubled for smokers compared to non-smokers, and the risk appears to be greater for younger smokers (Erhardt, 2009).

Stein (2008) and his colleagues conducted a study on the effects of tobacco smoking on cancer and CVD among urban black South Africans and found that risks were higher among current smokers than former smokers and the smoking-related risks increased with both the number of years smoked and the amounts smoked daily and this is consistent with the findings in a study conducted by Erhardt (2009). Women who smoke greatly increase their risk of heart disease and stroke (WHO, 2010). Studies suggest that smoking cigarettes increases the risk of heart disease even more in younger women who are also taking birth control pills than in older women (American Cancer Association, 2010; WHO, 2010).

Smoking and reproductive health

Smoking harms many aspects and every phase of reproduction. Despite having sufficient knowledge of the adverse health effects of smoking during pregnancy, many pregnant women and girls continue to smoke. It is estimated that only 18-25% quit smoking once they become pregnant (Martin, 2004). Other reproductive issues caused by smoking in women include infertility, difficulty conceiving, and problems during pregnancy for both mother and child such as pregnancy complications, premature birth, low-birth-weight infants, stillbirth, and infant death. A study conducted by Quach and Librach (2008) found that students knew of reproductive issues such as infertility but they did not know the causes nor did they associate smoking with such consequences. A study conducted in South Africa reported that 39% of pregnant women smoked and considerable variation was noted between racial groups

(Stewart, 2007). This study also confirmed the findings of many studies which reported an earlier onset of menopause in female smokers than in non-smokers.

Smoking and Osteoporosis

Smoking is one of the leading causes of osteoporosis among women. Osteoporosis is a systemic disease causing bones to become porous and more susceptible to fractures of especially the spine, hip and wrist as a result of a reduction in bone mineral density (Seltzer, 2003). Approximately one in three women, and one in five men, potentially 4-6 million South Africans will get this disease and these rates are accelerated by the increase in smoking uptake by younger women (Eustice, 2006).

A study conducted by Anderson and colleagues on the knowledge of young women of the risk factors for osteoporosis found that females were aware of smoking as a risk factor but they lacked specific in-depth knowledge regarding this risk factor (Anderson, Chad & Spink, 2005). Kasper, Peterson and Allegrante (2001) conducted a similar study involving college women and they found that one third of college women were lacking knowledge concerning the risk factors for osteoporosis and the majority believed that it was less serious than other common causes of mortality among women. In terms of cigarette smoking, 86% of these young women knew that smoking was harmful to their health in general, but they did not know much about the link between smoking and osteoporosis. It is quite clear from these two studies that there are variations concerning the knowledge of young women of smoking as a risk factor for osteoporosis.

Smoking and Chronic obstructive pulmonary disease (COPD)

Cigarette smoking is a major cause of COPD worldwide, causing an estimated 80-90% of deaths in patients presenting with COPD (Butler, 2009). Female smokers are at an increased

risk of developing this fatal disease (WHO, 2010). Although more common in males, morbidity in females is increasing in many countries including South Africa due to the increasing number of women who smoke (Butler, 2009). According to the American Cancer Society's second Cancer Prevention Study, female smokers were nearly 13 times more likely to die from COPD than women who had never smoked (Martin, 2004). The various types of COPD associated with smoking are chronic bronchitis and emphysema. Tobacco smoking damages airways and alveoli of the lung which eventually leads to COPD and generally, smokers' lungs decline faster than that of non-smokers (WHO, 2010).

2.5 The anti-smoking legislation and its impact on smoking prevalence rates

The first Tobacco Control Act in South Africa was passed in 1993. Smoke free laws were aimed at controlling smoking behaviour in order to reduce tobacco-related death and disease rates, improve the health of people and help smokers reduce or quit smoking (Asare, 2009; WHO, 2009). Since then, the anti-tobacco legislations have become stricter and these measures have been introduced through amendments to the Act. The Tobacco Products Control Act bans the advertising and promotion of tobacco products, prohibits event sponsorship by tobacco companies and the free distribution of tobacco products, it also limits smoking in public places including the workplace and controls for maximum Tar yield in tobacco products and an increase in excise tobacco taxes (Blecher, 2010; White, 2001).

According to Ayo-Yusuf and Szymanski (2010), the tobacco control efforts in South Africa have achieved some degree of success by reducing smoking prevalence in 1993 from 51.4% among men and 12.9% among women to 43.8% among men and 11.7% among women respectively in 2000. Dr. Saloojee, the Executive Director of the National Council Against Smoking in South Africa (2009) has indicated that tobacco consumption rates had fallen by a third in the past decade from 32% in 1995 to 22% in 2006 due to the stringent smoking

regulations. Although tobacco legislations have reduced the overall prevalence of smoking, it is still increasing among some racial groups especially the coloured and black populations (Ayo-Yusuf & Szymanski, 2010).

Almost 10 years after the first anti-smoking efforts in the USA, Sherry Emery investigated the acceptance of anti-smoking advertisements by adolescents. It was shown that an average exposure to at least one anti-smoking advertisement during the preceding four months assisted in comprehending the negative effects of smoking and reduced the intention of smoking in the future (Vasilopoulos, Roupas & Gourgoulis, 2011).

Coupled with legislation have been the consistent and significant increases in taxes and the retail price of cigarettes. According to Van Walbeek (1996), these increases have been the reason why tobacco consumption and smoking prevalence has fallen so dramatically. To confirm this, a 10% increase in the real price of cigarettes in South Africa caused a decrease in consumption of 6-8% (Peer, Bradshaw, Laubscher & Steyn, 2009). There has been growing evidence that anti-smoking policies have resulted in a decrease in tobacco consumption not only in South Africa but also worldwide (LaForge, Velicer, Levesque, Fava, Hill, Schofield *et al.*, 1998).

Figures from the South African National Council Against Smoking indicated that legal sales of commercial cigarettes have fallen every year since peaking at 40 billion in 1990, and between 1994-1999 the real excise taxes on cigarettes went up by 149% (Pacella-Norman *et al.*, 2002).

Despite the achievements of these legislations to reduce tobacco consumption, smoking rates in South Africa are still higher than those in most African countries (Peer *et al.*, 2009). Research has indicated that the legitimate sales of cigarettes in South Africa have dropped by around 40% since the introduction of the Tobacco Products Control Act in 1993, indicating

that the illicit cigarette trade in South Africa has not undermined the tobacco control policy of this country (Blecher, 2010).

Research has also revealed that young people, low-income earners, black South Africans and males have experienced the largest reductions in cigarette smoking (van Walbeek, 1996). It is surprising that smoking prevalence among black South Africans has decreased despite a heavy tobacco advertising campaign. However, research has also shown that these rates have increased for women (Gallois, Owen & McDermott, 2005).

It is suggested by Murphy-Hoefer, Adler and Higbee (2004) that anti-tobacco efforts directed at young adults would be more successful if public health educators had a better understanding of how this age group perceives the risks of smoking and that risk perceptions may be influenced by beliefs about what constitutes regular smoking.

2.6 Theoretical Framework

The theoretical framework for this study is the Health Belief Model (HBM). The HBM will be used to understand, give meaning to, and validate the findings of the study. This model was developed in the 1950's by a group of social psychologists to explain widespread failure of people to participate in programs to prevent disease (Rosenstock & Strecher, 1997). The HBM can be used to examine the relationship between people's beliefs and their health behaviours. For the current study this means that the relationship will be examined between students' knowledge, attitudes and beliefs of tobacco-related health risks, and based on the findings, the smoking behaviours of students.

The ideas of a health belief model were developed by Becker (1974) who expanded the work of Rosenstock. According to the model, health belief is based on the idea that an individual must be willing to participate in health promoting activities and believe that being healthy is highly beneficial (Rosenstock, Strecher & Becker, 1988). This then makes it possible to

predict whether an individual would engage in positive health behaviours by determining the individuals' knowledge, attitudes and beliefs about a health risk such as smoking. The most influential factor within Becker's model that might prevent an individual from engaging in healthy behaviours was the perceived barriers such as individual ability and social constraints for example, social norms and expectations (Bastable, 1997).

Janz and Becker (1984) explained the following constructs of the HBM:

Perceived susceptibility: an individual's subjective perception of the risk of developing a health condition. In the case of smoking, this would be the individual's subjective perception of their risk of developing conditions such as cancer, a stroke and other tobacco-related diseases.

Perceived severity: an individual's perception of the severity or seriousness of the consequences of developing a health-related condition. If an individual perceives the consequences of smoking and developing cancer as severe, their behaviour is likely to change accordingly.

Perceived benefits: If an individual finds it beneficial to change their behaviour, then they are likely to do so. If stopping smoking is likely to be beneficial in any way (such as preventing one from developing diseases or slowing down further damage to one's body), there is a likelihood that an individual will stop smoking in the light of these benefits.

Perceived barriers: These are the negative aspects of a particular health action and may be an impediment to undertaking recommended behaviour.

Modifications of the Health belief model have also included 'cues to action' and 'self-efficacy' as constructs of the HBM (Champion & Skinner, 2008). According to Hochbaum (1958), readiness to take an action such as stopping smoking could only be potentiated by

other factors or cues such as bodily events or environmental events. Such bodily events would include visible physical ailments due to the smoking and also media publicity.

Rosenstock, Strecher and Becker (1988) suggested that self-efficacy be added to the HBM as a separate construct. Self-efficacy was defined by Bandura (1997) as the conviction that one can successfully execute required behaviours in order to produce desired outcomes. For smoking behaviour, this means that an individual must perceive themselves as able to successfully stop smoking in order produce the outcomes which include the slowing down of further damage to the body.

In summary, this theory posits that if a person has a desire to avoid any harm or adverse health outcomes and they believe that a specific health action such as quitting smoking will prevent illness, then they will adopt a positive behaviour and stop smoking due to perceived benefits of doing so. It is thus important to encourage smokers to acquire some level of risk perception associated with their smoking behaviour in order to motivate smoking cessation (Ayanian & Cleary, 1999; Szklo & Coutinho, 2009). Figure 1 presents a summary of this explanation.

Accordingly, it is important to understand the knowledge, attitudes and beliefs of the affected population in order to help in raising awareness and increasing knowledge about the effects of smoking on the individual's health. It is after all knowledge, attitudes and beliefs that influence behaviour (Maurice, Kahende, Trosclar, Dube, & Husten, 2008). It is also stated by Janz and Becker (1984) that diverse demographic, socio-psychological and structural variables might affect an individual's perception and thus indirectly influence their health-related behaviour. Stated by Lennon *et al.* (2005) is that non-smoking girls must first decide that smoking is no use to them before they can reject it and this is highly influenced by their attitude towards and beliefs about tobacco smoking.

The HBM will help give meaning to the findings of this study. However, to understand people's health behaviours, one has to understand what or how much people know about such behaviour and its effects, what attitudes people have associated with such effects and what they believe to be true regarding such effects. This study seeks to determine the perceptions of female students of the harmful effects of smoking and their perception of their risk through the investigation of their knowledge, attitudes and beliefs towards tobacco smoking.

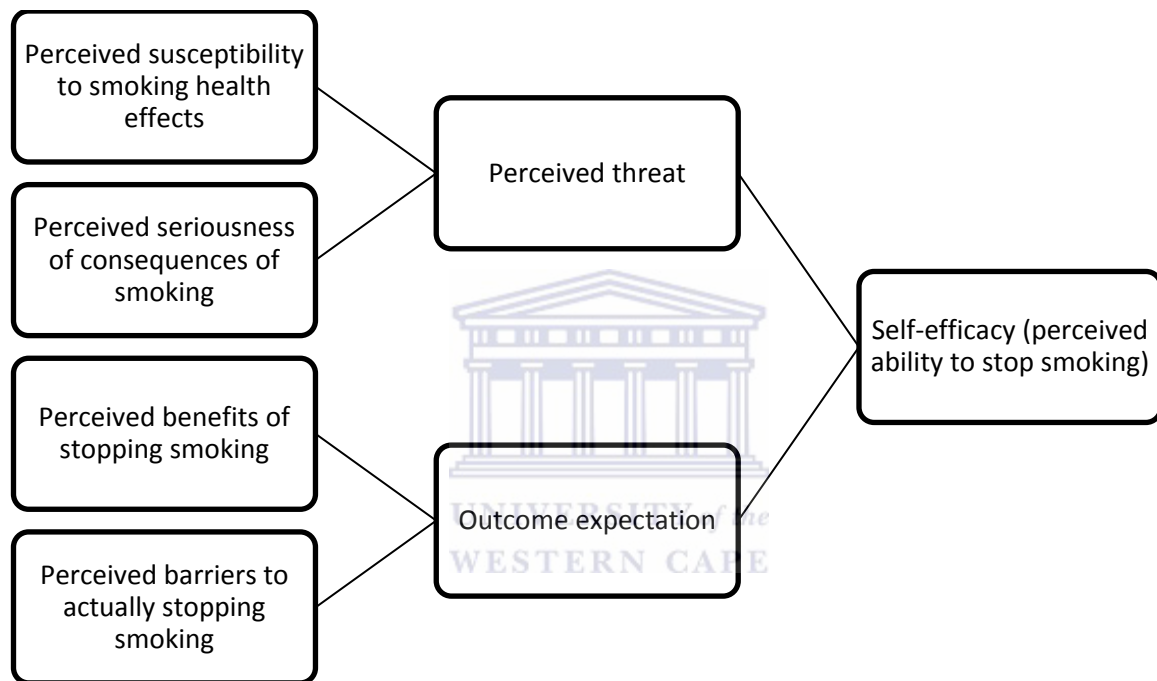


Figure 1: Health Belief Model adapted from Becker (1974)

CHAPTER 3: METHODOLOGY

3.1 Research design

Tobacco smoking among university students has been reported to be increasing especially among female students. To understand and address this issue the current study set out to examine the knowledge, attitudes and beliefs of female students regarding the health effects of smoking using an exploratory research design. Specifically, a cross-sectional survey design was used in order to establish knowledge, attitudes, and beliefs of female students about the health effects of smoking. A cross-sectional study involves the collection of data at one point in time from a sample selected to represent a larger population (Durrheim, 2006). The design permitted the collection of data regarding prevalence of tobacco smoking and the knowledge, attitudes and beliefs of female first year Psychology students about the health risks of tobacco smoking. A self-administered questionnaire was used for data collection. The questionnaire was structured and was constructed in English which is the language of instruction at the university and the language used by most students to communicate. Questions were framed in a way that is easy for the participants to understand and difficult technical terms were avoided.

3.2 Sample

The University of the Western Cape has both undergraduate and post-graduate faculties and admits both male and female students. The target population in this study was female Psychology 1 students. Psychology 1 as a subject is taken by students from different faculties either as a major or an elective. The rationale behind choosing first year female students for this study was that women become regular smokers between the ages of 18-25 and the majority of this age group is found at higher education institutions. Convenience sampling was used to recruit students. Convenience sampling involved accessing female students in the Psychology 1 class who were available and interested in participating in the study. The study

was introduced and explained to all female attendees during the lecture and those who indicated an interest with respect to voluntary participation were handed the questionnaires to complete. The overall number that took part in this study was 210 female students and these were the ones who were available and interested in taking part in the study. This number was adequate for this study as the study initially aimed to obtain responses from 200 students. It is important to note that such a sampling method might have implications for the general population therefore one should be careful not to generalize such findings but rather use the findings to understand the specific group in relation to knowledge, attitudes and beliefs regarding health-related smoking risk.

3.3 Procedure

After permission was sought from the Senate Higher Degrees Committee of the University of the Western Cape, Psychology 1 lecturers were approached for permission to conduct the study during two lectures. Non-probability (convenience) sampling was used to select the participants of the study. According to Durrheim and Painter (2006), non-probability sampling is the kind of sampling where the selection of participants is not determined by the statistical principle of randomness. Data collection took place at the beginning of the lecture and self-administered questionnaires were handed to the students who volunteered to participate. The researcher explained the study, its purpose and ethical implications to the students and informed consent forms were handed to the students to sign and were collected along with the questionnaires once completed. Descriptive and Inferential statistics were used to analyse the data, followed by the writing up of the results.

3.4 Data collection tool

A structured survey questionnaire was used to collect the data for this study. The questionnaire was based on an instrument used by Awotodu *et al.* (2006) in a similar study

involving a South African sample (Appendix A). The self-administered questionnaire consisted of closed-ended questions with three response options which were agree, not sure, and disagree. The questionnaire contained two sections and these were: Section 1: Demographic information, Section 2: Items regarding the knowledge, attitudes and beliefs about the effects of smoking. Section 2 was further divided into three sections with I for knowledge, II for attitudes, and III for beliefs. Each section contained 13 items and the total number of items was 39. The questions and structuring of the questionnaire was informed by literature of similar studies conducted on this topic.

The content validity of the questionnaire was established by using literature and similar studies conducted within the South African context and through consultation with the research supervisor. According to Durrheim and Painter (2006), in order to establish measurement validity, the researcher must determine whether the instrument provides a good operational definition of the construct, and whether the instrument is suited for the purposes for which it will be used. This was established by means of a literature review of studies that explored the same constructs as the current study. The questionnaire was reviewed by the researcher supervisor and then piloted on a sample of 40 students from the targeted population. The instrument was reviewed using feedback from the pilot sample. According to Van der Riet and Durrheim (2006), pilot studies help to identify potential problems with the design, particularly the research instrument of a study. Reliability was established by giving participants the opportunity to comment on the clarity of the questions and they were requested to make suggestions which were then effected into the refined questionnaire. Each item was carefully phrased to avoid ambiguity within the instrument. The questionnaire was found to be comprehensible and relevant to the population. Very few items were missing in the data and this indicates that the items were simple enough for students to understand.

3.5 Data analysis

Of the 240 questionnaires which were distributed, only 218 were collected reflecting a 91% response rate. A process of cleaning up of the data took place to validate the questionnaires collected. The questionnaires were checked for completeness and eight were found to have missing pages and unsigned consent forms which meant that only 210 were available for analysis. Questionnaires with missing pages and unsigned consent forms were excluded from the analysis.

The data was then coded and the demographic data that had yes or no questions were coded into 1 for 'yes' and 2 for 'no', and similarly the different provinces and racial groups were coded into numbers starting from 1 to 5 or 9 respectively. The item responses were coded from 1 for 'agree', 2 for 'not sure' and 3 for 'disagree'.

Each questionnaire was given an identification number and then captured and analysed using the Statistical Package for Social Sciences (SPSS-18). The identification number was used to verify the accuracy of the data capturing through a random check of every 15th questionnaire captured. Frequency tables were generated for all variables. These were used for descriptive statistics which were based on frequencies and percentages. Descriptive statistics were used to describe the characteristics of the sample in terms of the variables which included age, home province, residence and race. Frequency distributions were also used to determine the prevalence of smoking among the sample. Frequency distributions were generated for each item to allow the investigation of responses for each item. Inferential statistics were used to reach conclusions and make inferences about the population that extended beyond the immediate data alone. Inferential statistics (chi-square) were also used to compare smokers and non-smokers with regard to knowledge, attitudes and beliefs towards the health risks associated with tobacco smoking. According to Field (2009; Hair, Black, Babin & Anderson,

2010), the chi-square statistic is appropriate for use when the level of measurement of the data is categorical. Tables and graphs were prepared using Microsoft Office Excel.

3.6 Ethical considerations

Ethical clearance was sought from the Senate Higher Degrees Committee of the University of the Western Cape. Permission was also sought from two of the Psychology 1 lecturers to use part of their class time for data collection. The purpose of the study was explained to the students before they signed informed consent forms which were separated from the questionnaire during data entry. It was explained to them that their confidentiality was assured and that they had the right to withdraw participation at any time without any negative consequences. Participants were also assured of anonymity as they were not required to give any identifying information and only signatures appeared on the consent forms. There was no known harm or risk to participants and it was explained to them that should any student seek emotional support, they could consult the Student Support Services on campus which offers services to students at no cost. Participants were made aware that they had the right to information about the final report.

CHAPTER 4: RESULTS

4.1 Demographic characteristics of the participants

A total number of 210 questionnaires were used in the analysis of data. The following section illustrates the results of the demographic variables gathered from the sample ($n = 210$). These variables include the age of participants, their race, home province, and current residence. These variables were chosen because of their recurrence in literature that investigates the smoking among students and these variables are used for comparing students who smoke with non-smoking students.

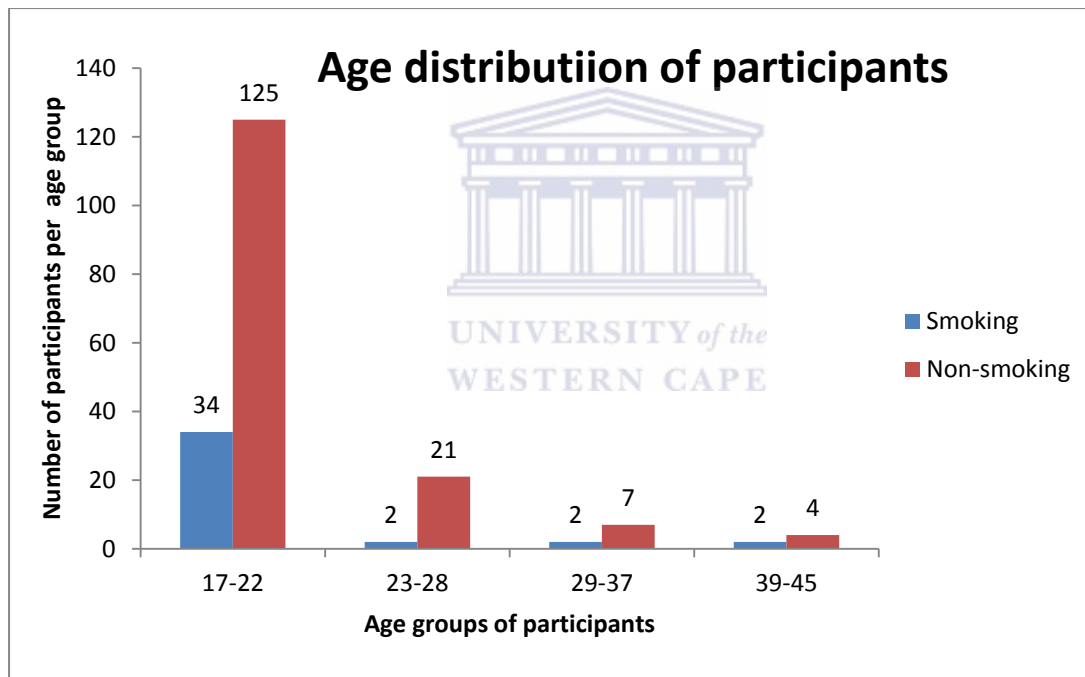


Figure 2: Distribution of participants by age

The ages were grouped into four categories for both smoking and non-smoking participants. This graph indicates that 85% of the smoking and 80% of the non-smoking participants were between the ages of 17-22, 5% of the smoking and 13.3% of the non-smoking participants were between the ages 23-28, 5% of the smoking and 4.5% of the non-smoking participants were between the ages of 29-37, and finally, 5% of the smoking and 2.5% of the non-

smoking participants were between the ages of 39-45. The mean age of participants was 21, minimum age was 17 and maximum age was 45.

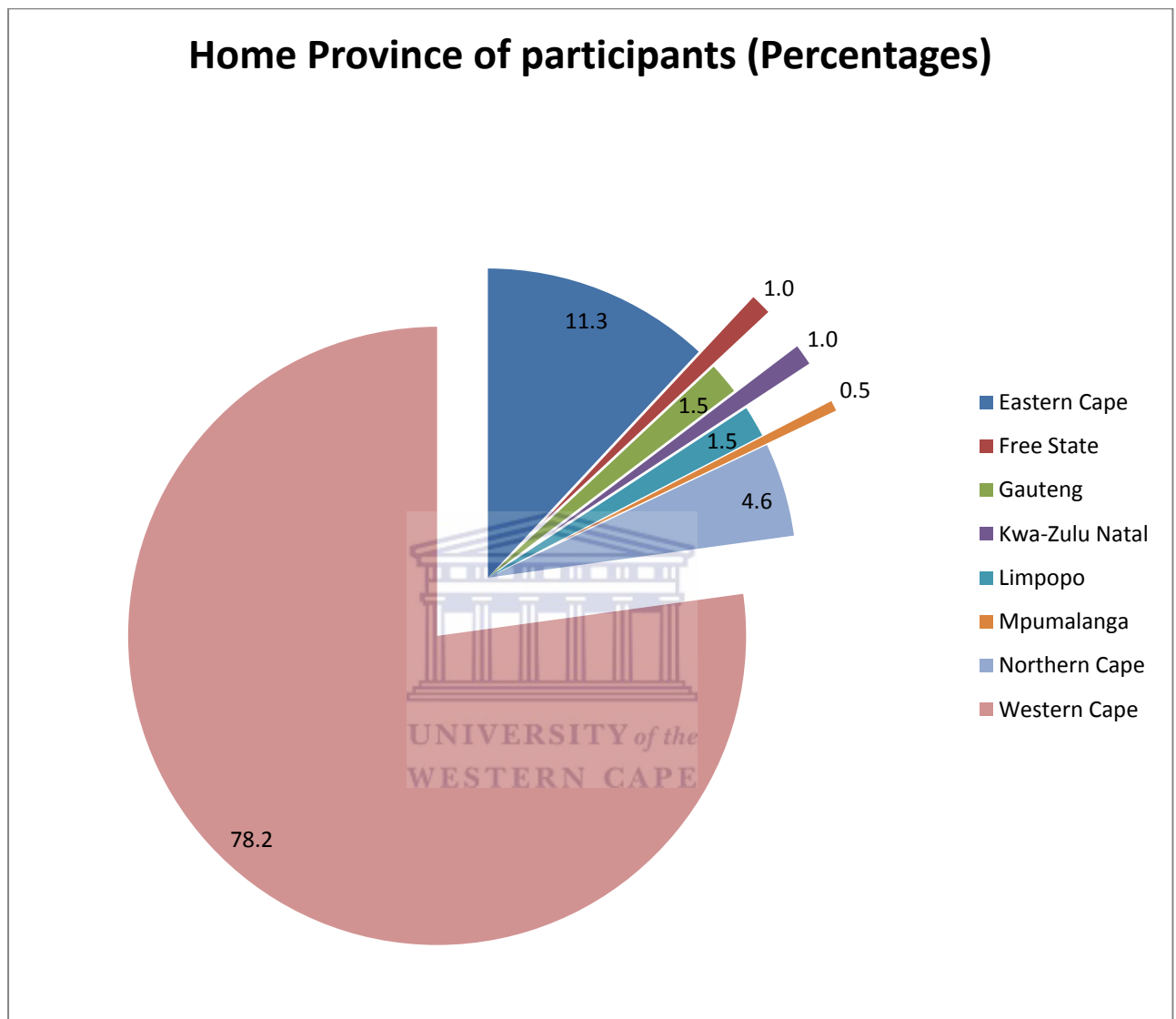


Figure 3: Home province of participants

Of the 210 participants, 195 were South African citizens. All South African citizens were asked to indicate their home province and as indicated in figure 3, 78.2% were from the Western Cape, 11.3% from the Eastern Cape, 4.6% from the Northern Cape, 1.5% from Gauteng, 1.5% from Limpopo, 1% from Free State, 1% from Kwa-Zulu Natal, and .5% were from Mpumalanga.

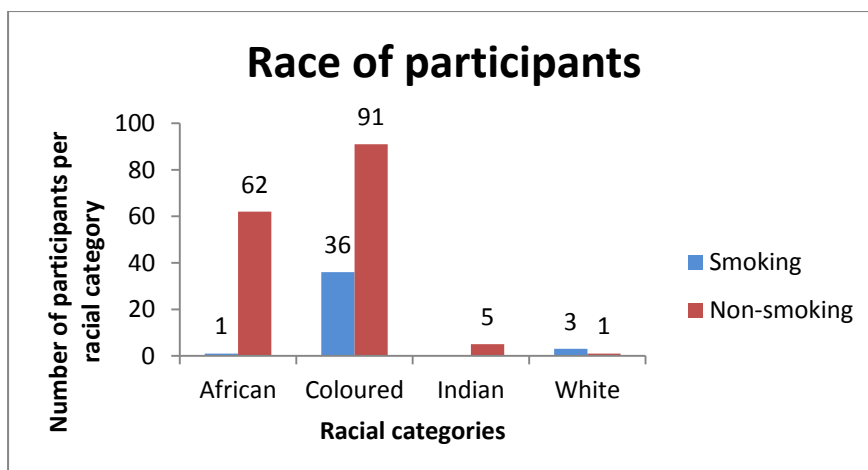


Figure 4: Race of participants

Figure 4 shows that 90% of the smoking and 57% of the non-smoking participants indicated that they were coloured, 2.5% of the smoking and 40% of the non-smoking participants were African, 3.1% of were Indian all of whom indicated that they were non-smokers, and finally, 7.5% of the smoking and 0.6% of the non-smoking participants were white.

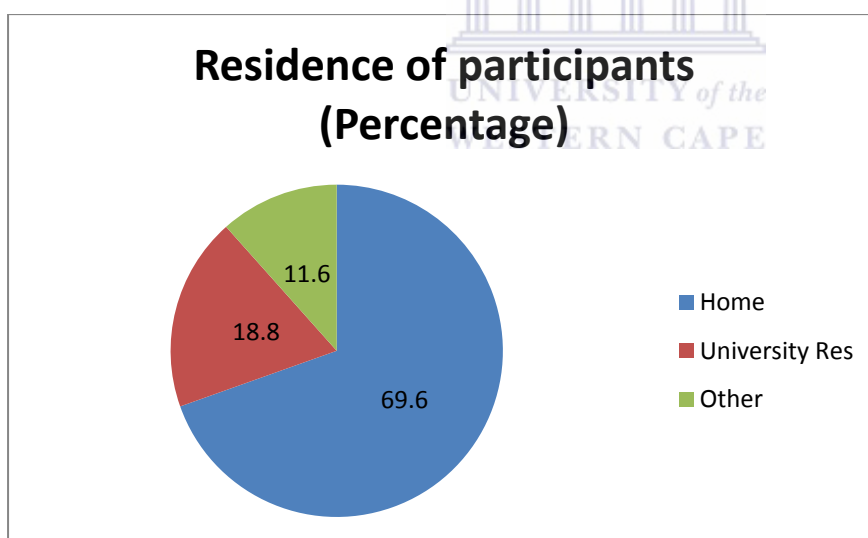


Figure 5: Current residence of participants

It is indicated that 69.6% of the participants currently reside at home, 18.8% stay in the University residence, and 11.6% ticked 'other' which included private accommodation, rental apartments etc.

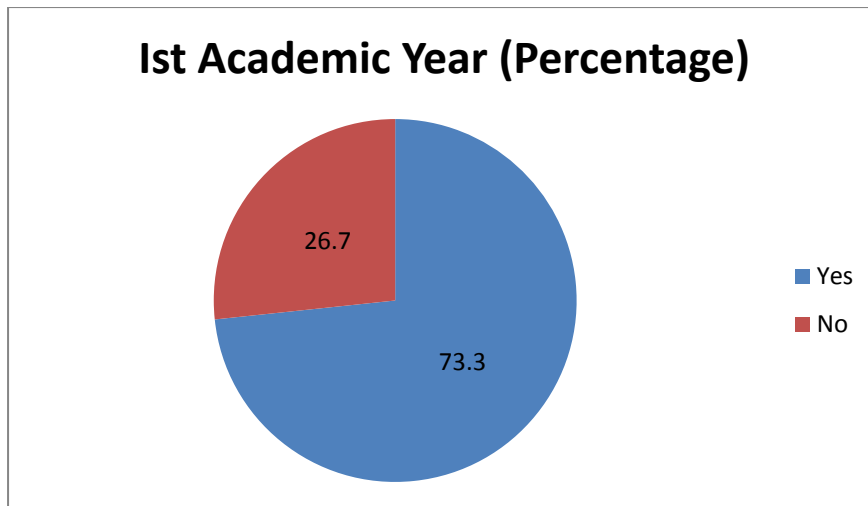


Figure 6: Academic year of participants

The above figure indicates whether participants were registered as first year students or not. Shown here is that 73.3% of the participants were first year students while 26.7% of the participants were either second or third year students taking Psychology 1.

4.2 Smoking prevalence

The results indicate that 20% of the students indicated that they smoked, while 80% were non-smokers.

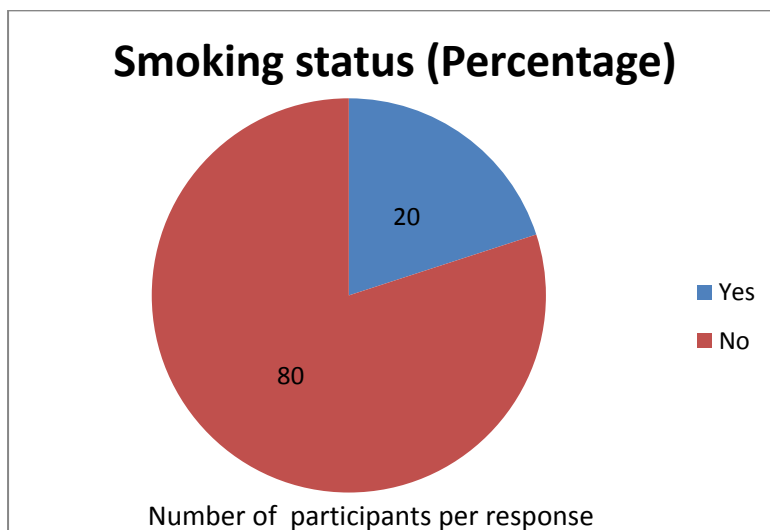


Figure 7: Smoking prevalence among participants

4.3 Descriptive statistics of item responses

Knowledge of tobacco health risks

This section contains the results from the different items that looked at the knowledge of students about the health effects of smoking.

Table 1: Summary of knowledge related responses

Variables	Agree	Not Sure	Disagree
Smoking does not affect how long a person lives	48	16	140
Smoking is addictive	168	11	28
Smokers are as healthy as non-smokers	15	14	173
Smoking increases the risk of cancer	188	8	12
Smokers have a lowered risk of heart disease	20	40	148
Stopping smoking results in improved lung functioning	125	55	26
Women are less likely to suffer from the effects of smoking than men	21	81	108
Smoking is harmful to one's reproductive health	156	44	9
Smokers generally have stronger bones than non-smokers	9	49	151
Smokers get easily tired because of decreased lung functioning	175	24	9
Stopping smoking will slow down further damage to one's body	143	29	36
Smokers and non-smokers have an equal risk of cervical cancer	56	92	61
Smoking increases one's chances of suffering from bronchitis	143	47	19

Above is a summary of the responses related to the knowledge of participants of the health effects of smoking. The following figures represent the responses given by participants regarding their knowledge.

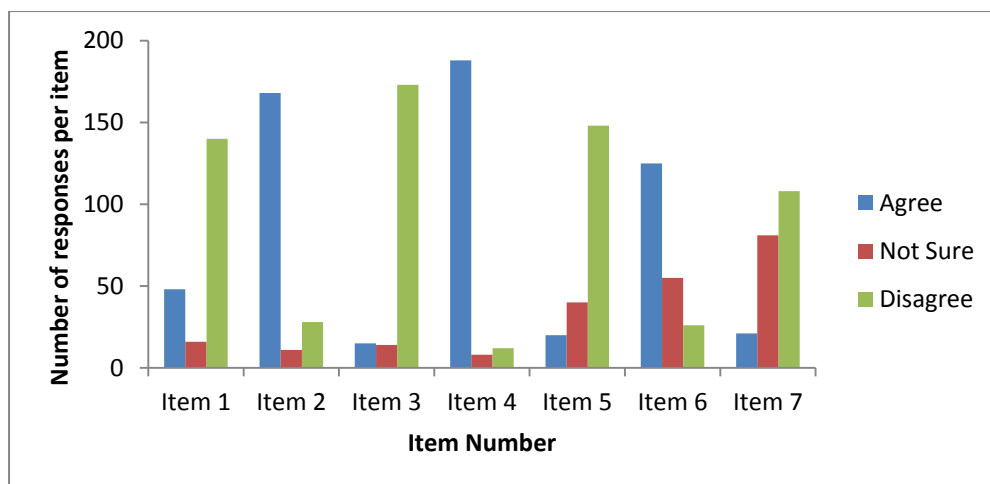


Figure 8: Responses to knowledge-related items (1-7)

The data showed that 68.6% of the participants believed that smoking does in fact affect how long a person lives. Most of the participants agreed that smoking is addictive (81.2%), with 85.6% indicating that smokers are not as healthy as non-smokers. Almost all (90.4%) recognized that smoking increases one's risk of cancer, and 70.7% indicated that smokers do not have a lowered risk of heart disease. Over half (60.7) of the participants agreed that stopping smoking results in improved lung functioning. Just over half (51.4%) of the participants were aware of women's increased vulnerability than that of men with 38.6% who were not sure of this and this indicates that there are variations in knowledge regarding this item. For these 7 items, there seem to be sufficient knowledge of the effects of smoking on the female body.

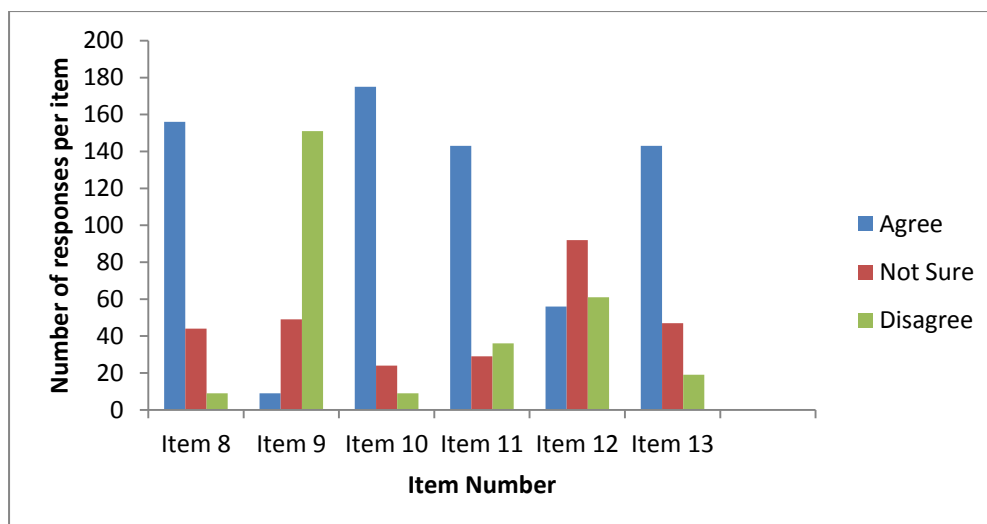


Figure 9: Responses to knowledge-related items (8-13)

Item 8 indicates that 74.6% agreed that smoking is harmful to one's reproductive health, while 72.2 stated that smokers do not have stronger bones than non-smokers and this indicates sufficient knowledge of the association between smoking and osteoporosis. A majority of the participants (84.1%) agreed that smokers get easily tired because of decreased lung functioning, while 68.8% agreed that stopping smoking will slow down further damage to one's body. An interesting finding was that 44% of the participants were not sure of whether smokers and non-smokers have an equal risk of cervical cancer with 26.8% who agreed and 29.2% who disagreed. In an earlier item (4) 90.4% agreed that smoking increases one's risk of cancer yet when asked about a specific cancer they are not sure. This is consistent with the findings in a study by Marteau *et al.* (2002) which reported that smokers were aware of their increased risk for the common health risks but were not aware of their increased risk for specific diseases such as cervical cancer. Item 13 investigated knowledge regarding smokers' increased chances of suffering from bronchitis and the results revealed that 68.4% had knowledge about this. Most of the items so far indicate that participants had sufficient knowledge of the health effects of smoking with the exception of the item 12 which indicated that participants were not aware or were unsure of the association between smoking and cervical cancer.

Attitudes towards tobacco smoking

This section includes a summary and a graphic representation of the results on items that focused on the attitudes of participants towards the health effects of smoking.

Table 2: Summary of attitude related responses

Variables	Agreed	Not Sure	Disagree
Smoking makes one look attractive	7	9	194
Smoking causes bad breath	182	16	12
Smoking reduces feelings of stress	80	57	70
Smoking is harmful to those near smokers	190	10	7
The law is strict on cigarette smokers	48	41	120
Smoking is a waste of money	192	5	12
Restricting smoking in public places is unfair to smokers	29	15	164
Tobacco smoking is sexy	6	9	194
People below the age of 18 should be restricted from purchasing cigarettes	190	5	14
Smoking is fine as long as one doesn't get into the habit	33	21	154
Stopping smoking is pointless as the damage is already done	27	24	156
It is wrong to smoke around people who do not smoke	178	12	18
Smokers are fun to be around	20	39	147

The results indicate that 92.4% of the participants believed that smoking does not make one look attractive and 86.7% stated that smoking causes bad breath. When asked if participants felt that smoking reduces feelings of stress, only 38.6% agreed, while 27.5% were not sure and 33.8% disagreed. Item 17 indicated that 91.8% of the participants stated that smoking is harmful to those near smokers and this shows an overall awareness of second hand smoking and concern for non-smokers. When asked if the law is strict on cigarette smokers, 57.4% disagreed, while 91.9% indicated that smoking is a waste of money. The results also indicated that 78.8% stated that restricting smoking in public places is not unfair to smokers.



Figure 10: Responses to attitude-related items (14-20)

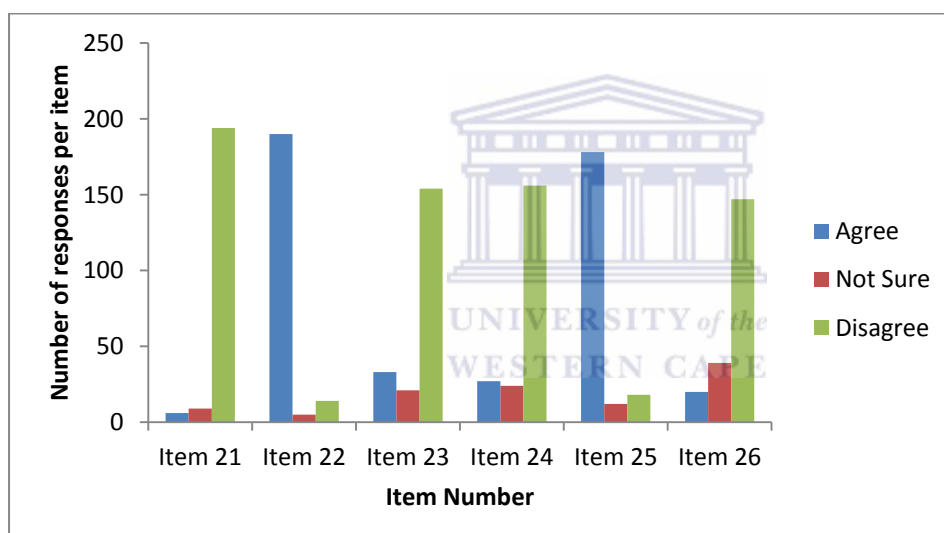


Figure 11: Responses to attitude-related items (21-26)

The above figure indicates the responses to items 21-26 which also looked at the attitude of female students towards the health effects of smoking. Research has shown that the reason why smoking has increased among women is because the tobacco industry has invested in advertising campaigns targeted at women by linking smoking to the idea of sexiness, desirable body image, glamour and high fashion (Minh *et al.*, 2010). Despite this report, the results of the current study revealed that 92.8% of the participants disagreed when asked if they thought smoking was sexy. A majority (90.9%) of the participants agreed when asked if people below the age of 18 should be restricted from purchasing cigarettes. Of the

participants, 74.0% responded that smoking is not fine even if one does not get into the habit while 75.4% stated that stopping smoking is not pointless regardless of whether damage has already been done. Another question on second-hand smoking revealed that 85.6% stated that it is wrong to smoke around people who do not smoke, while 71.4% disagreed when asked if they thought smokers were fun to be around. All the above items show that majority of the students have a negative attitude towards tobacco smoking with the exception of item 16 which most respondents were unsure about. It has been reported that an individual's attitude is a high determiner of whether one will perform behaviour or not and from these results we can assume that only the minority with a positive attitude towards smoking are likely to smoke (Maurice *et al.*, 2008).

Beliefs about the health risks of tobacco smoking

This section illustrates the results of the study for the items that focused on the participants' beliefs of the health effects of smoking. Table 3 presents a summary of the responses.

Table 3: Summary of belief related responses

Variables	Agreed	Not Sure	Disagree
Cigarette smoking does not lead to infertility	23	117	69
Smoking helps one concentrate	12	41	155
Smoking does not lead to lung cancer	5	12	191
Smoking is harmful only to people who smoke daily	22	19	165
Smokers' lungs are more likely to be damaged than that of non-smokers	144	22	42
Smokers are generally more confident than non-smokers	23	67	118
Tobacco smoking helps keep one's weight down	45	88	75
All smoking should be banned on campus	86	30	90
Smoking calms one's nerves	71	62	74
Cigarette smoking speeds the ageing process	129	53	27
Designated smoking areas should be available on campus	129	24	55
Smoking leads to early menopause	40	137	30
Stopping smoking will increase one's risk of having a stroke	46	81	80

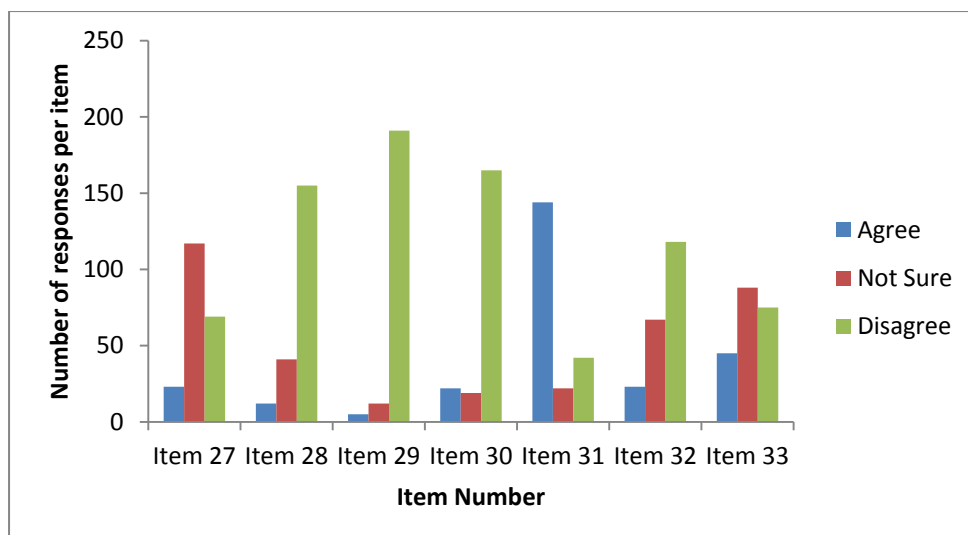


Figure 12: Responses to beliefs-related items (27-33)

The results indicated that 56% of the participants stated that they were not sure whether smoking does or does not lead to infertility and only 33% were sure that smoking does in fact lead to infertility. When asked whether smoking helps one concentrate, 74.5% of the participants disagreed; while a mere 5.8% believed that smoking does help one concentrate. Looking at a previous item which asked whether smoking reduces feelings of stress, more than half the participants were not sure, but here the majority seem to believe that smoking does not help one concentrate. Of the respondents, 91.8% believed that smoking does in fact lead to lung cancer and 10.7% believed that smoking is only harmful to those who smoke daily. Item 31 indicates that 69.2% believed that smokers' lungs are more likely to be damaged than that of non-smokers while 56.7% stated that smokers were not more confident than non-smokers. The results also indicated that over a third (42.3%) of the respondents stated that they were not sure of whether smoking helps keeps one's weight down, while 21.6% believed that it does.

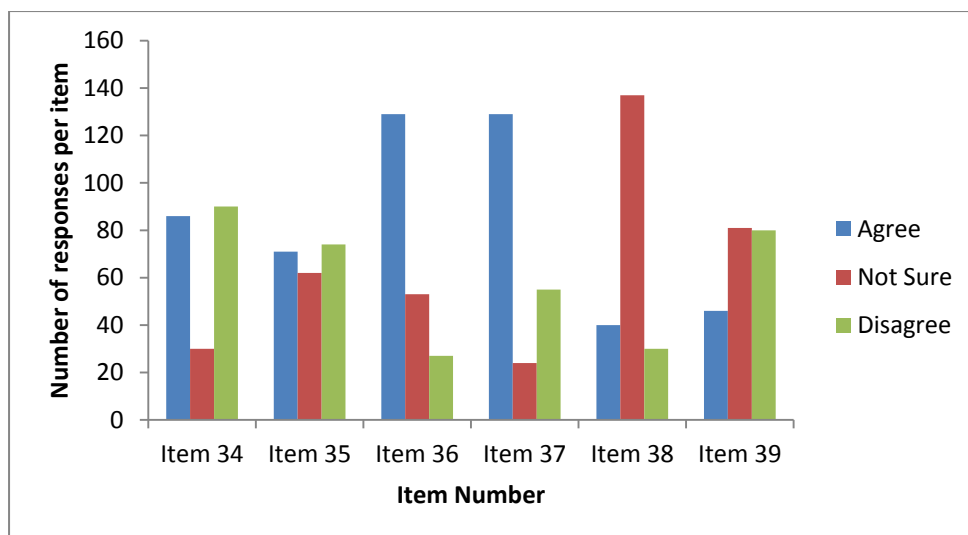


Figure 13: Responses to beliefs-related items (34-39)

The results on the beliefs of students regarding the health effects of smoking indicate that there was a very small difference between the number of people who stated that all smoking should be banned on campus (41.2%) and those who disagreed (43.7%). Similar to item 16, 30% of the respondents were not sure whether smoking does calm one's nerves or not while 34.3% stated that they agreed and 35.7% stated that they do not agree. More than half of the participants (61.7%) believed that smoking speeds up the ageing process and 62% stated that designated smoking areas should be available on campus. When asked if smoking leads to early menopause, 66.2% of the participants stated that they were not sure and only 19.3% agreed. Similarly, a majority of the respondents (39.1%) indicated that they were not sure when asked whether stopping smoking increases one's risk of having a stroke. These results indicate that most non-smokers tended to have negative beliefs about smoking while smokers had positive beliefs regarding tobacco smoking.

Demographic characteristics of smokers

This section contains a summary of the demographic characteristics of the participants who indicated that they smoke.

Variables	N	%
SA citizen		
Yes	38	95
No	2	5
Home Province		
Eastern Cape	2	5.6
Limpopo	1	2.8
Western Cape	33	91.7
Age		
17-22	34	85
23-28	2	5
29-37	2	5
39-45	2	5
Race		
African	1	2.5
Coloured	36	90
White	3	7.5
Current Residence		
Home	32	80
University Residence	6	15
Other (Private accommodation)	2	5
First Academic Year		
Yes	27	67.5
No	13	32.5

Table 4: Demographic characteristics of smoking respondents

The respondents (N = 40) who indicated that they smoked were compared on race, home province, current residence, and academic year as indicated in table 4. Results of the study indicated that 40 of the respondents (20%) are cigarette smokers. Of these, 95% were South African citizens. The questionnaire sought information regarding respondents' home province and the results indicated that of all smokers, the largest number were students whose home province was the Western Cape by 91.7%, followed by the Eastern Cape at 5.6%, and lastly Limpopo at 2.8%. A review of literature indicated that one of the highest smoking levels were found in the Western Cape and this could explain why the highest number of smokers in the current study were from the Western Cape, also bearing in mind that the study was

conducted in the Western Cape and therefore most of the respondents are likely to be from this province (Mujuzi, 2010).

Looking at the age, the results indicate that a majority of the smokers (81.1%) were between the ages of 17-22. Consistent with literature, the results of this study indicate that the highest smoking rates were among the Coloured students (90%) followed by White students (7.5%), and lastly Africans (2.5%). The results also indicate that of the students who smoke, 80% lived at home, while 15% stay in the university residence and 5% stated 'other' which includes private accommodation, rental/flats. Finally, 67.5% of the students who smoke were currently registered as first year students, while 32.5% were either second or third year students registered for Psychology 1.

4.4 Inferential statistics: Chi-square test

Smokers' and non-smokers' responses on knowledge, attitudes and beliefs

This section explores the differences in responses between the smoking and non-smoking respondents. Research has indicated an association between smoking and attitude towards smoking, and beliefs relating to smoking have been found to predict smoking behaviour (Steptoe *et al.*, 2002). However, in several studies, knowledge of the effects of smoking has not influenced smoking behaviour significantly. This section investigated whether these findings were evident in the current study. The method used to compare the two groups is the chi-square.

According to Field (2005), the Pearson chi-square test is used to see whether there are differences between two categorical variables. This statistic is based on the idea of comparing the frequencies that one observes in certain categories to the frequencies one might expect to get in those categories by chance. Each of the categorical variables (items) consists of different categories and the observations in each category are in the form of counts (Pretorius,

2007). Field (2009) mentions two assumptions of the chi-square test and these are; it is imperative that each person or entity contributes to only one cell of the contingency table, and expected frequencies should be greater than 5. It is acceptable in larger contingency tables (e.g. 2x3) to have up to 20% of expected frequencies below 5, however, even in larger tables no expected frequencies should be below 1. Both these assumptions have been met in the current study and even in cases where expected frequencies were below 5, they were less than 20%, in tables with more than 20% of counts in a cell below 5, the Fisher's Exact Test statistic was used.

The Cramer's V was also used to measure the size of the difference between the responses of smoking and non-smoking students. Field (2009) stated that the Cramer's V is used when one of the variables has more than two categories as evident in the data of the current study. Pretorius (2007) suggested that the Cramer's V is a coefficient and should therefore be interpreted like other coefficients with .1 indicating a small, almost negligible difference, .3 indicating a medium difference, and .5 indicating a medium to large difference. Only the items on which statistically significant differences were found between smokers and non-smokers are reported in this section.

Knowledge-related responses

Table 5: Frequency counts for item 3

	Smokers are as healthy as non-smokers			Total
	Agree	Not Sure	Disagree	
Smoke Yes Count	8	5	25	38
Expected Count	2.6	2.8	32.7	38.0
No Count	5	9	140	154
Expected Count	10.4	11.2	132.3	154.0

Table 6: Chi-Square statistic for item 3

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	18.75 ^a	2	.00	.00
Fisher's Exact Test	15.75			.00
N of Valid Cases	192			

Table 7: Cramer's V statistic for item 3

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.31	.00	.00
N of Valid Cases	192		

The results for this item indicated a statistically significant difference ($\chi^2=15.75$, $df = 2$, $p<.05$) between the responses of smoking and non-smoking participants when asked whether smokers are as healthy as non-smokers. The results also indicate that more smokers (21%) than non-smokers (3.25%) agreed with this statement. The Cramer's V score indicated a medium difference between the responses of the two groups.

Table 8: Frequency counts for item 10

	Smokers get easily tired because of decreased lung functioning			Total
	Agree	Not Sure	Disagree	
Smoke Yes Count	34	2	4	40
Expected Count	33.6	4.8	1.6	40.0
No Count	133	22	4	159
Expected Count	133.4	19.2	6.4	159.0

Table 9: Chi-square statistic for item 10

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	6.53 ^a	2	.04	.04
Fisher's Exact Test	5.93			.04
N of Valid Cases	199			

Table 10: Cramer's V statistic for item 10

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.18	.04	.04
N of Valid Cases	199		

The above results indicated a statistically significant difference (Fisher's exact test: $\chi^2 = 5.93$, $df = 2$, $p < .05$) between the smoking and non-smoking participants on their knowledge of whether smokers get easily tired because of decreased lung functioning. This means that those who smoke answered this item differently to those who do not smoke. The Cramer's V statistic indicated a small difference between the two groups. A good number of the students who smoke (10%) stated that they disagree with this statement, while only 2.5 % of the non-smoking students disagreed. The difference indicates a lack of knowledge among a minority of the participants, particularly, those who smoke.

Table 11: Frequency counts for item 13

			Smoking increases one's chances of suffering from bronchitis			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	22	10	8	40
		Expected Count	27.3	8.8	3.8	40.0
	No	Count	114	34	11	159
		Expected Count	108.7	35.2	15.2	159.0

Table 12: Chi-square statistic for item 13

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	7.22 ^a	2	.03	.02
Fisher's Exact Test	6.69			.03
N of Valid Cases	199			

Table 13: Cramer's V statistic for item 13

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.19	.03	.02
N of Valid Cases	199		

The results for item 13 indicated a statistically significant difference ($\chi^2 = 7.22$, $df = 2$, $p < .05$) between the smoking and non-smoking participants on their knowledge of whether smoking increases one's chances of suffering from bronchitis. The Cramer's V statistic indicated a small difference between the responses of the two groups for this item. A majority (71.7%) of the non-smokers tended to agree with this statement, while a lower number of smokers (55%) agreed with this statement.

Attitude-related responses

Table 14: Frequency counts for item 16

			Smoking reduces feelings of stress			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	33	3	4	40
		Expected Count	15.4	11.2	13.4	40.0
	No	Count	43	52	62	157
		Expected Count	60.6	43.8	52.6	157.0

Table 15: Chi-square statistic for item 16

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	40.87 ^a	2	.00	.00
Fisher's Exact Test	39.64			.00
N of Valid Cases	197			

Table 16: Cramer's V statistic for item 16

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.46	.00	.00
N of Valid Cases	197		

The above results indicate that there were statistically significant differences ($\chi^2 = 40.87$, $df = 2$, $p < .05$) between the smoking and non-smoking participants in their responses regarding whether smoking reduces feelings of stress. The Cramer's V statistic indicated a substantial difference in the responses of the two groups. Majority of the smokers (83%) agreed with this statement while only 27.39% of the non-smokers agreed with this statement.

Table 17: Frequency counts for item 20

			Restricting smoking in public places is unfair to smokers			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	17	4	19	40
		Expected Count	5.7	3.0	31.3	40.0
	No	Count	11	11	136	158
		Expected Count	22.3	12.0	123.7	158.0

Table 18: Chi-square statistic for item 20

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	34.96 ^a	2	.00	.00
Fisher's Exact Test	29.26			.00
N of Valid Cases	198			

Table 19: Cramer's V statistic for item 20

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.42	.00	.00
N of Valid Cases	198		

A statistically significant difference ($\chi^2 = 34.96$, $df = 2$, $p < .05$) was found between smokers and non-smokers on whether restricting smoking in public areas is unfair to smokers. The Cramer's V statistic indicated a substantial difference between the responses of smoking and non-smoking students. As expected, more smokers (42.5%) than non-smokers (6.96) agreed on this statement and this is indicative of existing differences in attitudes between the two groups in relation to restrictions on tobacco smoking.

Table 20: Frequency counts for item 21

			Tobacco smoking is sexy			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	2	4	34	40
		Expected Count	1.2	1.6	37.2	40.0
	No	Count	4	4	151	159
		Expected Count	4.8	6.4	147.8	159.0

Table 21: Chi-square statistic for item 21

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	5.45 ^a	2	.07	.05
Fisher's Exact Test	5.32			.04
N of Valid Cases	199			

Table 22: Cramer's V statistic for item 21

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.17	.07	.05
N of Valid Cases	199		

When asked if tobacco smoking is sexy, a statistically significant difference ($\chi^2 = 5.32$, $df = 2$, $p < .05$) could be observed between the responses of smokers and non-smokers. Only 5% of smokers and 2.5% of non-smokers agreed with this statement. The Cramer's V statistic indicated a small difference between the responses of the two groups.

Table 23: Frequency counts for item 23

			Smoking is fine as long as one does not get into the habit			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	16	4	20	40
		Expected Count	6.7	3.4	29.9	40.0
	No	Count	17	13	128	158
		Expected Count	26.3	13.6	118.1	158.0

Table 24: Chi-square statistic for item 23

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	20.60 ^a	2	.00	.00
Fisher's Exact Test	18.06			.00
N of Valid Cases	198			

Table 25: Cramer's V statistic for item 23

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.32	.00	.00
N of Valid Cases	198		

The statement *smoking is fine as long as one does not get into the habit* was also presented to the students. A statistically significant difference ($\chi^2 = 20.60$, $df = 2$, $p < .05$) was found between smokers and non-smokers on this item. More smokers (40%) agreed with this statement while only 10.76% of non-smokers agreed. The Cramer's V statistic indicated a medium difference between the responses of smoking and non-smoking respondents.

Table 26: Frequency counts for item 25

			It is wrong to smoke around people who do not smoke			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	27	4	9	40
		Expected Count	34.5	2.2	3.2	40.0
	No	Count	144	7	7	158
		Expected Count	136.5	8.8	12.8	158.0

Table 27: Chi-square statistic for item 25

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	16.75 ^a	2	.00	.00
Fisher's Exact Test	14.42			.00
N of Valid Cases	198			

Table 28: Cramer's V statistic for item 25

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.29	.00	.00
N of Valid Cases	198		

A statistically significant difference ($\chi^2 = 14.42$, $df = 2$, $p < .05$) was found between the responses of smoking and non-smoking participants regarding whether it is wrong to smoke around people who do not smoke. More non-smokers (91.12%) than smokers (67.5%) agreed with this statement. Over half of the smokers agreeing with this statement indicated that a majority of smokers are aware of the dangers of second-hand smoking, while non-smokers, by virtue of not smoking themselves indicate higher levels of concern. The Cramer's V statistic indicated a small to medium difference between the responses of the two groups.

Table 29: Frequency counts for item 26

			Smokers are fun to be around			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	9	15	15	39
		Expected Count	4.0	7.7	27.3	39.0
	No	Count	11	24	123	158
		Expected Count	16.0	31.3	110.7	158.0

Table 30: Chi-square statistic for item 26

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	23.49 ^a	2	.00	.00
Fisher's Exact Test	22.06			.00
N of Valid Cases	197			

Table 31: Cramer's V statistic for item 26

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.35	.00	.00
N of Valid Cases	197		

When asked whether smokers are fun to be around, a statistically significant difference ($\chi^2 = 23.49$, $df = 2$, $p < .05$) was found between smokers and non-smokers. Of all respondents, 23.07% of smoking and only 6.96% of non-smoking students agreed with this statement. The Cramer's V statistic indicated a medium difference between the responses of smoking and non-smoking respondents.

Beliefs-related responses

Table 32: Frequency counts for item 27

			Cigarette smoking does not lead to infertility			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	9	18	13	40
		Expected Count	4.6	22.3	13.1	40.0
	No	Count	14	93	52	159
		Expected Count	18.4	88.7	51.9	159.0

Table 33: Chi-square statistic for item 27

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	6.23 ^a	2	.04	.04
Fisher's Exact Test	5.74			.05
N of Valid Cases	199			

Table 34: Cramer's V statistic for item 27

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.18	.04	.04
N of Valid Cases	199		

A statistically significant difference ($X^2=6.23$, $df = 2$, $p<.05$) was found between the smoking and non-smoking participants' responses when presented with the statement '*cigarette smoking does not lead to infertility*'. Of those who smoke, 22.5% believed that smoking does not lead to infertility, while only 8% of non-smokers believed this to be the case. The Cramer's V statistic indicated a small difference between the responses of smoking and non-smoking respondents.

Table 35: Frequency counts for item 28

			Smoking helps one concentrate			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	5	8	27	40
		Expected Count	1.8	7.9	30.3	40.0
	No	Count	4	31	123	158
		Expected Count	7.2	31.1	119.7	158.0

Table 36: Chi-square statistic for item 28

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	7.43 ^a	2	.02	.03
Fisher's Exact Test	6.33			.03
N of Valid Cases	198			

Table 37: Cramer's V statistic for item 28

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.19	.02	.03
N of Valid Cases	198		

When asked if smoking helps one concentrate, a statistically significant difference ($X^2=7.43$, $df = 2$, $p<.05$) was found between smokers and non-smokers. More smokers (12.5%) than non-smokers (2.5%) agreed with this statement. The Cramer's V statistic indicated a small difference between the responses of smoking and non-smoking respondents.

Table 38: Frequency counts for item 30

			Smoking is harmful only to people who smoke daily			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	10	4	26	40
		Expected Count	4.3	3.7	32.1	40.0
	No	Count	11	14	132	157
		Expected Count	16.7	14.3	125.9	157.0

Table 39: Chi-square statistic for item 30

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	11.17 ^a	2	.00	.01
Fisher's Exact Test	9.78			.01
N of Valid Cases	197			

Table 40: Cramer's V statistic for item 30

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.24	.00	.01
N of Valid Cases	197		

A statistically significant difference ($X^2 = 9.78$, $df = 2$, $p < .05$) was found between smokers and non-smokers in response to whether smoking is harmful only to those who smoke daily. More smokers (25%) than non-smokers (7%) agreed with this statement. The Cramer's V statistic indicated a small difference between the responses of the two groups.

Table 41: Frequency counts for item 31

			Smokers' lungs are more likely to be damaged than that of non-smokers			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	21	4	15	40
		Expected Count	27.3	4.4	8.2	40.0
	No	Count	115	18	26	159
		Expected Count	108.7	17.6	32.8	159.0

Table 42: Chi-square statistic for item 31

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	8.83 ^a	2	.01	.01
Fisher's Exact Test	8.11			.02
N of Valid Cases	199			

Table 43: Cramer's V statistic for item 31

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.21	.01	.01
N of Valid Cases	199		

The students were asked if smokers' lungs were more likely to be damaged than that of non-smokers. A statistically significant difference ($X^2=8.83$, $df = 2$, $p<.05$) was found between smoking and non-smoking students. More non-smokers (72.32%) than smokers (52.5%) agreed with this statement. Even so, both these groups constitute the majority of the students and this shows that even smokers are aware of the effects of smoking. The Cramer's V

statistic indicated a small difference between the responses of smoking and non-smoking respondents.

Table 44: Frequency counts for item 34

			All smoking should be banned on campus			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	1	3	35	39
		Expected Count	15.9	5.6	17.5	39.0
	No	Count	79	25	53	157
		Expected Count	64.1	22.4	70.5	157.0

Table 45: Chi-square statistic for item 34

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	40.75 ^a	2	.00	.00
Fisher's Exact Test	45.06			.00
N of Valid Cases	196			

Table 46: Cramer's V statistic for item 34

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.46	.00	.00
N of Valid Cases	196		

The above findings indicated a statistically significant difference ($X^2 = 40.75$, $df = 2$, $p < .05$) between smokers and non-smokers with regard to banning all smoking on campus. Very few smokers (2.56%) agreed with this statement as compared to the 50.32% of non-smokers who

supported the banning of all smoking on campus. The Cramer's V statistic indicated a substantial difference between the responses of smoking and non-smoking respondents.

Table 47: Frequency counts for item 35

			Smoking calms one's nerves			Total
			Agree	Not Sure	Disagree	
Smoke	Yes	Count	29	6	4	39
		Expected Count	13.3	11.7	14.1	39.0
	No	Count	38	53	67	158
		Expected Count	53.7	47.3	56.9	158.0

Table 48: Chi-square statistic for item 35

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	35.69 ^a	2	.00	.00
Fisher's Exact Test	33.66			.00
N of Valid Cases	197			

Table 49: Cramer's V statistic for item 35

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Cramer's V	.43	.00	.00
N of Valid Cases	197		

A statistically significant difference ($X^2 = 35.69$, $df = 2$, $p < .05$) was found between smokers and non-smokers regarding whether smoking calms one's nerves. More smokers (74.36%) than non-smokers (24.05%) tended to agree with this statement, indicating differences in beliefs which are likely to influence smoking behaviour. The Cramer's V statistic indicated a substantial difference between the responses of smoking and non-smoking respondents.

Even though differences could be noted between smokers and non-smokers in the above items, some of these differences were very small (almost negligible), however, they were still statistically significant.



CHAPTER 5: DISCUSSION AND CONCLUSION

The aim of this study was to explore the knowledge, attitudes and beliefs of female first year Psychology students about the health risks of tobacco smoking. A further aim was to establish whether there were differences between smokers and non-smokers with regard to smoking risks.

5.1 Discussion

The results of the study indicated an overall smoking prevalence of 20%. This rate is higher than that (15%) found among females by Awotedu *et al.* (2006) in their study among tertiary students in the Eastern Cape. However, the prevalence rate of the current study is lower than the 43.3% found among females in a study conducted in a KwaZulu-Natal University residence (Kamanzi & Adejumo, 2005). These high smoking prevalence rates may be expected to increase as more women are taking up smoking. Reasons for this increase include tobacco advertising campaigns targeted specifically at women.

The study revealed that 81.1% (N = 34) of the students who indicated that they smoke were between the ages of 17-22. Most researchers argue that while experimentation with cigarette smoking occurs in early teenage years, the smoking habits tend to increase with individuals becoming regular smokers between the ages of 18-25 (Baker, Brandon, & Chassin, 2004). The findings of the current study support such arguments as indicated by the age range of majority of the smokers. This age group is important for consideration when designing intervention strategies in order to prevent the uptake of smoking which often results in many years of adult smoking.

Of the smoking students, 91.7% indicated the Western Cape as their home province, followed by the Eastern Cape (5.6%), and lastly Limpopo (2.8%). The Western Cape has been reported to have the highest smoking rates among young women in South Africa as found in the

current study. The Western Cape also has the highest levels of death related to smoking diseases (Steyn, 2007). This is of great concern as the highest cancer rates in South Africa have been found among coloured female and male smokers (Sitas *et al.*, 2004). It is also important to note that the study was conducted in the Western Cape and therefore most of the participants are likely to be from this province as indicated by the results.

The findings of the study indicated that 90% of the smokers were Coloured, 7.5% were white, and 2.5% were black. This is consistent with the reports by Steyn *et al.* (1997) which reported that coloured women have the highest smoking rates in South Africa, followed by white females and black females being third on the list. Research has indicated that this order might be changing with more young black women taking up smoking as they have become a strategically important market for tobacco companies (Marks, Steyn & Ratheb, 2001). The findings of this study also differed from what was found in a study by King *et al.* (2003) in Cape Town which found that the highest proportion of smokers was among white students (36.3%), followed by coloured students (29.7) and lastly, black students at 9.7%.

Sufficient knowledge of the health effects of smoking was found among the participants of this study. Of all knowledge-related items, items that indicated a lower level of knowledge include statements on the women's increased vulnerability to the health effects of smoking and whether smokers and non-smokers have equal risk of cervical cancer. Only 29.2% of the students were aware of smokers' increased risk of cervical cancer and this is higher than the 15.57% found in a study at the Mangosuthu University of Technology (Hoque & Hoque, 2009). When students were asked about cancer they were aware of its association with tobacco use, but did not have sufficient knowledge of specific cancers. This is similar to the findings in a study conducted by Kamanzi and Adejumo (2005) which found that students had knowledge of the health effects of smoking but not the specific diseases.

Looking at the knowledge of specific diseases covered in this study, the findings indicated that for cancer, 90.4% of the participants agreed that smoking increases the risk of cancer and 91.8% indicated that smoking leads to lung cancer. For cardiovascular disease, 70.7% agreed that smokers do not have a lowered risk of heart disease and there was much uncertainty about the association between smoking and an increased risk for stroke. Majority (72.2) of the students had sufficient knowledge of osteoporosis as they disagreed with the statement '*smokers generally have stronger bones than non-smokers*'. A similar study by Anderson, Chad and Spink (2005) also indicated that young women had knowledge of smoking being a risk factor for osteoporosis, but what was also found was that these women lacked specific in-depth knowledge regarding this risk factor.

There was sufficient knowledge among the students about the effects of tobacco smoking on reproductive health as indicated by the 74.6% of students who agreed that smoking is harmful to reproductive health. There seem to be some variations in knowledge among students about reproductive health as when asked about the association between smoking and infertility, 56% of the students indicated that they were not sure. Similarly, a study by Quach and Librach (2008) found that students knew of reproductive issues, but did not associate tobacco smoking with such consequences.

The findings indicated sufficient knowledge of the role of smoking in chronic obstructive pulmonary disease as majority of students agreed that *stopping smoking will results in improved lung functioning, smokers get easily tired because of decreased lung functioning, smoking increases one's chances of suffering from bronchitis, and that smokers' lungs are more likely to be damaged than that of non-smokers*. There seem to be good knowledge of the health effects of smoking among these students. However, it is concerning that good knowledge of these effects have not shown to effect behaviour change (WHO, 2010).

Results for attitude-related items indicated that the majority of students had a negative attitude towards tobacco smoking as indicated by the number of students (86%) who indicated that smoking does not make one look attractive, and 91.8% were against smoking around people who do not smoke. More than half (57%) of the students indicated that the law is not strict on smokers, while 91.9% indicated that smoking is a waste of money. Majority (71.4%) of the students did not feel that smokers are fun to be around and 75.4% indicated that stopping smoking is not pointless. Most students (74%) agreed with the statement '*smoking is fine as long as one does not get into the habit*' and this shows that students tend to undermine the addictiveness of tobacco products. Interestingly, 92.8% of the students indicated that smoking is not sexy despite the increased advertising campaigns that foster the false idea of the sexiness of smoking (Minh *et al.*, 2010). Overall, a negative attitude was reflected by the results of the study among majority of the students and this could be regarded as positive considering the role of attitude in determining health-related behaviour. Evidence has been presented on the assumption that attitude as a reliable predictor of behaviour (Sherman, Rose & Koch, 2003). Sargent *et al.*, (2002) also argue that children develop intentions and positive expectations about smoking prior to initiation. This means for the current study that these negative attitudes toward smoking might actually prevent non-smokers from initiating smoking.

The findings for belief-related items indicated that majority (74.5%) of the students did not believe that smoking helps one concentrate and 91.8% believe that smoking leads to lung cancer and this indicates that the risk is not underappreciated by students in the current study. Optimistic bias was reflected in the responses of only 10.7% of the students. These students agreed with the statement '*smoking is harmful only to people who smoke daily*', and this indicates that some of the students believe that if they smoke lightly, they will not be at risk of tobacco-related diseases. This is consistent with findings of a study conducted by Marteau

et al. (2001) which indicated that smokers did not believe that smoking causes illness and most of them thought that only those who smoke heavily were at risk of tobacco-related disease. Ayanian and Cleary (1999) stated that most smokers discount their increased personal risk of smoking-related disease in relation to other smokers. The results also showed that majority of the students believe that smoking is harmful to one's health, and they also believe that smokers are at increased risk of the consequences of smoking. However, there is a slight case of optimistic bias as mentioned above. Only 21.6% of the students believe that smoking helps keep one's weight down. Weight loss has been indicated as one of the reasons young women initiate and continue smoking as this is one of the promises made by tobacco advertising campaigns (Minh *et al.*, 2010). These are some of the beliefs that need to be altered by means of interventions that aim to change behaviour. It was found by Steptoe *et al.* (2002) that beliefs of students related to smoking behaviour predicted smoking independently of age, sex, and awareness of the health risks.

There was a moderate level of support for anti-smoking legislations as indicated by the number of students who felt that the law is not strict on cigarette smokers (57.4%) and those who stated that designated smoking areas should be available on campus (62%). The difference in numbers was negligible between those who believed that all smoking should be banned on campus (41.7%) and those who disagreed with this statement (43.7%). Support for tobacco control policies was also found in a study by Awotedu *et al.* (2006) in the Eastern Cape, indicating that a third of respondents said the legislation was not strict enough, and restrictions on smoking in public areas were supported also including the increase in tobacco control campaigns.

A comparison was done between the responses of smoking and non-smoking participants using the chi-square statistic. The study findings indicated that there were only differences in 15 (38.5%) out of 39 of the items. A difference was found between smokers and non-smokers

on whether smokers are as healthy as non-smokers. More smokers than non-smokers agreed with this statement. As indicated by research, most smokers do not really perceive themselves to be at higher risk of health effects than non-smokers or other tobacco consumers (Romer & Jamieson, 2001). Regarding whether smokers get easily tired than non-smokers, more smokers (10%) than non-smokers (2.5%) disagreed with this statement and this difference indicates a lack of knowledge among a minority of the participants, particularly those who smoke. When asked if smoking increases one's risk of suffering from bronchitis, a majority (71.70%) of non-smokers tended to agree with this statement while a lower number of smokers (55%) agreed with this statement. These differences indicate that there is sufficient knowledge between smokers and non-smokers. However, the smoking student might not be aware of smoking as a cause for this specific disease or they might be underestimating their own risk as found in a study by Marteau *et al.* (2002) which indicated some smokers did not believe that smoking causes disease and some smokers believed that their risk was lower than that of other smokers. Differences were found between smokers and non-smokers on whether smoking reduces feelings of stress. Majority of the smokers (83%) agreed with this statement while only 27.39% of the non-smokers agreed with this statement. Similar results were found for the statement *smoking calms one's nerves*. The differences between the two groups were also statistically significant, and similar to item 16, much more smokers (74.36%) than non-smokers (24.05%) tended to agree with this statement. When asked if smoking helps one concentrate, a medium difference was found between smokers and non-smokers. More smokers (23.07%) than non-smokers (6.96%) agreed with this statement. A study conducted in Australia by Lennon *et al.* (2005) found that while smokers could cite enjoyable aspects of smoking and benefits to themselves (physical enjoyment, stress relief and anxiety management), non-smokers did not believe that there was anything enjoyable about tobacco smoking. In fact, non-smokers saw these reasons for smoking as trivial, immature and false.

A difference was found between smokers and non-smokers on whether restricting smoking in public areas is unfair to smokers. As expected, more smokers (42.5%) than non-smokers (6.96%) agreed on this statement and this is indicative of existing differences in attitudes between the two groups in relation to restrictions on tobacco smoking. This result is consistent with the findings in a study conducted by Poland *et al.* (2000) which found that smokers and non-smokers differ in terms of attitudes towards smoking and restriction on smoking in public places. With regard to banning all smoking on campus, large differences were observed between smokers and non-smokers as only 2.56% of smokers agreed with this statement while just over half (50.32%) of the non-smokers agreed. This indicates once again that smokers are less likely to support anti-smoking legislation as compared to smokers (Reddy, Meyer-Weitz and Yach, 1996). A similar study conducted in America found that there was strong support for bans on smoking in campus buildings, housing and dining areas. Differences were observed between smokers and non-smokers regarding whether it is wrong to smoke around people who don't smoke. As expected, more non-smokers (91.12%) than smokers (67.5%) stated that it was wrong to smoke around non-smokers. More than half of the smokers agreeing with this statement indicated that a majority of smokers are aware of the dangers of second-hand smoking, while non-smokers, by virtue of not smoking themselves indicate higher levels of concern.

Tobacco companies invest in advertising campaigns that send out false messages to young women and these messages have been stated as some of the reasons why young women take up smoking such as the idea of smoking being sexy. In the current study, women were asked if they thought smoking was sexy and small differences could be observed between smokers and non-smokers. Only 5% of smokers and 2.5% of non-smokers agreed with this statement. This finding might be an indication that the false messages sent out to young women about the sexiness of smoking (Minh *et al.*, 2010) might not be as effective anymore, and this may

be attributed to the tobacco control policies which prohibits the advertising of tobacco products and regulates the packaging of cigarettes (White, 2001).

Smokers tend to believe that they can quit smoking whenever they want and this is evident in the results of the current study. When students were asked if smoking was fine as long as one does not get into the habit, more smokers (40%) agreed with this statement than non-smokers (10.76%). This is consistent with findings in a study conducted by Arnette (2000) which found that majority of smokers believed that they could smoke for a few more years and then quit whenever they wish to. These findings reveal that smokers underestimate the addictive properties of tobacco smoking making it seem as though they are in control of their smoking practices (Cummings *et al.*, 2004). Differences were also found between smokers' and non-smokers' responses regarding whether smoking is harmful only to people who smoke daily. This is an indication of optimistic bias among some smokers in the current study. Weinstein (1989) suggested that smokers have the tendency to view health risks of smoking as lower for them than for others smokers whom they perceive as the 'heavy smokers'. This means that smokers believe that their risks for tobacco related diseases are lower than that for other smokers which is a misconception. There was sufficient knowledge among students regarding the association between tobacco smoking and lung disease. This is evident in that even though there were differences between smokers and non-smokers, majority of the students believed that smokers' lungs were more likely to be damaged than that of non-smokers (52.5% smokers and 72.31% non-smokers). This shows that even smokers are aware of the effects of smoking. Unfortunately, knowledge of such health effects has not stopped many young women from smoking cigarettes.

It is expected that most smokers are likely to enjoy each other's company. This is evident in the 23.07% of smokers who agreed that smokers are fun to be around while only 6.96% of non-smokers agreed with this statement. Smokers often talk about the benefits of fitting in

and having a conversation starter (Lennon *et al.*, 2005). This could mean that smokers enjoy the company of other smokers because of the shared experience while not so many non-smokers enjoy such company. Smoking is harmful to those around smokers and this may be one of the reasons why non-smokers choose not to be around smokers.

The HBM was used to make sense of the findings of this study. The results of the study indicated that majority of the students had sufficient knowledge of the health effects of smoking, more negative than positive attitudes towards tobacco smoking were found among the students, and an association was found between smoking and beliefs. However, the knowledge, attitudes and beliefs has not changed the smoking behaviour of students as indicated in the 20% prevalence rate of smoking among these female students.

According to this model, students who smoke do not perceive themselves to be at risk of tobacco-related diseases. The lack in behaviour change also means that the consequences of cigarette smoking are not perceived as severe by these students. Furthermore, the students may have not identified or perceived any benefits for stopping smoking. Their focus might be more on the benefits of smoking than on how smoking affects their health (Lennon *et al.*, 2005). It can also be speculated that students might feel it is pointless to stop smoking as the damage has already been done. Perceived barrier to behaviour change such as stopping smoking might explain why female students continue to smoke. University students face a lot of social pressure from peers and stress from academics only to mention a few and these may be some of the reasons they do not quit as they believe that cigarette smoking helps reduce stress as indicated by the findings of this study. Another barrier to stopping smoking could be the marketing of ‘new’ types and brands of cigarettes targeted at these young women such as the “*Glamour*” which is perceived by some minority smokers as sexy. This study revealed that 92.8% of the participants in this study disagreed with the statement “*tobacco smoking is sexy*”. This can be viewed as a protective factor as it means that tobacco marketing

companies are not effectively fostering the false idea of “glamorous smoking”. Smoking has become very common among university students and this means there are more pressures which are likely resulting in more young women taking up smoking. This perception of smoking as normal can result in students doubting their own ability to quit smoking resulting in low levels of self-efficacy. Self-efficacy is the conviction that one can successfully execute required behaviours such as stopping smoking in order to produce the desired outcomes (Bandura, 1997).

All the factors (barriers) mentioned might be affecting the students’ readiness to act. The fact that students have not yet experienced the physiological effects of tobacco smoking also maintains their smoking as there has not been a “trigger” or “cue” for them to take action. Such an understanding of the health behaviour of this population helps in making sense of why it is that smokers continue to smoke even when they are aware of the adverse health effects of smoking and this is helpful in designing interventions that will focus on reconstructing students’ beliefs and attitudes towards tobacco smoking. It is evident that most students are aware of the effects of smoking and this has not had much of an impact in their behaviour. It is also noteworthy that most of the smokers in the current study tended to have more tolerant attitudes and beliefs towards smoking and its health effects than non-smokers. This is consistent with findings in a study by Steptoe *et al.* (2002) which revealed strong associations between smoking and beliefs and between smoking and attitudes. The implication of such associations is that attitudes and beliefs will then most likely predict whether a student or any other individual will smoke or not.

5.2 Conclusion

It has been evident for decades that smoking is a major health threat to not only the South African population but to the rest of the world as indicated by the number of people who die as a result of smoking-related diseases. This section summarises the findings of this study in

relation to the aims of the study and the implications of these findings. The smoking prevalence rate (20%) found in this study indicates a high proportion of female smokers among these young women. It is important to note that these rates are likely to increase if nothing is done as indicated by the increasing rates of smoking uptake by women and the earlier initiation which will result in longer exposure to tobacco products.

The results showed that coloured students smoke more than white and black students and this presses the urgency for intervention that will be targeted at this population and in particular this race group as it does not only have the highest rates among female smokers, but research has shown that this group has the highest overall smoking rates in South Africa (Steyn, 2007). The study also indicated that the smoking and non-smoking students had sufficient knowledge of the effects of smoking but yet they continue to smoke. Interventions are required that will challenge the beliefs and attitudes of female students regarding tobacco smoking, as attitudes and beliefs have been identified as predictors of smoking behaviour.

The majority (81.1%) of the smokers in the study were between the ages of 17-22. This age group should be at the top of the list when efforts are made to deal with the tobacco pandemic, and it is indicated that it is among this age group that smoking tends to increase and individuals become regular smokers. In addition to this age group, adolescents should also be an important group to consider when dealing with tobacco-related interventions as this is the age at which most individuals tend to experiment with cigarettes. More preventative strategies would be more effective for this age group in order to prevent them from experimenting with cigarettes and also fostering beliefs and attitudes that may protect or prevent them from smoking cigarettes. Research has indicated that there are some differences between smokers and non-smokers in knowledge, attitudes and beliefs. This should not be assumed to be the case for all populations as even though some differences were found in this study, they were in only 38.5% of the items, and most of these differences were small. This

means that in order to design effective interventions, the knowledge, attitudes and beliefs of that particular population have to be established.

There is a need for interventions at higher education institutions that will aim at reducing the smoking rates of students in particular. Interventions should also not only focus on the “bad” of smoking as these students are well aware of these risks. However, interventions should seek to convince students of the benefits of not smoking and the positive consequences of quitting, perhaps showing a more desirable side to not smoking. A positive approach may prove to be more effective for interventions aimed at tobacco smoking as it is evident from the smoking rates that negative ‘fear inducing’ approaches are not as effective as expected. A focus on self-efficacy and decision-making skills might also help students in making positive health decisions which may result in a lower number of students taking up smoking.

5.3 Limitations and recommendations for future research

As indicated earlier, the study employed convenience sampling. This means that only students who were in class during the two periods participated in the study. As a result, many students may have been missed. Interest to participate might also mean that the views of only those who were interested in the study were involved. This implies a non-representative sample and also limits the generalisability of the findings of the study to other populations.

There was also no clear definition of what exactly constitutes regular smoking. This means that the study did not differentiate between light smokers and heavy smokers, categorising everyone who indicated that they smoke under one umbrella regardless of how often they smoke. This is important in understanding risk perception which may be influenced by beliefs about what it is that constitutes regular smoking among the youth.

There is a need for a qualitative research study to allow for an in-depth understanding of what it is that influences students’ decision to initiate or become regular smokers, and also what

they perceive to be the barriers that prevent them from stopping smoking. A good understanding of how the beliefs and attitudes relating to smoking are fostered and why students continue to smoke even when they know it is harmful to their health would be give good insight into this phenomenon and hopefully result in intervention strategies that are tailor-made for this population.

A self-administered questionnaire was used for data collection. Self-report measures are associated with the risk that students may report falsely on what is asked. A study that includes students from not just Psychology but other departments would be more insightful as well as different study levels can allow for comparison among these different groups in the aim of informing interventions that will take a holistic approach in managing tobacco smoking. It would also be informative to compare males and females in this university setting to establish whether the growing trends have caught up in the institutions of higher learning.



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APPENDIX A

Tobacco Smoking Study Questionnaire

TOBACCO SMOKING STUDY

ID:

SECTION 1: DEMOGRAPHIC INFORMATION AND SMOKING BEHAVIOUR

Tick/fill in the responses that best apply to you

1. Age.....
2. Are you a South African citizen a. Yes b. No (specify).....
 2.1 If YES, please state your home province.....
3. Race: a. African b. Coloured c. Indian d. White e. Other (specify).....
4. Where do you currently stay? a. Home b. University Residence c. Other (specify).....
5. Is this your first academic year? a. Yes b. No (specify).....
6. Do you smoke? a. Yes (skip to 7) b. No (skip to 8)
7. 1 How many cigarettes do you smoke a day?.....
- 7.2 At what age did you start smoking?.....
- 8.1 Have you ever smoked before? a. Yes b. No
- 8.2. At what age did you quit smoking?.....

SECTION 2: KNOWLEDGE, ATTITUDES AND BELIEFS ABOUT TOBACCO SMOKING

The following items seek to determine your understanding of effects of smoking. Please answer each question honestly. Tick the response that best reflects your views.

Item	Question	Agree	Not Sure	Disagree
	SECTION I			
1	Smoking does not affect how long a person lives			
2	Smoking is addictive			
3	Smokers are as healthy as non-smokers			
4	Smoking increases the risk of cancer			
5	Smokers have a lowered risk of heart disease			
6	Stopping smoking results in improved lung functioning			
7	Women are less likely to suffer from the effects of smoking than men			
8	Smoking is harmful to one's reproductive health			
9	Smokers generally have stronger bones than non-smokers			
10	Smokers get easily tired because of decreased lung functioning			
11	Stopping smoking will slow down further damage to one's body			
12	Smokers and non-smokers have an equal risk of cervical cancer			
13	Smoking increases one's chances of suffering from bronchitis			
	SECTION II			
14	Smoking makes one look attractive			
15	Smoking causes bad breath			
16	Smoking reduces feelings of stress			

17	Smoking is harmful to those near smokers			
18	The law is strict on cigarette smokers			
19	Smoking is a waste of money			
20	Restricting smoking in public places is unfair to smokers			
21	Tobacco smoking is sexy			
22	People below 18 should be restricted from purchasing cigarettes			
23	Smoking is fine as long as one doesn't get into the habit			
24	Stopping smoking is pointless as the damage is already done			
25	It is wrong to smoke around people who do not smoke			
26	Smokers are fun to be around			
	SECTION III			
27	Cigarette smoking does not lead to infertility			
28	Smoking helps one concentrate			
29	Smoking does not lead to lung cancer			
30	Smoking is harmful only to people who smoke daily			
31	Smoker's lungs are more likely to be damaged than that of non-smokers			
32	Smokers are generally more confident than non-smokers			
33	Tobacco smoking helps keep one's weight down			
34	All Smoking should be banned on campus			
35	Smoking calms one's nerves			
36	Cigarette smoking speeds up the ageing process			
37	Designated smoking areas should be available on campus			
38	Smoking leads to early menopause			
39	Stopping smoking will increase one's risk of having a stroke			

Thank you for your participation!!!

APPENDIX B:

Information Sheet and Consent Form

Information and invitation to participate in a study being conducted at the University of the Western Cape about the knowledge, attitudes and beliefs regarding the health risks of tobacco smoking.

Researcher: Mandisa Malinga- MA Research Programme

Department: Psychology

Dear student,

I am currently doing my research psychology masters at the University of the Western Cape (UWC) and conducting a study on the prevalence, knowledge, attitudes and beliefs about the effects of smoking among Psychology 1 students at this university. It has been established that the Western Cape has the second highest smoking rates in South Africa especially among the young females and this fact makes it important to conduct this study. Your participation in this study is of great importance as it will provide a better understanding of the knowledge, attitudes and beliefs of the young female students about the health effects of smoking as these have been found to greatly influence smoking behaviour. This study is expected to also inform prevention and intervention strategies aimed at female students on campus.

Participation in this study is voluntary and involves the completion of a questionnaire which investigates the knowledge, attitudes and beliefs regarding the health risks of tobacco smoking. This questionnaire will take approximately 15 minutes of your time to complete and you will not be required to put your name on the questionnaire in order to ensure that your participation in this study remains anonymous. You have the right to withdraw from the study at any time you wish without any negative consequences. If you so wish, you will have access to the final report of this study once it is completed.

Your participation will be greatly appreciated.

Kind regards,

Mandisa Malinga



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Informed Consent Letter

THIS LETTER SERVES AS AN INVITATION TO PARTICIPATE IN A STUDY BEING CONDUCTED AT UWC ABOUT THE KNOWLEDGE, ATTITUDES, AND BELIEFS ABOUT THE HEALTH EFFECTS OF SMOKING.

Researcher: Mandisa Malinga

Faculty: CHS, Psychology, MA Research

PURPOSE OF THE STUDY

The purpose of this study is to investigate the knowledge, attitudes, and beliefs among first year female students about health effects of tobacco smoking. A few questions will be asked that seek to provide information about the above.

CONFIDENTIALITY

All the information obtained from this study will be kept confidential and all participation is anonymous and this declares you unidentifiable by any person from the information you give.

BENEFITS

There are will be no direct benefits to you from this study, however the findings can be used to inform intervention strategies that aim to address the issue of smoking and its dangers. As Psych 1 students, you will also gain some level of experience of the world of research and how it is conducted as this will be a major part of your curriculum at your senior level in your studies.

EXPECTATIONS

- There will be a brief introduction to the study and its aims before the questionnaire is handed to you.
- The questionnaire is self-administered so you will complete it and then hand it back to the researcher who will be collecting the questionnaires after completion.

CONSENT

The above study has been explained to me and I understand as all questions have been clarified to me and therefore consent to participate in this study.

I fully understand the implications of my participation and agree to complete the questionnaire as honestly as possible.

Signature:.....

(filled in by participant)

Date:.....

