WOMEN'S KNOWLEDGE, PRACTICES AND BELIEFS OF SMOKING DURING PREGNANCY – A STUDY OF LOW INCOME PREGNANT COLOURED WOMEN ATTENDING PUBLIC SECTOR ANTENATAL CLINICS IN SOUTH AFRICA

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DECLARATION

I, Zainonisa Petersen, hereby declare that the work on this dissertation is based on my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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Abstract

Background

Smoking during pregnancy is major challenge to public health despite the widespread evidence of the harmful effects of smoking to the mother and the foetus. While some South African women change their smoking behaviour when they become pregnant, a larger number of women continue to smoke throughout the pregnancy. In order to understand the dynamics behind women's smoking habits before pregnancy and whether it is altered during pregnancy, one needs to understand their social, cultural, economical and educational background. These factors need to be understood and addressed when developing culturally specific intervention programmes for pregnant women.

Objective

The aim of this study was to determine the knowledge, practices and beliefs of coloured pregnant women with regards to smoking during pregnancy and their ideas for a smoking cessation intervention

Methods

A cross-sectional study design was used to determine the knowledge, practices and beliefs of pregnant women regarding smoking, and their preferences for an intervention. Respondents were randomly selected and included women who were currently smoking, women who have quit smoking before or during the pregnancy and women who have never smoked. A self-administered interview tool was used, but in cases of illiteracy trained researchers assisted respondents in completing the questionnaire. Data was analysed using SAS computer software.

Results

Of the 808 women approached for participations, 3 women refused participation, 7 surveys were discarded because the clinic sample was too small, and 2 more questionnaires were omitted because it was incompletely filled in. Subsequently 796 women ranging from age 14-46 were interviewed of which 365 (45.9%) were smokers, 117 (14.7 %) were quitters and 314 (39.4%) were non-smokers. 83 % of the total sample knew that nicotine is addictive, 76% knew the baby is subjected to nicotine, while 56% of women were unaware that smoking may

lead to miscarriage and 45% of women did not know that smoking during pregnancy can lead to premature labour.

Conclusions

Although the majority of women were aware of the most common dangers of smoking during pregnancy, many smokers (28%) had no intention of quitting and 20% of those with a desire to quit have never made an attempt to do so. Of the quitters 7% felt that relapse is inevitable and 23% were unsure whether they will remain quitters. In order to address the issue of smoking and relapsing during pregnancy, appropriate interventions at primary health care clinics need to be developed.

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DEFINITION OF TERMINOLOGY

Smokers – Women currently smoking any amount of cigarettes at the time of the interview. As women were not asked whether they smoke daily or occasionally, occasional smokers are also included in the smokers group.

Quitters – Former smokers who have not smoked at all for at least six months prior to being interviewed.

Non-smokers – Women who have never smoked on a regular basis.

CAGE positive, CAGE negative – The CAGE scale is a short test developed in the 1970s to screen for alcoholism or covert drinking problems. Four questions are posed: (1) Have you ever felt you ought to cut down on your drinking? (2) Have people annoyed you by criticizing your drinking? (3) Have you ever felt bad or guilty about your drinking? and (4) Have you ever had a drink first thing in the morning to calm your nerves. Answering yes to two of these questions is a strong indication of alcoholism, and answering yes to three or four of these questions confirms alcoholism (Bush et al., 1987).

Pack-years - A measure of the amount a person has smoked during their lifetime. It is calculated by taking the number of cigarettes a person smokes a day divided by 20 (assuming that 1 packet equals 20 cigarettes) multiplied by the duration of smoking in years (Deeks et al., 2004).

Pre-contemplation stage – The first stage of behavioural change. People in this stage have no intention of changing behaviour in the next 6 months

Contemplation stage – A stage of behavioural change in which people intend to change behaviour within the next 6 months

Preparation stage – A stage of behavioural change in which people intend to change behaviour in the immediate future, usually measured as the next month.

Action stage – A stage of behavioural change in which people have made specific overt modifications in behaviour within the past 6 months.

Maintenance stage – A stage of behavioural change in which people work to prevent relapse. This stage last from 6 months to 5 years.

1. INTRODUCTION

Tobacco smoking has proved to be a major public health challenge in many countries. Despite the downward trend in smoking prevalence in South Africa and other countries, smoking during pregnancy remains a major health problem. Smoking during pregnancy has detrimental effects on the mother herself as well as on the baby. Adverse effects of smoking during pregnancy include intrauterine growth retardation leading to low birth weight and spontaneous abortion. Smoking during pregnancy is also associated with a higher risk of asthma and respiratory infections such as bronchitis in the infant and child (Christensen et al., 2004).

Until recently the smoking behaviour of South African women was not well understood. In 1995 the Medical Research council of South Africa (MRC) conducted a study to assess the exposure of pregnant women to active and passive smoking, and found exceptionally high smoking rates among coloured women of low socio-economic status compared to other socioeconomic groups (Steyn et al., 1997). It also found that, within this population, a high proportion of women who do not smoke are regularly exposed to environmental tobacco smoke, putting even non-smoking pregnant women at risk. This study recommended urgent intervention to reduce the smoking prevalence amongst coloured women, to raise awareness of the risks of passive smoking, and to maintain the relatively low smoking rates of women from other South African ethnic groups. A later study in 1999 conducted at Tygerberg tertiary hospital found that the high rate of smoking amongst coloured pregnant women significantly increased their risk of preterm labour and abruptio placentae, the two main causes of perinatal death in this population (Odendaal, 2001). This study too recommended urgent smoking cessation intervention amongst coloured women in order to reduce the risk of preterm labour and abruptio placentae.

These findings and recommendations led to the MRC to initiate research on the smoking patterns of low income coloured pregnant women, with the purpose of reducing tobacco smoking. In 2000 seed funding was secured from the MRC to start exploratory research in the area. A complete outline of the Smoking in Pregnancy Study is available on page 7.

1.1 Justification for this study

Owing to the high levels of smoking amongst pregnant coloured women of lower socio-economic status, researchers and the government have acknowledged the need for a smoking cessation intervention at public sector antenatal clinics. Though the two studies mentioned above emphasised the need for intervention, no in-depth research looking at pregnant women's knowledge about – and attitudes towards – smoking have been conducted.. This lack of in-depth knowledge on coloured women and their smoking behaviour necessitated the collection of information crucial for the development of a successful and sustainable intervention programme. The purpose of this study was to collect data on the knowledge, practices and beliefs of coloured women attending public sector clinics regarding smoking and smoking cessation, as well as factors influencing these women's attitudes to smoking. Previous qualitative research has also shown the antenatal clinic to be regarded by pregnant women as the best place to have such an intervention, and part of this study was to do an in-depth investigation of women's views of clinic services and the antenatal staff.

1.2 Aims and objectives of the study

The aim of this study was to determine the knowledge, practices and beliefs of coloured pregnant women attending public sector antenatal clinics with regards to smoking during pregnancy and their ideas on smoking cessation interventions.

The specific objectives were:

- To document pregnant women's knowledge and beliefs about smoking and the effects of smoking on the mother and the baby;
- To examine the current smoking practices of pregnant smokers, the past and present practices of quitters regarding smoking and smoking cessation, and to investigate the current attitudes of non-smokers towards smoking;
- To assess the stage of behavioural change of the pregnant women;
- To study the attitudes of pregnant women towards health care professionals and how they perceive clinic services;
- To document women's perceptions of what an effective intervention strategy would be.

1.3 Structure of the thesis

Chapter 2 of the thesis provides a review of literature on the effects of smoking and the global epidemiology of smoking, with emphasis on smoking in lower socio-economic sectors of society. This will be followed by a literature review of what has been done in South Africa regarding research on smoking and smoking during pregnancy, measures taken in South Africa to control tobacco and tobacco legislation. The next section of the literature review looks at the situation of women and smoking, and the trends of smoking amongst pregnant coloured women. The final part of the literature review consists of a schema describing the Smoking in Pregnancy study, of which this thesis is one part (pg. 8). Here all of the studies done to date as well as future plans will be listed in a table in order to highlight the role of this study in the larger project.

The Methods section will give a description of the study design used and the methods of data collection. This section will also include an explanation of how the questionnaire used in the study was developed and how it was administered during the data collection phase.

The Results section will firstly describe the descriptive tables generated from the analysis, and wherever regression analysis was done this will be presented together with the descriptive tables in order to compare the findings. The Discussion chapter will discuss the extent to which the objectives of the study have been met, and an in-depth discussion of key findings presented in the Results section, followed by recommendations of the study.

2. LITERATURE REVIEW

2.1 The effects of smoking during pregnancy

Epidemiological studies over the past forty years have identified smoking during pregnancy as exerting an independent, detrimental effect on a variety of reproductive and other health outcomes (Lu et al., 2001). In 1980, the US surgeon-general stated that smoking is the single most important preventable cause of foetal loss (USDHS, 1980). Some of the proven effects of smoking during pregnancy include an increase in the risk of ectopic pregnancy and spontaneous abortion, increased risk for preterm rupture of membranes, abruptio placentae and placenta previa and an increase in the risk of preterm delivery (Floyd et al., 1993). Smoking increases the risk of perinatal mortality - both stillbirth and neonatal deaths. Infants born to smokers have a lower average birth weight and are more likely to be small for gestational age than infants of mothers who do not smoke (Odendaal, 2001). Compared to non-smokers, smokers have a 54% and 130% increase respectively in the prevalence of newborns weighing less than 2500g and an average decrease in birth weight of 200-250 g (Samet & Yoon, 2001). Women smokers are less likely to breastfeed than women who do not smoke, and this could deprive the baby of valuable nutrients after birth. The risk of Sudden Infant Death Syndrome (SIDS) is also increased among the offspring of women who smoke during pregnancy (USDHS, 1980; Blair et al., 1996). Children born to mothers who smoke also have a higher risk of suffering from respiratory infections such as bronchitis and asthma (Christensen et al., 2004). A proven predictor of asthma and wheeze is maternal smoking during pregnancy (Ehrlich et al., 1996). Maternal smoking during pregnancy increases the risk of asthma during the first seven years. This is exacerbated by postnatal maternal smoking and paternal smoking, which also explains the role of environmental tobacco smoking (ETS) in respiratory complications in young children (Jaakkola et al., 2004). During infancy the children of smoking mothers are also exposed to the components of tobacco in breast milk.

2.2 Determinants of quitting during pregnancy and relapse during and after pregnancy

The most compelling motivator for smoking cessation among women of reproductive age is pregnancy (Ludman et al., 2000). With the public health awareness brought about by policy and research into the effects of smoking during pregnancy, women are prompted to quit during this

period now more than ever, with 30-40% of women quitting upon notification of the pregnancy (Floyd et al., 1993). However, despite social pressure to quit and to protect one's offspring many women who quit are not ready to deal with the physiological, psychological and emotional changes associated with quitting. Women who quit for the purpose of the pregnancy may quit, relapse and try to reduce consumption multiple times during the pregnancy, battling with their desire to protect their babies at the same time as dealing with nicotine dependence (Pickett at al., 2003). It is for this reason that relapse rates are so high, with some studies suggesting a relapse rate of more than 70% (Mullen et al., 1997). Furthermore, among women of low socio-economic status the rate of quitting is even lower than that mentioned above, with relapse rates being higher amongst these women (Ko & Schulken, 1998).

In order to understand relapse an understanding of smoking cessation in pregnancy is required. The mechanisms of smoking cessation are not necessarily the same in all groups of people. The next paragraph will look at the major findings of studies looking at the determinants of quitting during pregnancy and relapse during and after pregnancy.

A common predictor of smoking cessation is the number of cigarettes smoked before the pregnancy (Erikson et al., 1998 and Thue at al., 1995). The more women smoked at the time of conception, the less the probability of them quitting. Women who smoked fewer than 5 cigarettes a day were 18 times more likely to stop smoking early in pregnancy than women who smoked 20 cigarettes or more (Erikson et al., 1998). Thue (1995) also found that smoking at conception and continued smoking is strongly related to whether the mother is a single parent, or whether she lives with the father. This study found 59% of single mothers to smoke heavily at the time of conception, compared to 20% of married and 29% of cohabitant mothers ($p = 0.0006$).

In another study (Nafstad et al., 1996) risk factors for continued smoking during pregnancy included low education, young age, and living with a partner who smokes. Cessation rates were seven times higher among women with a higher education and who lived with a non-smoking partner. In this study breastfeeding, higher education and living with a non-smoking partner were also associated with long-term cessation. This suggested that women who quit out of concern for their baby are likely to remain smoke-free for as long as they are breastfeeding. The longer the breastfeeding phase, the more time they have to deal with their tobacco addiction.

In a third study, women who were not employed were also less likely to quit during pregnancy. This could either be because they have more free time to themselves, or because they smoke in order to deal with the stresses associated with unemployment. In the same population only 19% claimed that their general practitioner had ever discussed the effects of smoking during pregnancy with them. More than half of the sample said that their obstetrician had never discussed smoking with them (McKnight et al., 1986). Genuine lack of awareness thus could result in women continuing to smoke. In another study (Cnattingius et al., 1992), 96% of all pregnant women in Upsalla Sweden, were investigated. Of these women 32% were daily smokers at the time of conception, and by the first antenatal visit this figure decreased to 23%. Factors associated with continued smoking included young age, involuntary unemployment, not living with the father of the unborn and living in a house with other smokers. Among those who were employed continued smoking were also more prevalent if co-workers smoked.

In a fourth study (Mas et al., 1996) giving up smoking was more common among women aged 26-30 years compared to younger smokers (OR=2.1), women with secondary education versus women with only primary education (OR=2.6) and women who smoke less than 10 cigarettes compared to those who smoked more. Women who smoked more than 10 cigarettes per day were more likely, owing to their high level of addiction to nicotine, to reduce consumption than to quit altogether. An attempt at harm reduction by reducing the amount of cigarettes smoked is thus the main hope heavy smokers have of not causing serious harm to their babies. However, another study (Isohanni et al.; 1995) showed that mothers <23 years of age (compared to older mothers) not only smoked more but also make more quit attempts, regardless of whether such 'attempts' resulted into actual quitting. The last mentioned study however did not investigate the relapse rate of women according to age. Women may also feel less at risk of harming their babies in subsequent pregnancies if their first baby had been reasonably healthy. In a previous qualitative study women constantly made reference to the fact that they or friends have given birth to healthy babies after having smoked during pregnancy (Everett, unpublished report).

Another study (O'Campo et al., 1992) examined associations between sociodemographic and obstetric factors, and pre-pregnancy, pregnancy, and early postpartum smoking behavior. Forty-one percent of women who had been smoking before the pregnancy stopped smoking during the pregnancy. Sociodemographic factors important in predicting smoking cessation during pregnancy, as determined through logistic regression analyses, differed significantly for white and black women. Among white women, higher education levels, older age, and greater parity

were important predictors of cessation, whereas among black women, only intention to breastfeed was a significant predictor of smoking cessation during pregnancy. From a cultural perspective it could be that black women attach more value to breastfeeding than they do to formula feeding than do white women. It is also possible that fewer black women than white women can afford formula and therefore depend on breast milk to feed their babies. Thus a significantly higher proportion of the few black women who do stop smoking during pregnancy, do so because they intend to breastfeed.

The above studies all confirmed the role of sociodemographic factors in smoking cessation during and relapse after pregnancy. In a study by Marsh and McKay (1994) it was shown that poorer women are more at risk of smoking and continuing to smoke. In this study conducted in the mid 90s single parent female smokers with the lowest income had a smoking prevalence above 60% while married women of the highest income had a smoking prevalence less than 20%. The gap between the two groups also appeared to be widening over time.

Though the above social factors have been well documented in the past decade, the psychological and emotional contribution to quitting and relapse is often overlooked. Various qualitative studies and cross-sectional studies have aimed to examine the psychological and emotional factors acting as barriers to quitting and also contributing to relapse (Ludman et al., 2000; Edwards et al., 1998, and Wakefield et al., 1998). It is impossible in designs of this type to demonstrate proof of a causal relationship between psychological factors and smoking. Nevertheless, these studies do highlight barriers to cessation and continued quitting after pregnancy. The following paragraphs describe the major findings of studies looking at the relationship between psychological and emotional factors and smoking and relapse.

As in any other addiction, confidence in their own ability and support from others play an important role in determining whether pregnant women will relapse. Women who are not extremely confident in mid-pregnancy that they will abstain after the delivery resume smoking at 2.4 times the rate of women who have more confidence in themselves during this time (Mullen et al., 1997 and Ershoff et al., 2000). Low confidence could be a result of environmental life factors that reinforce women's need to smoke, such as dissatisfaction with public health care, lack of support and a lack of problem solving skills during this potentially difficult pregnancy period (Ershoff et al., 2000).

Stress has recurred in various studies as one of the barriers to successful quitting during pregnancy (Hymowitz et al., 2003; Carmichael et al., 2000; Ockene et al., 2002). Stress is either caused by household or social factors, or by quitting itself. Pregnancy is characterised as a time of emotional upheaval caused by hormonal changes, and many women perceive this as a negative "side-effect" of being pregnant. In many studies women thus claim to use smoking as a coping mechanism during this time (Breslau & Johnson, 2000 and Breslau et al., 1993). Similarly, the side effects of quitting include irritability, depression and anxiety. These side effects may seem overwhelming when women attempt to quit when they are already pregnant (Wakefield et al., 1998).

In a study examining the relationship between perceived stress, depressive symptoms and smoking cessation, lower levels of perceived stress were associated with quitting early in pregnancy rather than quitting later in the pregnancy (Ludman et al., 2002). The logic is that the more the pregnancy progresses the more guilt women have about their continued smoking and the more hopeless they feel about smoking cessation. This guilt could drive women to quit, but unless they are ready for quitting and know what it entails, successful cessation becomes impossible. The same study also found that smokers had higher stress levels than quitters (using a depression score derived from the Perceived Stress Scale, PSS). This suggested that stress is a barrier to cessation. However it could also be that quitting may reduce stress, as had been found in one study (Carey et al., 1993). Although research on stress related to smoking during pregnancy is tenuous, women from all walks of life report stress to be their rationale for continuing to smoke (Pletsch et al., 2003, Everett et al., unpublished report). It appears that women's perception of stress, the cultural meanings attached to stress, and whether such definitions are in line with western psychological diagnostic criteria all need more research.

2.3 Smoking cessation among women of low socioeconomic status

Previous studies have highlighted the importance of understanding the subgroups of women targeted in an intervention and the need for sensitivity to their individual characteristics and needs (Ruggiero at al., 1998). For example, while the smoking prevalence of different racial groups has declined after the introduction of tobacco control legislation, the coloured population in the Western Cape still have alarming smoking rates. The following quote encapsulates the situation

of many women of low socioeconomic status and tries to highlight why they need specialised smoking cessation interventions.

> "Women in extraordinary circumstances of poverty, violence, severe depression, chronic stress, oppressive racial or sexual discrimination and other immobilising forces are in physical and emotional survival mode which precludes cessation" Christen, 1998

In order to understand the dynamics of smoking cessation in this group, one needs to understand the factors that put women at risk of smoking. This understanding will provide information crucial in tailoring quitting interventions and will also maximise the effectiveness of such interventions. It is also important to understand the meaning women ascribe to smoking, why they smoke, what importance it has to them, what beliefs they have about the effects of smoking, how they perceive quitting and what consequences and perceived benefits quitting has for them.

2.4 Smoking cessation interventions

There is solid evidence that smoking cessation interventions for pregnant women can achieve significant improvements in smoking cessation rates. Previous research have also demonstrated that such programmes can produce decreases in the incidence of low birth weight ((Floyd et al., 1993, Raw et al., 1998 and Melvin et al., 2000)). Effectiveness has been most clearly documented for cognitive behavioural interventions, consisting of brief, individual counselling from a trained provider, and the provision of self-help material specifically tailored to pregnancy (Walsh et al., 2001). In a meta-evaluation of smoking cessation interventions it was found that tailoring intervention methods is important for achieving behavioural impact. Interventions that take into considerations the barriers women face as well as their general concerns lead to greater acceptance of the intervention among the study group (Windsor et al., 1998). Randomised control trials have produced quit rates on average 8-12% higher than the rates of control groups receiving usual care (Lumley et al., 2000, Walsh & Redman, 1993). A variety of providers have been found to be effective in delivering such programmes, including doctors, nurses, midwives, lay counsellors and health education specialists.

An important consensus on best practice interventions for pregnant women was reached at a workshop held in the US in 1998 (Consensus workshop, 1998). The workshop recommended that all prenatal care providers adopt the evidence-based procedures for brief smoking cessation interventions as outlined in the US Public Health Service guideline, "Treating Tobacco Use and Dependence" (Fiore, 2000). In summary, the key interventions in the Guideline are to: identify and document all tobacco users, provide individualised information on the risks of smoking, give clear advice to quit and assess the patient's readiness to quit. If a patient expresses a willingness to make a quit attempt, the discussion of quit strategies, prompting the patient to seek social support, the provision of self-help materials, follow up and referral are all recommended. The guideline suggests that even those clinicians who face severe time constraints can effectively implement tobacco cessation strategies. Whilst intensive interventions are more successful, there is substantial evidence that structured interventions as brief as 3 minutes can still significantly increase cessation rates. The workshop also concluded that while quitting in early pregnancy is best, smoking cessation at any time during the pregnancy brings benefits to the mother and baby. It was therefore recommended that smoking status be monitored throughout pregnancy providing opportunities to support success, reinforce steps taken towards quitting and continue to motivate those still in the pre- and contemplation phase of behavioural change. The use of pharmacotherapies with pregnant women was cautioned against ((Melvin et al., 2000).

Another method that is creating much interest among health professionals involved in behavioural change consultation is Brief Motivational Interviewing (MI) (Rollnick et al., 1997). This counselling method was first developed to help individuals with alcohol problems, but has since been found to be effective in motivating people to stop smoking. BMI is a patient-centered counselling method tailored to a patient's readiness to change. When using this approach, health care providers provide an open and non-coercive context for discussion of stigmatised behaviours and focus on helping clients explore options for change and resolve their feelings of ambivalence about making the change. Motivational interviewing has been used to positive effect by midwives in Sweden as the central component of their nationwide antenatal smoking cessation programme. Thus far, there has been no evaluation of the method in pregnant women from disadvantaged community settings.The challenge for South Africans is to adapt and apply such evidence based smoking cessation methods for pregnant smokers in the public health care setting. If proven successful in this setting, this model could be disseminated to other resource scarce settings in other Southern African countries and could play a role in countering the tobacco industry's marketing to young women in developing countries.

The ideal way of changing the smoking behaviour of women attending public sector maternity clinics (often poor women) is to use methods that include some minimum contact with health professionals (Manfredi et al., 2000). Such methods are easily adoptable and cost-effective, thus able to reach almost all women seeking antenatal care. While brief interventions are also effective with women who do not quit spontaneously upon learning of the pregnancy, many women continue to smoke even when they receive these interventions (Pickett et al., 2003). Another study has shown that one of the keys to success in cessation interventions is the consistency with which the intervention was delivered (Valanis et al., 2001 and Pickett et al., 2003). Thus a clinic setting ensures that women are screened and receive motivation regularly during their pregnancy, as they have to attend the clinic anyway. Women may not be able financially or due to other social reasons to participate in an intervention if presented elsewhere in the community.

It has also been shown that using maternity care providers, such as doctors, nurses and midwives, are effective in smoking cessation interventions as women see them on a regular basis. Having doctors and midwives deliver the intervention is also less intrusive to women seeking antenatal care (Ward, 1999). However, in a recent qualitative study it was found that even though women are familiar with the midwives and doctors they still conceal their smoking status (Petersen MPH thesis, 2004). The most common reason for hiding smoking status was that women felt ashamed to talk about smoking during pregnancy, as they knew that they were putting their unborn babies at risk. Women may thus regard any intervention as intrusive unless a midwife or doctor delivers education and counselling in a sensitive and patient manner.

Midwives and nurses also regard smoking cessation education with pregnant women as one of their key roles in caring for women (McLeod et al., 2003). Studies have shown that midwives and nurses generally have a more positive attitude than other antenatal staff towards smoking cessation activities. Doctors on the other hand tend to discuss smoking cessation only when the patient has medical complaints, and are thus unlikely to accept a role which demands that they discuss smoking with all smokers seeking antenatal care (Coleman & Wilson, 1996). Midwives tend to give smoking cessation education higher priority than other staff because of the risk it holds for the baby and they report carrying out cessation activities more often than other antenatal staff (Clasper et al., 1995 and Walsh et al., 1995). Consequently, midwives have been found to adopt smoking cessation activities more freely and are thus more likely to have a positive attitude when counselling smoking pregnant women (Zhand et al., 1990 and Cooke et al., 2001). Nurses

and midwives also score highest in their performance in motivating pregnant women to quit, as education and counselling are often left to them while doctors are more involved in the clinical aspects of the pregnancy (Zapka et al., 2000). However, surveys and qualitative studies among midwives have also found that the extent to which the midwives are able to prioritise smoking cessation is variable. Some of the reasons given by midwives for not giving consistent smoking cessation advice include their inability to talk to women about smoking, and their lack of information in the steps involved in smoking cessation. Many midwives feel that they do not have updated knowledge about the adverse effects of smoking, and suffer from lack of time, staff shortage, inadequate training in smoking cessation and an inability to deal with patient resistance (Everett, unpublished report; McLeod et al., 2003; Webster et al., 2002).

2.5 Smoking and tobacco control in South Africa

Over the past ten years tobacco control has been a priority of the South African government. The Tobacco Control At of 1993 (Act 83 of 1993), followed by the Amendment Act of 1999 (Act 12 of 1999) clearly reflects the government's position on tobacco control. Smoking prevalences by demographic characteristics show that approximately 51% of male and 13% of female South Africans smoked in 1993, but by the year 2000 theses prevalences had dropped to 44% in males and 11.7% in females. The coloured group had the highest smoking prevalence in 1993 and 2000 (49.2% and 48.6% respectively). The smoking prevalence of the white group has increased from 35.6% in 1993 to 36.6% in 2000. And though the prevalence of coloureds and blacks has decreased, the Indian group is the only one to have decreased their smoking prevalence significantly.

The smoking prevalence in the year 2000 was highest among people with primary education (29.5%), followed by those with secondary education (27%) and tertiary education (25.7%). People with no education had the lowest smoking prevalence (23.5%) (Steyn et al, 2002). It is fair to say that those with only primary education include those with a lower income than people who have education beyond primary school. However, even though people with only primary education have a higher prevalence of smoking than people with secondary and tertiary education, it was found that their smoking intensity (average number of cigarettes smoked per day) is less than those who are more educated and doing better financially (Van Walbeek, 2000). This finding was also highlighted in South Africa's first Demographic and Health Survey

(SADHS, 1998) where light smoking occurred significantly more frequently in the poorest, least educated and urban people, than in the wealthier more educated urban group (Steyn et al, 2002).

Coupled with tobacco control policy have been the sharp increases in cigarette taxes since 1994. Chaloupka and Wechsler (1997) points out that this is an important strategy in the fight against youth smoking, as young people are more responsive to increases in prices than older people. The smoking prevalence among youth has declined from 32.5% in 1999 to 27.6% in 2000 (Swart et al,, 2003). However, another study conducted in 1999 amongst 6045 scholars of different ethnic backgrounds found that coloured students have the highest prevalence of current cigarette smoking (Swart et al,, 2003). The study found that though more male than female students smoked, an equal proportion started smoking before the age of ten years. A recommendation of the Swart at al. (2003) study was that special attention be given to female smokers as rates are expected to increase in the future. Not addressing this issue will have serious implications for the future of female smokers, their reproductive health and the health of their offspring.

2.6 Trends of smoking in pregnant South African women

Although the figure of 11% prevalence of smoking in South African women, as suggested by the DHS of 1998, and 11.7% in 2000 (Van Walbeek, 2001) seems to be fairly low, South Africa is becoming increasingly industrialised, and while smoking used to be regarded as a taboo in the African community, more and more African girls are taking up the smoking habit (Marks et al,, 2001). From an epidemiological perspective coloured South Africans reflect a group who have adopted a typical western lifestyle. This is associated with a high incidence of chronic diseases of lifestyle such as heart diseases and especially lung cancer, being found in this group of South Africans. Tobacco addiction is believed to be one of the main contributing factors to such diseases. A survey done by the Medical Research Council of South Africa (MRC) in 1996 found very high smoking rates and high rates of poor pregnancy outcome among coloured women. The MRC did this survey among 394 women attending public sector antenatal clinics and found that 47% of coloured women smoked during pregnancy (Steyn et al., 1997).

This led to the MRC to initiate research on smoking during pregnancy, with an initial focus on developing and evaluating a smoking cessation intervention specifically among coloured pregnant women. The urgent need for such an intervention among poor coloured women has

recently been highlighted by a study done by the Gynaecology and Obstetrics department at a tertiary hospital in Cape Town (Odendaal 2001). The study was prompted by the hospital's growing concern at the very high rates of preterm labour and abruptio placentae among the coloured women of low socio-economic status attending the antenatal clinic at the hospital. Of the 819 patients enrolled in the study, 39 % smoked, a percentage considerably higher than that found in other populations of pregnant women, both in South Africa and in other countries. The study found that smoking significantly increased the risks of preterm labour (OR: 1.76, 95 % CI 1.27 – 2.43) and abruptio placentae (OR: 4.01 - 95% CI 1.15 –15.31), which are the two main causes of perinatal death in the community serviced by the Tygerberg Hospital. The study also found that the mean birth weight of new-borns of mothers who smoked was 256g lower than that of mothers who did not smoke during pregnancy. Generally, the findings suggested that the adverse effects of smoking during pregnancy are more pronounced in women of low socio-economic status.

It has been shown that the coloured community in general have high smoking rates. However, Cape Town (where the highest proportion of coloured people live) stands out from other regions in the sense that smoking prevalences are alarmingly high. A descriptive cross-sectional study in the late 1990s showed 62% (95% CI 60%-65%) of a sample of 1358 people attending community health centres were smoking (Pather et al., 2000). Alarmingly, 77% (CI 74%-79%) said that they had not received any smoking advice from nursing staff, while 81 % (CI 78%-85%) said that they had never received advice from a doctor at the health centre. While this study was not restricted to pregnant women seeking care, it paints a picture of the community in which coloured pregnant women live, work and socialise.

On the basis of the above findings, Tygerberg Hospital staff and researchers from the Medical Research Council concluded that a smoking cessation intervention is urgently required for the group of women receiving antenatal care at Tygerberg hospital. They identified pregnant coloured women of low socio-economic status as being the priority target group for intervention as they appear to have the highest risk of experiencing perinatal death and birth complications due to smoking.

2.7 The South African "smoking cessation in pregnancy project"

The 'Smoking Cessation in Pregnancy Project" is a venture between the Medical Research Council of South Africa, the Department of Obstetrics and Gynaecology at Stellenbosch University, South Africa, the South African National Department of Health and the Department of Public Health and Clinical Medicine at Umeå University, Sweden. To date the two main funders to this project are: the Agency for Research for International Tobacco Control (RITC) and SAREC/SIDA, Sweden. Below I will give a breakdown of the study and the main findings of the sub studies, in order to demonstrate how the cross-sectional study that forms the basis of this thesis fits into the larger study.

Phase 1: An exploratory, qualitative study of smoking during pregnancy. (This study was completed in the year 2000).

- Study 1 – In-depth interviews with 8 midwives: Smoking is a serious problem. Positive about intervention, but demoralised due to a lack of resources and negative attitudes of pregnant women. Perceive themselves as prescriptive and judgmental.

- Study 2 – In-depth interviews with 10 pregnant women: Would like to quit, but very difficult. Believe that quitting is impossible. Knowledge poor. Received minimal information. No assumption of personal risk.

Phase 2: Interviews with hospital managers, obstetricians, and midwives about practice, policy and views about future smoking interventions (This study was conducted 2002-2003).

- Study 1 – In-depth interviews with key informants (health care managers) and doctors: Doctors are not taking full advantage of the opportunity pregnancy offers for smoking cessation; doctors are not using most effective methods. Doctors have a need to improve communication skills and understand process of behavioural change.

- Study 2 – In-depth interviews midwives: Midwives see themselves as authoritarian and judgmental, some fear that they are unintentionally doing harm, regard themselves as the ideal persons to influence women, they see it as their duty to encourage behaviour change in

women who smoke, they are the custodians of the unborn child, regard training in counselling methods as crucial.

Phase 3: Quantitative research about knowledge, practices and beliefs of women attending public sector antenatal clinics and midwives providing care at these clinics (Data for this study was collected in 2001).

- Study 1 – Survey of 796 pregnant women: This thesis.

- Study 2 – Survey of 81 midwives providing care at antenatal clinics. This study ran concurrently with the survey above (study 1). 58% of midwives reported discussing smoking at every visit, 33% provided material to women, and 58% said that they have sufficient knowledge of smoking. 81% of midwives were non-smokers and 19% were either smoking or in the process of quitting

- Study 3: Qualitative study with pregnant women regarding barriers to transparency in the nurse-patient relationship (This study was conducted in 2003): Women felt conflict between social and medical expectations and their own capabilities. This led to women concealing their smoking status. This resulted in many women slipping through the system and not receiving information about smoking and cessation counselling. Women felt unseen and unworthy.

Phase 4

The pilot intervention – The intervention will be based on the findings of the formative research and other models used internationally. During this phase the intervention will be pre-tested among a selected number of antenatal clinics providing care to low income coloured pregnant women.

Phase 5

The evaluation of the intervention – this process will assess the impact of the smoking cessation intervention on the quit rates of coloured pregnant women exposed to the intervention during their pregnancy.

3. MODELS OF INDIVIDUAL HEALTH BEHAVIOUR

> "To explain human behaviour and to influence it, those concerned with health behavior and health education must understand the individual". (Glanz et al., 1997; pg 37)

In the following two sections I will discuss to different, but overlapping, models of individual health behaviour and will explain each model in terms of smoking during pregnancy, the effects of smoking during pregnancy and smoking cessation.

3.1 The Health Belief Model

The Health Belief Model (HBM) is one of the most widely used conceptual frameworks for understanding health behaviour. Developed in the early 1950s, the model has been used with great success to promote various behaviours.

The HBM is a value expectancy theory (Glanz et al., 1997). It is based on the understanding that a person will take a health-related action (i.e., smoking cessation or reduction) if that person:

1. Feels that a negative health condition can be avoided (value);
2. Has a positive expectation that by taking a recommended action, she will avoid a negative health condition (expectancy);
3. Believes that she can successfully take a recommended health action;
4. Believes that the anticipated barriers to taking actions are outweighed by its benefits; for example, believing that the benefits of quitting outweigh the benefits of continuing to smoke.

Expectancy is also described in terms of the person's perception of susceptibility to the illness and also the severity of the illness.

The HBM is a framework for motivating people to take positive health actions that uses the desire to avoid a negative health consequence as the prime motivation (Janz and Becker, 1984). For

example, going into labour prematurely or giving birth to an underweight baby is a negative health consequence, and the desire to avoid this can be used to motivate women who smoke to quit before or early in the pregnancy.

It's important to note that avoiding a negative health consequence is a key element of the HBM (Rosenstock, 1990). For example, a person might decrease smoking or quit altogether in order to give birth to a healthy baby (the negative health consequence being giving birth to a sick baby and the stress of dealing with this).

The components of the health belief model are:

1. Perceived susceptibility: A person's subjective perception of being at risk of contracting a health condition.
2. Perceived severity: A person's opinion of how serious a disease is. Women who report lower perceived risk to their foetus are less likely to stop smoking during pregnancy (Ockene et al., 2002) compare to women who are aware of and acknowledge the severity of the effects caused by smoking.
3. Perceived benefits: A person's perception of the benefits a health action has for her health, for example, whether smoking cessation would result in a healthier baby, or if the person is still smoking during pregnancy, whether smoking at this stage would still have benefits and to what degree quitting would be beneficial.
4. Perceived barriers: The person's opinions of the cost of taking an action. For example, in what way would smoking cessation affect the smoker and would she be able to deal with such effects during pregnancy? If the woman decides to quit anyway, would the benefits smoking bring be outweighed by the benefits of quitting?
5. Cues to action: Strategies identified by a person that result in readiness. One's susceptibility to illness and the perceived benefits of taking a health action are cues to action itself. However, any cue that leads to a desired health action could positively reinforce women to quit; for example, nausea experienced during pregnancy, or being afraid of caring for an underweight baby.
6. Self-Efficacy: A notion introduced by Bandura (1977a), this is a person's confidence in her ability to take action, and the belief that she will be successful in accomplishing the planned change in behaviour. Self-efficacy has proven to be a significant predictor of smoking status (Woodby et al., 1999). An individual's perceived ability to quit for 24 hours and her

perceived ability to quit for the remainder of the pregnancy were used as a measure of self-efficacy. Women answered a scale of "not sure at all" to "very very sure" whether they will quit. Their perceived inability to quit for 24 hours (lack of self-efficacy) was found to be predictive of continued smoking.

3.2 The Transtheoretical Model and stages of change.

The Transtheoretical Model and stages of change is an integrative and comprehensive model of change (Prochaska and DiClemente, 1983). The Transtheoretical Model has demonstrated utility in designing effective interventions for many special populations of smokers (Haire-Joshu 1994). Using parts of the model (stages of change) could also assist busy health care providers to decide on how to counsel each patient effectively (Pletsch, 2002), thus saving time on trying to educate women who are either not ready or who are already aware of the dangers of smoking. Studies have also shown that stage of change is strongly associated with a person's level of conviction about the dangers of maternal smoking (Haslam & Draper, 2000 and Solomon et al., 1996).

The model involves four primary constructs in explaining health behaviour change: 1) stages of change, 2) process of change, 3) decisional balance (the pros and cons of an action), and 4) self-efficacy.

1) Stages of change

For the first construct the model assumes that behaviour change is a dynamic process involving five distinct stages. The stages are precontemplation, contemplation, preparation, action and maintenance (Prochaska & DiClemente, 1995).

- Precontemplation stage: This stage includes individuals who have no desire to change their behaviour in the immediate future. The immediate future usually refers to a six month time period. Individuals in this stage usually have a lack of awareness about the specific behaviour. However, some individuals may be aware of the consequences of their behaviour but may avoid getting involved in behaviour change.

- Contemplation stage – This is the stage where the person has the intention of changing their behaviour within the next six months. The individual is aware of the benefits of and barriers to changing their behaviour and will take action based on their interpretation of the benefits and barriers.

- Preparation stage – Individuals in this stage have the intention to change their behaviour in the next thirty days and have already made at least one attempt to change the behaviour. This is the stage in which the individual is most ready to change behaviour.

- Action stage – This is the stage in which the person has already made behaviour change but is still at risk of relapse. In this stage the person is in the process of "experiencing" whether the perceived barriers are outweighed by the perceived benefits. The action stage is a period of time of anywhere between 0 and 6 months. This is the stage during which individuals receive most recognition for their action and during which positive reinforcement and encouragement becomes crucial (Prochaska et al., 1992).

- Maintenance stage – A person in this stage has changed their behaviour for 6 months or more. Self-efficacy is highest during this stage and the longer the person remains in this stage, the more confidence she develops that she will not revert to the problem behaviour. During this stage relapse prevention becomes the key focus as the person needs to be equipped with self-control measures (Marlatt, 1992). And if relapse occurs the individual needs to be prepared and be aware of what to do in order to progress.

A person's stage of change determines their receptiveness to different forms of health education (Prochaska et al., 1994). The transition from one stage to the other is not necessarily progressive, as people might progress and regress several times until they reach a desired behaviour. Interventions aimed at behaviour modification need to take this into consideration in order to give education fitting the person's stage of behavioural change (Solomon et al., 1996).

2) Process of change

The second construct of the Transtheoretical Model looks at the process of change. The process of change includes the overt and covert activities people use to progress through the five stages. Below is a presentation and short description of all processes (Prochaska et al., 1992 and Glanz et al, 1997).

- Consciousness raising: Involves becoming increasingly aware of information about the problem behaviour and its consequences.

- Self-reevaluation: Assessing how one feels and one's self-image with respect to being a smoker and becoming a quitter.

- Self-liberation: Choosing to change one's behaviour and being committed to it.

- Counterconditioning: Substituting problem behaviours with healthy and beneficial behaviours, for example taking a walk instead of a puff.

- Stimulus control: Avoiding stimuli that elicit problem behaviours, for example sitting in the non-smoking zone of public places in order to avoid temptation

- Contingency management: Rewarding oneself or being rewarded by others for taking positive action. Although contingency management can also include punishment, being rewarded for any achievements is more preferred by people changing their behaviours (Glanz et al., 1997).

- Helping relationships: Involves developing a therapeutic alliance with someone in order to talk about the difficulties of changing the behaviour. This process involves being open and trusting about the behaviour change.

- Dramatic relief: Experiencing and expressing feelings about one's experience of behaviour change. This process can include role-playing and psychodrama during the counselling session. This will allow the person trying to change her behaviour to vent frustrations and

anger related to the difficulties associated to changing behaviour, or it can allow the person to express how good she feels about achievements.

- Environmental re-evaluation: Assessing how the problem behaviour affects/affected one's physical environment. For example having fresher breath, smelling better and having cleaner air when not smoking.

- Interpersonal control: Involves avoiding people or social situation that encourage smoking, and instead seeking people and social situations that encourages healthy behaviour.

3) Decisional balance (the pros and cons of an action)

The third construct of the Transtheoretical Model is decisional balance which looks at the individual's weighing of the pros and cons of changing behaviour (Prochaska et al., 1997). If the pros outweigh the cons, individuals tend to willingly change their behaviour. In the case of smoking cessation during pregnancy the woman not only weighs the pros and cons for herself but also the pros and cons for the unborn baby.

4) Self-efficacy

The last construct, self-efficacy, was also discussed in the HBM. In the Transtheoretical Model self-efficacy has two parts, confidence and temptation. Temptation is very important during pregnancy. Pregnancy is a time of mixed emotions and psychological cravings. If women are able to control their temptation it increases their confidence of being able to cope with the changed behaviour. Similarly, if they have low confidence and feel unable to deal with the behavior change, they become more likely to give into temptation.

The above two models of health behaviour have been used throughout the research process in this thesis, from the development of the questionnaire to the analysis of data and recommendations for future research.

4. METHODS

4.1 Study design

A cross-sectional study design was used to assess the knowledge, practices and beliefs of pregnant women who smoke with regard to smoking during pregnancy. A cross-sectional study design is a descriptive study of the relationship between smoking status and other factors at one point in time in a defined population (Pretorius, 1995). The steps in cross-sectional studies are as follows: 1) identifying the target population; 2) developing a list or frame for sampling; 3) choosing an appropriate sampling strategy; 4) classifying the sample for disease occurrence; 5) classifying the sample for exposure status and 6) data analysis and interpretation (Evans, 1991). For the descriptive component of the study the prevalence of risk factors such as smoking during pregnancy, the prevalence of disease or health states (previous adverse birth outcomes and state of current pregnancy) and other socio-demographic characteristics describing the sample of women, were measured.

The common reasons for choosing a cross-sectional study design is that it is economical in time and cost, it is effective in measuring prevalence, it is easy to analyze and lastly, it generates hypotheses that can be tested in extensions of the study or tested in the intervention phase. However, the disadvantages/weaknesses of a cross-sectional study is that 1) it establishes association at most and not causality; 2) it has difficulty establishing the time sequence of events; 3) it is susceptible to recall bias as respondents are often expected to report on daily behaviour; 4) group sizes of outcomes are often unequal due to the random selection of participants and5) a cross-sectional design is ineffective in the study of rare outcomes 1991).

An "analytical" component of the study was achieved through comparing smokers with quitters and non-smokers. Such classification enables the researcher to make statistical comparisons between subgroups and may show a relationship between exposure variables such as socioeconomic status and outcome (Katzenellenbogen et al., 1997). Multinomial regression was used to assess the effects of certain personal factors such as educational background and alcohol consumption on smoking status. In multinomial regression predictions are made about a non-dichotomous study variable (smoking/non-smoking/quitting) by modelling the effects of two or

more independent variables on the study outcome variable (Bailey, 1998). It is then possible to assess the relative contribution of each of the independent variables.

4.2 Inclusion criteria

Pregnant coloured women attending antenatal clinics at public sector (government) antenatal clinics. Women had to be able to speak Afrikaans and/or English.

4.3 Study population and sampling

The study population consisted of low income coloured pregnant women attending public sector antenatal clinics in the Western Cape, Gauteng, Northern Cape and Eastern Cape. The five main urban centres in these provinces were selected, as these are where the bulk of the coloured population live (Census 2001). A study conducted in 1996 showed a smoking during pregnancy prevalence in this population of 47% (Steyn et al. 1997). It was calculated that a sample of 800 women were needed in order to obtain a 3.3% precision around the point estimate of 47%. This sample should provide a 95% confidence interval with a lower limit of a value of 43.7% and an upper limit of 50.3% for the unknown population prevalence of smoking.

The five cities included in the sample are Cape Town, Johannesburg, Pretoria, Kimberley and Port Elizabeth.

Table 4.1 – A breakdown of the sample across the five cities:

City	No. of clinics	No. of women seen per month*	Total sample
Cape Town	18	11500	500
Kimberley	4	2000	100
Port Elizabeth	3	1500	100
Johannesburg and Pretoria	4	1500	100
Total Sample	**29**		**800**

* These clinic serve at least 66-100% of coloured women

The clinics included in the sample were those clinics that predominantly provide care to coloured women, as this is the group with high levels of smoking during pregnancy (see p.4). A list of all

such antenatal clinics in the four provinces was obtained from the health care authorities in each province. The sample is presented in table 4.1. To determine the number of patients per clinic, a sample proportionate to clinic size was used. For each clinic the total number of patients visiting the clinic per week was recorded, and depending on this patient turnover, a sample was selected. This sample size per clinic also determined the frequency with which clinics were visited; for example, clinics with a high patient turnover were visited on several occasions while clinics with a low patient turnover were visited only once or twice. The time spent to complete the study per clinic also varied between different clinics as some antenatal clinics are run throughout the day while others accept patients only in the morning. Of the list of clinics provided 29 clinics were found to provide care predominantly to coloured women. These 29 clinics were all included in the sample and thus made up the sampling frame for the study.

An attempt was made to select patients using systematic random sampling from either the waiting room or the folders. If selecting from the waiting room, one fieldworker would approach every third patient seated and request participation; if selecting from the folders, the 3rd folder from the folder tray would be selected and the fieldworker would call the patient. However, the inclusion criteria of the study posed a challenge to random selection, as women who did not meet the criteria had to be skipped in the random selection process. This was especially true for the Gauteng province where clinics providing care to coloured communities are often visited by women from neighbouring black townships or people who migrate from one province to another.

The set-up of most of the clinics also posed a challenge to random selection, as some clinics were overcrowded to the extent that patients stood around waiting to be called and patients did not know in advance when the nurse or doctor would see them. This complicated random selection from the waiting room. Most often more than one nurse managed the folders and this made random selection from the folders difficult. The most efficient way to select patients at most of the clinics was thus to call out all those willing to participate, check whether they fitted the criteria for participation and interview them while they waited to be seen, or make an appointment to see them after their consultation with the nurse or doctor. Consequently, the group studied were a volunteer sample.

4.4 Development of the questionnaire

The questions on knowledge, practices, and beliefs were based on the findings of the in-depth interviews conducted with pregnant women (see page 14-15). In 2000, in-depth interviews on knowledge, practices and beliefs about smoking were conducted with ten pregnant women. The main findings of that study were that women have very poor knowledge about the potential effects of smoking on the foetus, most of the women saw quitting as extremely difficult to accomplish and considered only cutting down rather than quitting. An important obstacle to smoking cessation for most of the women was the fact that their partners, family members and friends all smoked. Women also gave their suggestions for future smoking cessation interventions. All these issues were considered during the development of the questionnaire. During the development phase of the questionnaire additional questions were tested in a workshop with midwives and experienced qualitative researchers. The questionnaire was designed in such a way as to allow women of all educational levels to understand it, and wherever possible medical terms were simplified by using the local dialect of the women. The questionnaire was translated into Afrikaans and back translated into English in order to check for accuracy and consistency of translation.

4.5 Training of fieldworkers

Four fieldworkers were appointed and trained for the task of interviewing pregnant women at the different sites. The chief fieldworker, who was also a qualified nurse, was appointed on the basis of her extended experience in interviewing and also her experience in working as both a caregiver and research technician at public sector antenatal clinics. The other three interviewers were appointed on the basis of their participation in other parts of the smoking study. One fieldworker had been involved in collecting qualitative information from midwives regarding clinic practices related to smoking and the second fieldworker had collected data from midwives using a survey. The fieldworkers met on three occasions. In the first meeting the fieldworkers worked through the questionnaire together in order assess its content and reading level. All fieldworkers were given an English and Afrikaans version of the questionnaire to study until the next meeting a week later. In the second meeting fieldworkers were required to role-play and interview one another using the questionnaire, and during such role-play the two remaining fieldworkers were required to observe the process. For the last meeting fieldworkers were once again requested to

work through the questionnaire and suggestions for changes were made and recorded. During this meeting all fieldworkers interviewed MRC staff with different backgrounds and to give feedback to the group. After this session the fieldworkers once again had the opportunity to make suggestions regarding the administration of interviews and the content of the questionnaire.

4.6 Piloting of the survey

All four fieldworkers present during the training sessions participated in all stages of the piloting of the questionnaire. The questionnaire was piloted amongst twenty-five women attending antenatal clinics. Two pilot sites were chosen, namely Tygerberg high-risk clinic and Bishop Lavis midwife obstetric unit, both situated in Cape Town. The reason for using Tygerberg hospital as a pilot site was because it was decided in advance that patients receiving antenatal care at Tygerberg hospital would not be included in the sample, and second, because the study team had already established a working relationship with Tygerberg staff. This proved to be helpful in the preparation phase of the research. Issues that were specifically dealt with during piloting were: the total time taken to complete the questionnaire, women's ability to understand the content of the questionnaire and self-administration versus administration by a fieldworker. Finally in order to test the practicality of the decisions made in the Tygerberg pilot and to understand how data collection could possibly be affected by the particular circumstances of the clinic administration, the questionnaire was piloted at Bishop Lavis clinic, one of the clinics included in the sample. Consent forms were handed to all women included in the pilot samples in order to ensure that women included in the pilots were not recruited for participation in the actual study as well. Specific issues tested during this practical phase of piloting included the random selection of women at the clinic, the clinic administration and how this could possibly affect sampling and data collection.

The outcomes of the preparation phase were: 1) the time taken to complete a questionnaire ranged from 18 – 25 minutes, 2) all women understood the content of the questionnaire but some needed help with scale questions and 3) all women in the pilot were able to complete the questionnaire without the help of a fieldworker. The outcomes of the practical phase of piloting were that: 1) the random selection of pregnant women from the waiting room was possible (even though this was not the same in the main study) and 2) regarding the influence clinic procedures may have on data collection, it became evident that in clinics where space is limited, privacy may

not be possible. In order to deal with the problem of privacy, fieldworkers informed all clinic staff about the nature of the study and the necessity of having a room made available for interviewing.

4.7 Questionnaire administration

The respondents completed the questionnaire themselves. However, the fieldworkers were available to answer any queries about the questionnaire or to help resolve any difficulties they may have had in completing the questionnaire. However, in cases of illiteracy or where women had trouble completing the questionnaire on their own, the fieldworkers assisted the women in filling in the questionnaire. Women were interviewed in groups, and group sizes were determined by the number of patients in the waiting room and the size of the room that was used for interviewing. Whenever possible two groups were formed and two fieldworkers per group had the task of assisting women when they had difficulty understanding or completing the questionnaire.

4.8 Data collection procedures

After obtaining the necessary permission from the provincial departments of health, nursing managers and the matrons at each clinic as well as midwives were informed of the data collection procedures in order to avoid disrupting clinic services. When arriving at the clinic, fieldworkers again discussed the inclusion criteria of the study with the midwives. At some clinics all the folders of the patients present in the waiting room were handed to the fieldworkers, while at other clinics fieldworkers proceeded straight to the waiting room. The fieldworkers themselves often did the first request for participation from the patients. However, at some clinics midwives informed the patients beforehand about the study. When asking for permission in the waiting room, the fieldworker briefly explained the nature of the study to the women.

Once permission to interview women had been received, the nature of the study was explained in more detail and a consent form was completed. After completion of the questionnaire one fieldworker checked whether all sections had been completed and when this had been confirmed

patients were thanked and her incentive handed to her. The incentive included baby goods – soap, shampoo and baby cream/wet wipes – to the value of R25.

4.9 Data entry

All interviews were coded by three of the fieldworkers. Each coded interview was later checked for accuracy by a different fieldworker. After this process all data were entered into a database by an MRC data capturer. The researcher and statistician cleaned the data by running two-by-two tables using a SAS package in order to check for outliers and inconsistencies. The researcher corrected these and data were re-entered into SAS. This process was repeated until both were confident that the data were sufficiently cleaned for analysis.

4.10 Data analysis

Data analysis included a descriptive component in which smokers, quitters and non-smokers were compared. It also includes an analytical section in which a multinomial regression analysis was done. For the descriptive component univariate analysis was done using SAS version 8.2. To provide descriptive statistical information two-by-two tables were constructed and chi-squared tests were used to compare differences in proportions. To explore predictors of smoking status, multinomial regression was used. Multinomial logistic regression exists to handle the case of dependents with more than two classes (e.g. smoking, quitting and non-smoking). This breaks the regression up into a series of binary regressions comparing each group to a baseline group, in this case non-smoking and quitting.

In the multinomial regression we looked at one independent variable: knowledge and beliefs. In the multinomial regression we used STATA to generate a model describing the effects of the independent variable on smoking, quitting and non-smoking.

4.11 Ethical considerations

Permission to conduct the research was formally obtained from the Research Ethics Committee of the University of Cape Town Health Sciences Faculty. Permission was also granted by the provincial directors of health and the clinic superintendents at all the clinics. Midwives and doctors at all the clinics were consulted regarding the dates and nature of the fieldwork. Informed written consent was also obtained from all the women interviewed; women were informed about the nature of the study and that the information they provide would be treated as confidential. Consent forms were made available in English and Afrikaans and were also made available to all the stakeholders to the study. Women were informed about the incentives after they had agreed to participate in the study, but the incentives were handed to them only after they completed the questionnaire.

The stakeholders in the study include: pregnant women and midwives at the selected clinics, midwife obstetric units, the national department of health, provincial departments of health and the Medical Research Council.

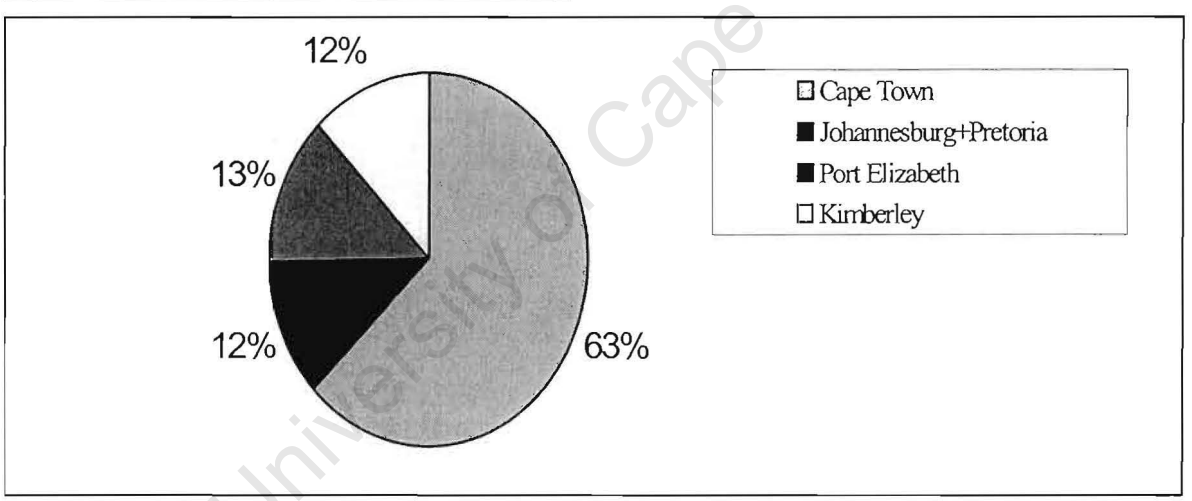
5. RESULTS

Study population:

The final sample consisted of 796 women attending public sector antenatal clinics in the five main urban centres, with 500 women interviewed Cape Town, 95 in Johannesburg and Pretoria combined, 97 in Kimberley and 104 in Port Elizabeth.

In total 802 women were approached for participation, 3 women refused participation, and another 3 questionnaires were discarded because they were incomplete. This gave a response rate of 99.3%.

Figure 1 – The sample distribution (N=796)



Cape Town in the province of the Western Cape had a significantly larger sample than the rest of the provinces as this is the province which houses the bulk of the coloured population (Census 2001). A total of 61% of all coloured people live in the Western Cape, 12% in the Eastern Cape, 9% in Gauteng and 11% in the Northern Cape. Because of the size of the group in the Western Cape there were also significantly more clinics providing care exclusively to coloured women and this was also taken into consideration in the sampling.

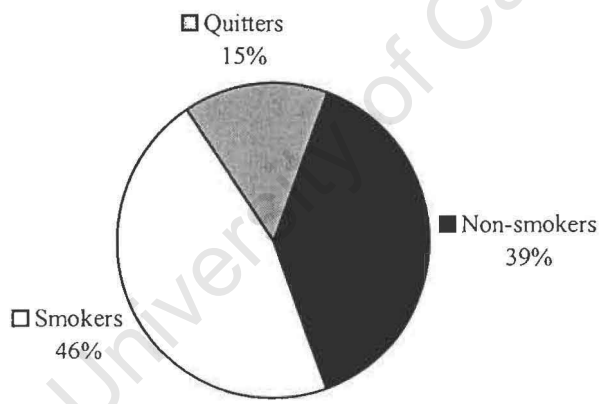
In the following sections, I will discuss findings related to the entire study population, women who smoke, quitters and non-smokers respectively. Unless otherwise stated, all the tables comparing the three groups use percentages. Tables in which data for individual smoking groups are presented consist of a frequency column and a percentage column.

Section 5 A – Characteristics of the study population

The following describes the characteristics – and descriptive comparisons – of smokers, quitters and non-smokers.

For definitions of smoking status, see Definitions of Terminology, page x.

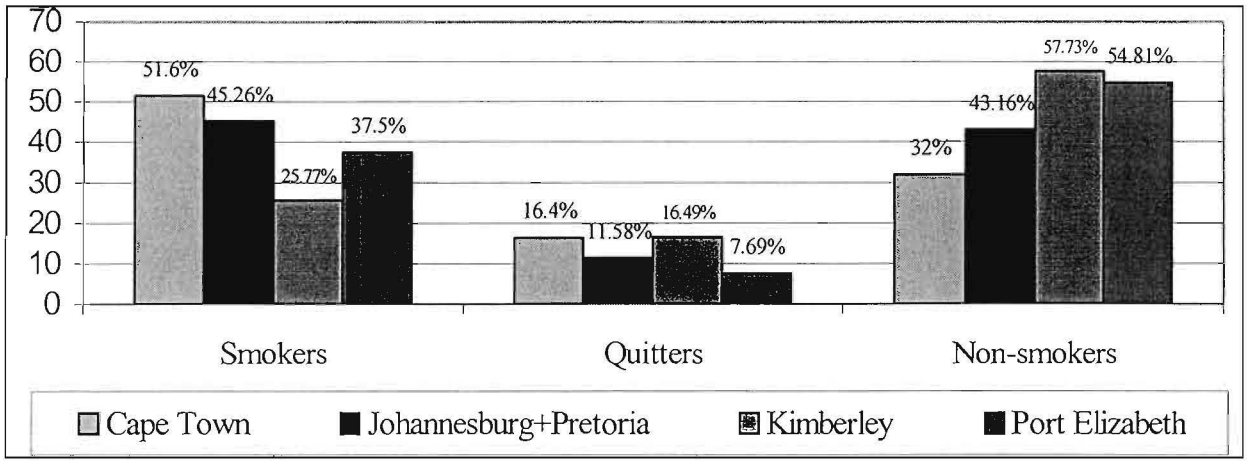
Figure 2 – The prevalence of smoking, quitting and non-smoking in a sample of coloured pregnant women, N=796.



Data are similar to results of a 1996 study conducted at antenatal clinics (Steyn at al., 1997). In the 1996 study 47% of coloured pregnant women were smoking. However in this study twice as many women as in the 1996 study reported being quitters. (See the literature review for a description of the smoking habits of this population).

As shown in Figure 3 below, data were collected in five cities situated in four provinces. While the Western Cape, Eastern Cape and Northern Cape are represented by one urban city, Gauteng is represented by two cities, Johannesburg and Pretoria, which are combined in all data to follow.

Figure 3 – Smoking status among pregnant women according to city (N=796)



There were significantly more smokers than quitters in Cape Town (p-value of 0.03) and Gauteng (p-value of 0.008) than there were in Kimberley. Cape Town and Gauteng also had higher proportions of smoking than Port Elizabeth. Regarding quitting, there were significantly more quitters than smokers in Kimberley than there were in Port Elizabeth. (See the discussion section for an explanation of the difference in smoking habits).

5 A. 1 Demographic characteristics of participants

The following tables show the sociodemographic characteristics of smokers, quitters and non-smokers. The descriptive tables generated from two-by-two tables (tables 5.1-5.5) will be presented first and will be followed by the multinomial regression presented in table 5.6

Table 5.1 – A comparison of the socio-demographic characteristics of pregnant women who currently smoke, those who have quit and those who have never smoked (percentages).

	Total N: 796	Smokers[1] n:365	Quitters [2] n:117	Non-smokers[3] n: 314	P-value		
					1:2	1:3	2:3
Mean maternal age in years (SD)		24.9 (6.2)	24.8 (6.7)	25.3 (6.1)	0.83	0.43	0.44
Marital status:							
Married	36.7	30.8	39.7	42.4			
Unmarried	41.6	43.2	40.5	40.1	0.16	0.00	0.81
Living together	21.7	26.0	19.8	17.5			
Level of education:							
Illiterate	0.5	0.3	1.7	0.3			
Completed 7 Years of education	38.1	48.9	30.8	28.3	0.00	<.00 01	0.25
Completed 12 years of education	61.4	50.8	67.5	71.4			
House type:							
Formal	83.8	86	76.7	84	0.01	0.46	0.82
Informal	16.2	14	23.3	16			

Mean age for all three groups was similar. When taking those who are married and those who live together as one category (the emphasis is on a husband/partner who is present during the pregnancy), quitters and non-smokers had a higher proportion (59.5% and 59.9% respectively) of present partners than women who smoked (56.8%). A significantly higher proportion of non-smokers and quitters than smokers also had education beyond primary school (7 years of education), as nearly half of the smoking sample had completed only the primary school level. Quitters were more likely than smokers to live in informal housing. See the discussion chapter for possible relationships between quitting and living in informal housing.

Table 5.2 provides a description of the current and previous pregnancies of the study sample:

Table 5.2 – A comparison of the number and outcome of previous pregnancies, and number of live births experienced by smokers, quitters and never smokers (percentages).

	Total N: 796	Smokers[1] N: 365	Quitters [2] N: 117	Non-smokers[3] N: 314	P-value		
					1:2	1:3	2:3
Current pregnancy no.							
1st pregnancy	39.5	34.6	41.4	44.6	<0.001	0.07	0.11
2nd pregnancy	26.2	28.6	24.1	24.2			
3rd or later pregnancy	34.3	36.8	34.5	31.2			
Parity (living children):							
1 living child	28.4	32.6	24.8	24.0	0.43	0.50	0.77
2 or more living children	27.1	28.8	27.4	25.2			
Any previous miscarriages	13.3	13.7	16.2	11.8	0.21	0.96	0.24
Number of miscarriages:							
1 previous miscarriage	10.3	11.2	10.3	9.2	0.09	0.67	0.22
2/more previous miscarriages	6.6	2.5	6.0	2.5			
Any previous low birth weight babies	8.4	10.4	11.1	5.1	0.45	0.09	0.04
Any previous stillbirths	2.9	3.0	1.7	3.2	*		
Neonatal deaths before 2 weeks	0.6	0.9	1.5	1.0	*		

*Because of small cells P-Values could not be calculated.

In this sample stillbirths and perinatal deaths were not commonly reported, even though Odendaal's study (2001) suggested differently. Quitters reported the highest proportion of miscarriages (16.2%). Low birth weight is shown to be less prevalent in the non-smoking group (5.1%) than among smokers and quitters.

Table 5.3 provides data on the current pregnancies.

Table 5.3 – Planned vs. unplanned pregnancies, the duration of current pregnancies and the current pregnancy complications experienced by smokers, quitters and never smokers

	Total N: 796	Smokers[1] N:365	Quitters [2] N: 117	Non-smokers[3] N: 314	P-value		
					1:2	1:3	2:3
Planned pregnancies	49.4	43.0	58.1	53.5	0.00	0.00	0.39
Duration of current pregnancy at the time of the booking:							
1st trimester	39.0	38.0	44.4	38.2			
2nd trimester	52.6	53.7	47.0	53.5	0.42	0.99	0.46
3rd trimester	8.4	8.3	8.6	8.3			
Current pregnancy status:							
Abnormal pregnancies	7.0	6.3	6.0	7.3	0.91	0.60	0.64

Significantly fewer smokers than quitters or non-smokers have planned the current pregnancy.

Table 5.4 shows data on emotional assistance from a partner and/or family and financial assistance from a partner.

Table 5.4 – A comparison of emotional and financial assistances received from partners and other family members between smokers, quitters and never smokers (percentages).

	Total N: 796	Smokers[1] N:365	Quitters[2] N:117	Non-smokers[3] N:314	P-value		
					1:2	1:3	2:3
Living together with a partner	58.2	56.2	60.0	60.0	0.48	0.30	0.96
Partners who are employed	78.0	75.5	93.1	78.3	0.04	0.39	0.04
Women who are financially assisted by partners	86.0	84.3	92.3	85.4	0.02	0.84	0.03
Emotional support (Prompted):							
Women supported by partners	85.3	85.0	92.0	84.0	*		
Women supported by mothers	65.6	64.4	70.1	65.3			
Women supported by siblings	43.5	41.4	44.0	46.0			
Women supported by friends	38.4	39.0	38.0	38.5			

A high percentage of women indicated that they did get financial support from the father. A high proportion of partners among all three groups were also employed. However, significantly more quitters than smokers and non-smokers had partners who were employed. The highest proportion of women who were financially supported by partners was among the quitting group. More quitters than smokers and non-smokers also had a partner who emotionally supported them. This may have been a determining factor for quitting.

5 A. 2 Alcohol use of pregnant women

Table 5.5 describes the alcohol use of the pregnant women in the sample.

Table 5.5 – Drinking status, number of weekly drinks and problem drinkers among those who smoke, have quit and who do not smoke, N = 796

	Total N: 796	Smoker [1] N:365	Quitters [2] N:117	Non-smokers [3] N:314	P-value		
					1:2	1:3	2:3
% Of women who have ever drunk alcohol	70.0	78.0	78.0	58.1	0.95	<.0001	0.00
% Of current drinkers	9.3	13.2	6.0	6.1	0.03	0.00	0.97
Current drinkers (n=74)							
Mean no. of drinks consumed during the week (SD)		1.3 (4.4)	3.0 (5.1)	0.2 (0.7)	0.35	0.29	0.02
Mean no. of drinks consumed during weekends (SD)		9.6 (7.0)	9.6 (7.6)	7.5 (7.6)	0.88	0.29	0.47
CAGE positive women (n=59)	7.2	11.0	4.3	4.5	0.03	0.00	0.93

To calculate the number of drinks consumed during the week – the period Monday to Thursday – the number of drinks per day was multiplied by 4. To calculate the number of weekend drinking – the period Friday to Sunday – the number of drinks per days was multiplied by 3. The mean number of drinks consumed during the week and during the weekend respectively was then calculated. The reason for splitting the week was because it was assumed that most women drink weekends only, and that those who drink every day tend to drink more over weekends.

Although the data show that a small proportion of women drink during pregnancy, significantly more smokers than quitters and non-smokers are current drinkers, and significantly more smokers than quitters and non-smokers are classified as problem drinkers (CAGE+). The mean number of drinks per weekend of these current drinkers (n=74) is also high; divided between the 3 days, smokers and quitters drink close to 3.5 drinks a day.

Section 5 B – Characteristics of pregnant smokers (N=365)

The following section reports on the findings for pregnant women who smoke during their pregnancy and looks at smoking behaviour and attitudes to quitting.

Table 5.6 describes the pattern of tobacco use of women who smoke.

Table 5.6 – Starting age for smoking, duration of smoking, and number of cigarettes smoked of daily smokers (N=365).

	Mean	SD
Mean age when started smoking (years)	16.40	3.22
Number of cigarettes smoked a day	5.80	4.29
Duration of smoking (years)	8.63	5.86
Pack years	2.82	3.22

The number of daily cigarette smoking is similar to previous findings in the qualitative component of this study. In the first qualitative study on knowledge, practices and beliefs regarding smoking (Everett, unpublished report), women mentioned the reduced harm when smoking five or less cigarettes. In a second qualitative study on the accuracy of self-reporting (Petersen MPH thesis, 2004) another sample of women from the same population reported that women do see five cigarettes as safe to use, that many who say that they smoke five a day actually smoke much more, and they do this in order to avoid being judged by others. Given the fact that the mean age amongst the smokers is 24 years, the duration of smoking in years (8.63, SD 5.86) is very high, and this could be an indication of the level of addiction these women suffer from.

Table 5.7 reports on the stage of behavioural change at which pregnant smokers are. Smokers were divided into the pre-contemplation stage, the contemplation stage, and the preparation stage (See Definitions, page x).

Table 5.7 – Current stages of change and intention to quit of women who smoke on a daily basis throughout the pregnancy.

	N: 365	%
No intention to quit (PRE-CONTEMPLATION)	103	28.2
Intention to quit within 6 months from interview (CONTEMPLATION)	132	36.2
Intention to quit within 1 month from interview and have made at least 1 attempt to quit (PREPARATION)	130	35.6
Smokers' intentions to quit:		
Women who have ever tried to quit smoking	287	79.0
Women who have never made an attempt to quit smoking	34	9.3
Women who want to quit but have never tried	40	11.7
Women who have ever used nicotine replacement therapies	47	13.0

Using Prochaska and DiClemente's stages of change model (DiClemente et al, 2000), only 35.6% of women in the preparation stage, i.e. were actively planning to quit within one month and had already made an attempt to do so. The remaining 64.4% of smokers had never made an attempt to quit, even though 36% overall said that they plan to quit within 6 months of the interview. Even though these women (in contemplation) said that they plan to quit, there is a difference between women with a 'desire' to quit and those who actively 'plan' to quit, and it is possible that women in the 'contemplation' phase here should actually be in the 'pre-contemplation' phase.

Table 5.8 reports on women's willingness to participate in an intervention programme and their feelings about midwife and clinic participation in the intervention.

Table 5.8 - The knowledge, willingness to participate in an education programme and feelings about the health care providers of daily smokers

	N: 365	%
Women's perception of their own knowledge:		
Perceive own knowledge about smoking as limited	311	86.6
Perceive own knowledge about smoking as sufficient	48	13.4
Perceive own knowledge about quitting as limited	318	88.6
Perceive own knowledge about quitting as sufficient	41	11.4
Willingness to participate*:		
Would participate in a smoking programme at the clinic.	333	93.6
Would participate in other community smoking programmes	298	81.0
Women's *feelings* about talking to midwives:		
Freely discusses smoking with the midwife	196	54.6
Lack of freedom to talk to midwives about smoking	45	12.5
Never ask the midwives smoking related questions	118	33.0
Women's perceived *ability* to discuss smoking with a midwife:		
Having enough confidence to talk to midwives about smoking	232	64.8
Fear asking midwives questions about smoking	99	27.7
No perceived need to ask a midwife smoking related questions	27	7.5

* Not mutually exclusive

A high proportion of women said that they had limited knowledge about smoking. However when answering the knowledge question (Table 5.15) most women agreed on the harmful effects of smoking. While only a small number of smokers said that they do not feel free to talk to the midwife about smoking, a much higher proportion (33%) of women said that they personally never ask smoking related questions. This could either be due to women avoiding the issue or because the issue is seldom brought up by the midwife, as 65% of women said that they would have enough confidence to talk to the midwife if the topic were brought up by the midwife.

Section 5 C – Characteristics of quitters (women who have smoked on a daily basis in the past), N=117

The following section looks at the past smoking patterns of women who have quit, their reasons for quitting, and other factors playing a role in their behaviour modification.

Table 5.9 looks at smoking habits of women before they became quitters.

Table 5.9 – Starting age of smoking, duration of smoking and number of cigarettes smoked by quitters (N=117).

	Mean	SD
Age when started smoking in years	17.34	4.04
Number of cigarettes smoked a day	5.86	4.61
Duration of smoking in years	5.0	4.47
Number of years as quitter	2.32	3.79

The duration of smoking in years of quitters is much lower than that of current smokers (8 years). The mean number of years as quitters indicates that most women did not quit during this pregnancy. The study was limited in the sense that it was not possible to determine how many women quit during this pregnancy as this was not asked directly.

Table 5.10 looks at the stages of change of quitters. Quitters were divided into the action stage and the maintenance stage (See Definitions, page x).

Table 5.10 – Quitters' current stages of change and their perception of quitting.

	N: 117	%
Current stages of change of all quitters:		
No smoking for less than 6 months (ACTION)	45	39.0
No smoking for more than 6 months (MAINTENANCE)	72	62
Women's perceived positive effects of quitting (unprompted):		
Perceived improvement in own health	50	43.0
Perceived healthier pregnancy due to quitting	18	15.4
Perceived financial benefit due to quitting	21	18.0
Women's perceived negative effects of quitting (unprompted):		
No experience of side effects due to quitting	67	57.3
Experienced/Experiencing quitting related side-effects	38	33.3
Women's experience of quitting:		
Experiencing/Experienced quitting as easy	87	74.4
Experiencing/Experienced quitting as difficult	30	25.6

A higher proportion of women reported having stopped smoking more than 6 months ago, compared to women who have stopped smoking less than 6 months ago. This implies that the majority of the quitters had already stopped smoking before the pregnancy. This could either be due to planning of the pregnancy or that quitting occurred well before the current pregnancy for other reasons or during a previous pregnancy after which relapse did not occur. This implies that, in this sample, few women quit during this pregnancy.

Table 5.11 looks at quitters' cues to action – the reasons they reported for stopping tobacco use:

Table 5.11 – Reasons why quitters stopped smoking and factors that helped them stop smoking, n = 117

	N: 117	%
Women who quit:		
Following their partner's advice	42	36.0
Following the health provider's advice	34	29.1
To avoid harm to their own health	79	67.5
To avoid harm to the unborn baby's health	73	62.4
As a result of the high cost of cigarettes	29	25.0
Women who:		
Felt their partners helped them quit	56	48.0
Regarded TV programmes as helpful in quitting	19	16.2
Found brochures on smoking helpful in quitting	18	5.4
Quit because of help from the health care provider	14	12.1
Quit out of concern for their unborn babies	34	29.1
Quit because of a complicated previous pregnancy	10	9.0

The table includes all quitters; those women who have stopped prior to the pregnancy, those who have quit during a previous pregnancy and those who quit during the current pregnancy. Respondents could also tick more than one prompt. The reason for the difference between stopping for own health and that of the baby's health may be due to the fact that some women had already quit smoking before – and not for the purpose of – the pregnancy, and not necessarily because they rate their own health as more important than that of the baby. A total of 38% of women said that they quit either out of concern for the unborn baby or because of a complicated previous pregnancy.

Women who quit during pregnancy

A spontaneous quitter is defined as someone who quits as soon as she learns that she is pregnant. Such women are highly motivated to protect their babies from the effects of smoking and they quit primarily for the benefit of the unborn baby and secondarily for themselves (DiClemente et al., 2000).

Table 5.12 shows the reasons why women stopped during the pregnancy and their perception of relapse

Table 5.12 – Quitters who reported having quit for the sake of the pregnancy and possibility for relapse, n=117

	N: 117	%
Reasons for quitting, Unprompted response:		
Women who reported having quit smoking for the purpose of the current pregnancy	34	29.1
Women who quit during a previous pregnancy	10	9.0
Possibility of relapse, Prompted response:		
Women who intend to restart smoking after the birth of the baby	5	4.2
Women who intend to restart smoking after the breastfeeding phase	3	2.5
Women who intends to remain quitters	84	70.0
Women who are unsure about whether they would smoke again	28	23.3

In total 38% of the sample said that they quit for the purpose of this or a previous pregnancy. However, this was not a "yes or no" question, instead women were given a list of possible reasons for quitting and could tick the appropriate ones. Answers were also not written down in order of importance. Whether the pregnancy was their sole reason for quitting, whether they quit during the pregnancy or whether they quit for some other reason is unclear. It is thus impossible to determine the proportion of women who quit spontaneously during the current pregnancy.

The total of 4.2% of women who intend smoking again after the birth of the baby and 2.5% of women intending to smoke again after the breastfeeding phase gives an idea of the number of women who quit for the pregnancy. However, the 23.3% of women who reported being unsure about whether they might smoke again might also include women who quit for the pregnancy.

Section 5 D – Characteristics of non-smokers

The following data describes the attitudes of women who have never smoked on a regular basis.

Table 5.13 – Women's intention to remain non-smokers and their exposure to passive smoking, n=314

	N: 314	%
Tried smoking on at least one occasion	76	24.2
Women with a desire to smoke	9	3.0
Exposure to passive smoking:		
Sharing a house with other smokers	216	69.0
Dislike being around smokers	261	83.1

Exposure to passive smoking is similar to the findings of a previous study conducted in this population, where such exposure was 68% (Steyn et al., 1997). 83% of these non-smoking women said that they dislike being in the presence of other smoking. This attitude to smoking indicates that most non-smokers are unlikely to start smoking in the future.

Section 5 E – Pregnant women's beliefs and knowledge about smoking during pregnancy:

This section looks at knowledge and beliefs of all pregnant women regarding the effects of tobacco use on themselves and their babies.

Table 5.14 – Pregnant women's beliefs about the severity of the effects of smoking and the harm caused to the mother (percentage).

	Tot N: 796	Smoker [1] N:365	Quitters[2] N:117	Non-smokers[3] N:314	P-value		
					1:2	1:3	2:3
Women's beliefs about smoking during pregnancy:					0.00	<.0001	0.46
Little harmful	8.6	14.3	2.6	4.2			
Fairly harmful	9.1	11.5	5.1	7.7			
Very harmful	82.3	74.2	92.3	88.1			
Smoking during pregnancy is harmful to the pregnant woman	76.2	68.8	82.1	82.5	0.005	<.0001	0.91
Effects of smoking on the pregnant woman (unprompted):							
Smoking is harmful but can't specify its effects	23.2	19.2	24.0	28.0	*		
Smoking causes pregnancy related complications	4.0	4.1	6.0	2.5			
Smoking causes respiratory problems to themselves	29.3	24.1	26.5	36.3			

* This data resulted from open-ended questions where women could list any three effects of smoking known to them. Answers were neither a response to "yes/no" questions and could thus not be compared.

Regarding women's beliefs about the severity of the harm caused during pregnancy, significantly more smokers than quitters and significantly more smokers than non-smokers reported smoking to be of limited harm during pregnancy (little harm). Thus fewer smokers than quitter and non-smokers seemed convinced of the severity of smoking during pregnancy.

Table 5.15 – Pregnant women's beliefs of the harm caused by smoking to the baby (percentage).

	Tot N: 796	Smoker[1] N:365	Quitters[2] N:117	Non-smokers[3] N:314	P-value 1:2	1:3	2:3
The harmful effects of smoking to the unborn baby:							
% who believe that smoking is harmful to the unborn baby	94.3	92.5	94.8	96.2	0.40	0.04	0.53
Unprompted explanation of the harm smoking causes the foetus:							
Smoking harms the foetus, but can't specify its effects	17.0	14.2	18.0	20.0	*		
Smoking results in respiratory problems	25.1	21.0	24.0	30.5			
Smoking retards foetal growth	31.0	36.0	32.0	24.5			
Smoking results in foetal death	4.0	5.0	6.0	1.5			
Smoking during pregnancy leads to premature birth	3.5	3.0	3.4	2.5			

* This data resulted from open-ended questions where women could list any three effects of smoking known to them. Answers were neither a response to "yes/no" questions and could thus not be compared.

While all groups are highly aware of the danger of smoking to the unborn baby, significantly fewer smokers than non-smokes reported that smoking during pregnancy is harmful to the baby. This could either be a lack of awareness in smokers or it could be that such women feel guilty about smoking during pregnancy and therefore deny that they know about the harm. If this is genuine lack of awareness, it might be a determining factor for smokers continuing to smoke throughout the pregnancy. While quitters and non-smokers understand the relationship between the harmful effects to the mother and the harmful effects to the baby, smokers see themselves as less at risk of being affected and therefore the effects to the foetus are not perceived as that severe.

Multinomial regression

Multinomial regression analysis was performed to document predictors for continued smoking. However, the analysis did not add any more information than the bivariate analysis. Below is an example of the multinomial regression analysis.

In multinomial regression comparing the belief regarding harm to the mother and the baby of smokers to non-smokers, smokers to quitters and quitters to non-smokers, the following "predictor" variables were used:Belief of harm to the mother versus no belief of harm to the mother; and belief of harm to the foetus versus no belief of harm to the foetus. Below are the results:

Table 5.16: Odds ratios for smokers, quitters and non-smokers regarding their beliefs about the harm caused to the mother and the foetus

Variables	Odds ratio	95% CI	P value
Smokers compared to non-smokers			
No belief of harm to the mother	2.09	1.41 – 3.09	0.000
No belief of harm to the baby	1.41	0.67 – 2.96	0.365
Quitters compared to non-smokers			
No belief of harm to the mother	1.02	0.56 – 1.85	0.93
No belief of harm to the baby	1.45	0.50 – 4.23	0.48
Smokers compared to quitters			
No belief of harm to the mother	2.03	1.16 – 3.57	0.01
No belief of harm to the baby	0.96	0.36 – 2.56	0.94

Smokers were 2.09 times more likely than non-smokers to believe that smoking does not cause any harm to the mother. Smokers were also 2.03 times more likely than quitters to believe that smoking does not cause harm to the mother. No significant differences were found amongst the three groups regarding the belief in harm smoking causes the baby.

Tables 5.17-5.19 show women's level of knowledge regarding the effects of smoking. For these direct questions women were asked to either agree (true), or disagree (false) with statements about the effects of smoking, with another option for those who do not have any knowledge about a given statement.

Table 5.17 – Women's knowledge about nicotine (percentage).

	Total N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value		
					1:2	1:3	2:3
Knowledge about Nicotine: % of women who know that: Nicotine is addictive	83.4	85.2	87.2	80.0	0.58	0.07	0.08
Nicotine reaches the foetus	76.2	77.7	80.3	73.0	0.55	0.14	0.11
Nicotine is present in a smoker's breast milk	58.7	61.0	56.4	57.0	0.39	0.31	0.91

Most women in the sample seems to know that nicotine causes addiction and can reach the foetus, while relatively fewer women knew about its presence in breast milk after the birth in mothers who still smoke.

Table 5.18 – Pregnant women's knowledge of the effects of smoking during pregnancy

	Total N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value		
					1:2	1:3	2:3
Knowledge about the effects of smoking on the pregnancy: % of women who know that: Smoking during pregnancy may lead to miscarriage	44.2	43.7	47.0	43.6	0.52	0.98	0.53
Smoking during pregnancy may retard foetal growth	86.2	87.7	88.0	83.8	0.91	0.14	0.26
Smoking during pregnancy may lead to premature labour	45.2	42.7	49.6	45.5	0.19	0.46	0.45
Smoking during pregnancy may lead to foetal death/stillbirth	50.0	54.2	50.4	45.0	0.47	0.01	0.30

Less than 50% in all groups knew that smoking during pregnancy could lead to miscarriage or that it can lead to premature labour

Table 5.19 – Pregnant women's knowledge of the effects of smoking on the baby (percentage).

	Total N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value 1:2	1:3	2:3
Knowledge about the effects of smoking during pregnancy on the baby after birth:							
Smoking during pregnancy may lead to Sudden Infant Death Syndrome (SIDS)	35.7	35.3	30.8	38.0	0.36	0.49	0.17
Smoking may cause abnormal lung development in the baby	79.5	75.3	83.8	82.8	0.05	0.01	0.81
Smoking during pregnancy may cause respiratory problems such as asthma/bronchitis	89.2	88.2	88.0	90.8	0.95	0.28	0.40
Smoking during pregnancy can cause learning problems at school (Attention Deficit Disorder)	69.6	67.7	70.0	71.7	0.62	0.26	0.74

Significantly fewer smokers than quitters and non-smokers agreed that smoking during pregnancy could lead to the abnormal development of the baby's lungs. When relating this to the belief question in the previous table, it is clear that women have more knowledge regarding the effects of smoking on the baby than the effects on the pregnancy. Most women across the three groups knew that smoking during pregnancy could result in foetal growth retardation and respiratory problems once the child is born.

Section F – Pregnant women's attitudes to intervention, N=796

This section reports on women's feelings about – and whether they would participate in – possible interventions. Women's feelings about the clinic service and the care they received there were also explored.

Table 5.20 – Pregnant women's preferred setting for an intervention (percentage).

	Total N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value 1:2	1:3	2:3
Feel that information from the clinic could help women quit	90.6	89.6	93.2	90.7	0.25	0.61	0.42
Are aware of other places in the community providing smoking information	19.4	14.3	25.6	23.0	0.00	0.01	0.55

Only a small proportion of women, especially quitters and non-smokers, were aware of other places where women could obtain help on smoking.

Table 5.21 – Women's satisfaction with the clinic administration and services provided by the midwives (percentage).

	Total N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value 1:2	1:3	2:3
Women who are satisfied with the *overall care* provided at the clinic	94.8	95.6	95.7	94.5	0.95	0.52	0.62
Women's views of clinic service:							
Satisfied with clinic service	90.5	89.3	91.5	91.4	0.50	0.36	0.98
Appointment making is difficult	19.3	19.5	16.2	20.4	0.43	0.76	0.33
The clinic service is hopeless	6.5	7.1	3.4	7.0	0.14	0.95	0.16
Getting to the clinic is easy	83.0	81.1	90.6	82.2	0.01	0.71	0.03
Waiting times are too long	33.7	34.8	29.1	34.1	0.25	0.84	0.32
Satisfied with the midwife's explanations	78.0	74.5	80.3	81.2	0.19	0.03	0.83
Midwives treat women with respect	90.0	90.1	88.0	90.5	0.51	0.89	0.46
Midwives spend enough time with women	73.1	69.6	81.9	74.2	0.00	0.18	0.09
Don't have trust in midwives	8.7	9.9	6.0	8.3	0.20	0.47	0.42
Feel at ease with the midwives	85.6	83.0	86.3	88.2	0.39	0.05	0.59
Midwives appear confident	82.0	78.6	82.1	85.7	0.42	0.07	0.35

Significantly fewer smokers than quitters and non-smokers felt that the midwife spends enough time with them, implying that they would like to spend more time with her. This could be due to smokers requiring more time than quitters and non-smokers to talk about their smoking habits. (See the Discussion chapter for a detailed description of the nature of a normal clinic visit in this setting). From this table it is clear that women have a high degree of trust in the midwives (91%) and that the midwives are regarded as the ideal candidates to deliver ant-smoking counselling.

Section G - Women's preferred methods of smoking cessation, N = 796

This section looks at women's preferred methods of smoking cessation. The questionnaire included a list of intervention methods developed from previous qualitative findings. Women were asked to rate methods from least to most effective. The objective was to see what methods of intervention women would be most receptive to.

Table 5.22 looks at how women rated intervention methods.

Table 5.22 – Women's preferred methods for smoking cessation intervention (percentage).

Women's rating of methods	Tot N: 796	Smokers[1] N: 365	Quitters[2] N: 117	Non-smokers[3] N:314	P-value		
					1:2	1:3	2:3
Pamphlets: Effective	24.8	19.8	22.9	31.5	0.22	<.0001	0.16
Fairly effective	14.1	10.6	15.6	17.1			
Ineffective	61.1	69.6	61.5	51.4			
Magazines: Effective	26.4	20.5	25.7	33.6	0.41	<.0001	0.02
Fairly effective	20.6	19.6	15.6	22.6			
Ineffective	53.0	59.9	58.7	43.8			
Talks by female quitters: Effective	47.1	44.4	48.6	49.6	0.42	0.08	0.97
Fairly effective	20.1	18.4	21.1	21.6			
Ineffective	32.8	37.1	30.3	28.8			
Quit line: Effective	24.6	21.9	28.4	26.4	0.37	0.05	0.37
Fairly effective	16.7	14.9	13.8	19.9			
Ineffective	58.7	63.2	57.8	53.8			
Video on smoking: Effective	47.8	45.3	50.5	49.6	0.64	0.28	0.71
Fairly effective	19.6	19.3	17.4	20.9			
Ineffective	32.6	35.4	32.1	29.5			
TV show on smoking: Effective	48.0	44.4	50.5	51.4	0.53	0.15	0.91
Fairly effective	16.5	16.7	15.6	16.8			
Ineffective	35.5	38.9	33.9	31.8			
Radio show on smoking: Effective	37.6	32.5	38.5	43.1	0.27	<.0001	0.15
Fairly effective	18.3	14.6	17.4	23.0			
Ineffective	44.1	52.9	44.0	33.9			
Group counselling with midwife: Effective	45.5	38.0	46.8	53.8	0.26	0.00	0.44
Fairly effective	20.7	24.3	20.2	16.8			
Ineffective	33.8	37.7	33.0	29.4			
Individual midwife counselling:				53.1	0.95	0.25	0.67
Effective	49.4	46.5	48.2	16.4			
Fairly effective	17.8	18.7	18.5	30.5			
Ineffective	32.8	34.8	33.3				
Support groups: Effective	61.4	58.4	60.5	65.4	0.74	0.17	0.42
Fairly effective	16.6	17.9	14.7	15.8			
Ineffective	22.0	23.8	24.8	18.8			
Photo comics: Effective	38.1	36.0	41.3	34.9	0.15	0.43	0.68
Fairly effective	15.3	14.0	18.3	16.1			
Ineffective	46.6	50.0	40.4	49.0			
Cartoon about smoking: Effective	31.8	28.4	34.3	39.4	0.19	0.12	0.72
Fairly effective	16.0	14.8	19.4	15.7			
Ineffective	52.2	56.8	46.3	44.9			

When adding 'fairly effective' and 'effective', the most preferred methods of intervention were: video, talks by previous quitters, support groups, and individual and group counselling by a midwife.

Table 5.23 looks at the women's preferred language in which to have the intervention and the preferred intervention site:

Table 5.23 – Preferred language medium and the preferred setting for a smoking cessation programme of women who smoke daily, N=365

	N: 365	%
Women's preferred language for the intervention:		
English	97	27.2
Standard Afrikaans	84	23.5
Their own Afrikaans dialect	176	49.3
Women's preferred setting for a cessation programme:		
The clinic	235	64.4
Their home	115	31.5
Community center	97	26.6

While the majority of the population is bilingual, the women in the sample still preferred to have the intervention in Afrikaans. The majority of women (64%) also reported that they want the intervention to take place at the clinic.

6. DISCUSSION

6.1 The trend of smoking during pregnancy in the coloured community

The smoking prevalence found in this study is similar to that found in a study conducted in 1996, in which coloured women were found to have exceptionally high smoking rates (Steyn at al, 1997). In the 1997 study 47% of the women interviewed reported to have smoked during pregnancy. In the following year, 1998, South Africa's first Demographic and Health survey (DHS) found a decline in the overall smoking rates. This decline may have been partly due to the incremental introduction of tobacco control legislation since 1993, accompanied by public health education campaigns as well as the significant increase in tobacco taxes. However the DHS still found the coloured group to have the highest smoking rates, with 39% of women smoking compared to 28% of white women, and 5% and 9% of black and Asian women respectively. The DHS however did not collect data on smoking during pregnancy.

This study highlights the extent to which smoking during pregnancy remains a problem within this community. Regardless of the tobacco control measures taken over the past decade, pregnant women in this study conducted in 2001 still have the same smoking prevalence of 46% as was reported in the 1996 study (Steyn et al., 1997). Because the smoking prevalence in the coloured community as a whole is so high, more and more women from this community are at risk of starting to smoke and continuing to smoke during pregnancy. This creates a vicious cycle that will put more babies at risk of being born prematurely, underweight and suffering the effects of tobacco.

6.2 Sociodemographic and obstetric characteristics

The sociodemographic data showed that a significantly higher proportion of non-smokers and quitters than smokers have education beyond primary school (more than seven years of education), and nearly half of the smoking sample had completed only the primary school level. In this sample, lower level of education was thus associated with decreased cessation. Low educational level could be one of the underlying reasons why women continue to smoke, and the level of smoking cessation information currently delivered by the midwife may be inappropriate

for their level of education. In order to accommodate women with low levels of education, interventions should be designed in such a way as to make such interventions understandable to them by using material appropriate to their level of education. This can be achieved by using a language that is understandable to the women, including pictures in leaflets as a way of making it more interesting and understandable to them or by using a combination of different methods, such as pamphlets, quit guides and counselling in order to ensure that women are fully informed about the dangers of smoking

The results indicated a possible relationship between continuing to smoke and the lack of financial support from a partner. Significantly fewer smokers than quitters or non-smokers were neither married nor living with a partner. Although financial support from a partner was high among all groups, significantly more quitters (92%) than smokers (84%) and significantly more quitters than non-smokers (85%) said that a partner financially supported them. Significantly more quitters than smokers and non-smokers have a partner who is employed. Women who quit may have been able to do so because they had a sense of security in the form of an employed partner who will financially support them to adequately care for the baby. In contrast, the financial strain a lack of financial support places on women who smoke might add to their lack of motivation and the difficulty they experience when making an attempt to quit.

More quitters than smokers also have other family members who they perceive as being emotionally supportive during the pregnancy. This finding is suggestive in the light of previous studies that concluded that social and emotional support plays an important role firstly in helping a woman to decide to quit and secondly in helping her to cope with the physiological and psychological effects of quitting (Connor et al, 1999). Although the study on which this thesis is based did not investigate the partner' smoking status, other studies have shown that the best way for a partner to actively support a smoking pregnant woman is by making a concerted effort himself to stop or reduce his smoking (Olsen, 1993), as women are less likely to quit if the partner continues to smoke.

Smoking cessation interventions for pregnant women thus have to find ways of offering emotional support to women who may not get support anywhere else. This can be achieved by training midwives to be more supportive in their counselling sessions with women so that women are left feeling supported by the midwife (Rollnick et al., 1992). The intervention could also include information leaflets for the partner and other family members. Hopefully this would make

the partner and others more aware of the danger of smoking and thus be more supportive when the pregnant woman makes an attempt to quit. It could also give the pregnant woman the feeling that there is a shared responsibility in her household of the need to protect the unborn baby. Another method to offer support to women is to train quitters to act as peer educators at the antenatal clinic. The peer educators, with similar backgrounds to the pregnant woman, would then be available to women to talk to and to ask for advice.

Significantly fewer smokers (43%) than quitters (58%) and non-smokers (54%) were found to have planned their current pregnancy. This was an important finding of the study as it shows that women who do not plan their pregnancies are particularly at risk of suffering the effects of continued smoking during pregnancy. While women who consciously plan to become pregnant have the opportunity to stop smoking before they become pregnant, women who do not plan their pregnancy do not have the opportunity to set quitting goals before conception. Women who continue to smoke after becoming pregnant thus find the experience of quitting more difficult. Furthermore, a lack of concern for themselves, their health and the health of future babies may contribute to both unplanned pregnancies and continued smoking. An unplanned pregnancy could also be stressful in itself, and women may turn to smoking as a coping mechanism.

There could also be a difference in the attitudes towards a planned pregnancy and an unplanned pregnancy, as those who have consciously planned the pregnancy might be more cautious regarding avoiding harm to the baby as opposed to women who have not planned the pregnancy and are still coming to terms with their pregnancy state. A previous study (Curry et al., 20001) has shown that if the woman is strongly motivated early in pregnancy to be a good parent, this could help sustain postpartum abstinence. General intrinsic motivators (behaviours that are driven by the anticipation of rewards that are internal to the person, such as improved health and self-confidence) to quit early in pregnancy could also facilitate postpartum maintenance if the mother planned the pregnancy and is looking forward to the birth of her baby. Having consciously planned the pregnancy and making plans for the birth of the baby are thus an indicator of the mother's level of motivation and how she would react to smoking cessation advice (Crittenden et al., 1994). As the proportion of unplanned pregnancies was so high in this study (51% in the total sample), the challenge is to design an intervention that takes into account the fact that so many women in this population do not plan their pregnancies. As these women may not be as motivated as those who plan their pregnancies to protect their unborn babies from the harm of smoking,

future interventions should include cognitive treatment to help motivate them to quit smoking and increase their confidence in their ability to abstain.

A significantly higher proportion of smokers than quitters have been pregnant before. This is consistent with previous findings that if women do not quit during a first pregnancy, their chances of quitting in subsequent pregnancies become smaller (Ruggiero at al, 1997). Findings of a qualitative study with pregnant women from the same population have also shown that women who smoked during pregnancy and who gave birth to a healthy baby do not believe smoking to pose any serious harm. Women who do not have experience of the harm caused by smoking are therefore not motivated to quit (Everett K, unpublished). The smokers in this study might have similar experiences and the challenge is for health providers to change the attitudes of smoking women with wrong perceptions regarding the danger smoking holds for the baby, and explain to women the concept of risk.

Significantly more quitters than non-smokers have had previous miscarriages (16.3% and 11.7% respectively). This is possibly what might have prompted quitters to change their smoking behaviour, although only 9% of quitters said that they quit as a result of complications in previous pregnancies. Low birth weight was also shown to be less prevalent in the non-smoking group (5.1%) than among smokers (10.4%) and quitters (11.1%). However, the figures for low birth weight in this study are much lower than those found in a previous study conducted in the same population. In that study birth weight was actually measured, and it found that 20% of newborns born to women who smoke were small for gestational age (Odendaal et al, 2001). The study on which this thesis is based, however, has limitations in that data on previous pregnancies were all self-reported and information could not be verified. Women could have been unaware of birth weights, they might have had problems recalling previous birth outcomes or they could have concealed the fact that their babies were underweight when completing the questionnaire.

In this study a significantly higher proportion of smokers (13%) than quitters (6%) and non-smokers (6%) currently consume alcohol. Significantly more smokers (11%) than quitters (4%) and non-smokers (4.5%) are also regarded as problem drinkers (CAGE+). Studies have shown that in this population the prevalence of Foetal Alcohol Syndrome is alarmingly high, at 40-46 per thousand in children aged 5 to 9 years (May et al, 2000). Women who drink tend to smoke too, and this may make it difficult for women who decide to quit during their pregnancy but who still drink alcohol, to quit smoking. The fact that more smokers than quitters and non-smokers

were problem drinkers also highlights the addictive nature of the two substances. This finding is reflective of the fact that both substances are potentially addictive and women may not be likely to quit both at the same time. Previous studies have emphasised the need to for women attending antenatal clinics to be evaluated according to both alcohol and tobacco use, and that smoking cessation interventions need to address both problems in order to have success in helping women to quit smoking (Ebrahim, 2000 and Ockene et al., 2002).

6.3 Characteristics of pregnant smokers

The mean number of cigarettes smoked per day of 5.8 (SD 4.3 and a range of 1-40) is much lower than that which was reported in a previous study in the same population (Odendaal at al, 2001). It is important to note that no biochemical markers were used to determine women's smoking levels, and that data are restricted to women's self-reports. Furthermore, in a follow-up qualitative study in the same population on women's self-reporting of cigarette smoking (Petersen MPH thesis, 2004), there was consensus amongst the women interviewed that pregnant women in general tend either to conceal their smoking status or underestimate the amount of cigarettes smoked per day. This is mainly to avoid criticism from clinic staff and society. While the questionnaire was designed in such a way as to attempt to determine women's smoking status through cross checking, the number of cigarettes smoked could not be verified.

Amongst the 365 pregnant women who smoked, 21% said that they have never made an attempt to quit smoking. However half of these women indicated that they would want to quit smoking. Their continued smoking could be due to lack of information about quitting, a lack of self-efficacy and social and emotional support. With the exception of 10% of these women who have no desire to quit smoking, the great majority of smokers are thus open to quitting and could potentially benefit from an intervention targeted at their own health.

The majority of the women reported that their knowledge about smoking and quitting is very limited (87% and 89% respectively). However this is in contrast to how they 'scored' on the knowledge questions (discussed later in this chapter). Women might thus be aware of the specific harm caused by smoking during pregnancy, as told by a midwife, but be unable to interpret and understand the magnitude of the harm. With regard to knowledge about quitting, the 79% of smokers who have made an attempt to quit before but failed may perceive their knowledge about

quitting as inadequate because of the failed attempt. Unless they receive information about and support for quitting, their attitude to quitting will remain negative.

Almost all the smokers indicated that they are willing to participate in a smoking programme, and this again supports the finding that most of the smokers are open to change. While only 55% of the smokers said that they talk freely to the midwife about smoking, and 65% said that they have enough confidence to talk to her about smoking, 33% said that they never talk about smoking and 28% said that they are too afraid to ask questions. This might be due to the clinic service not being conducive to asking questions, for example where time spent with the midwife is limited and where there is a lack of privacy. It could also be that women do not feel that smoking is a priority due to the fact that they have so many other stressors in life (Petersen MPH thesis, 2004). The women attending these antenatal clinics are mostly poor and live in environments where crime and violence are common, so that smoking cessation is not their main priority.

In a previous qualitative study midwives reported that women seldom ask questions or even speak during a consultation, and that it seems as if women accept the dominant role of the midwife (Everett, unpublished report). However, it is important to note that, amongst these women, failing to ask the midwife questions might be due to factors other than not feeling comfortable with the midwife. Women may feel insecure about their chances of becoming a quitter and therefore tend to avoid the issue altogether (Petersen MPH thesis, 2004). As found by a qualitative study in the same population (Everett, unpublished report), women also avoid stretching the visit with the midwife any longer than what's necessary as they have other responsibilities, such as work and childcare, to tend to. When the midwife brings up the issue it is often met with a negative response from the pregnant women. 34% of women in this study said that the waiting time at the antenatal clinic is too long, and by the time such women eventually see the midwife they may be tired and want to leave as soon as possible.

The guilt women have due to their continued smoking during pregnancy may also make them apprehensive to speak to the midwife about their smoking habits. A qualitative study conducted in the same population showed that pregnant women see the midwife as an authoritative figure, either because this is how women in this population have been socialised to think or because of the way the midwife presented herself to pregnant women attending the antenatal clinic (Petersen MPH thesis, 2004). This creates an additional barrier in the nurse-patient relationship in the sense

that a one-way relationship is developed where the nurse tells the patient what to do and the patient listens passively.

6.4 Characteristics of pregnant quitters

The mean duration of quitting, 2.3 years (SD 3.8 and a range of 1-30 years) shows that most women in the sample had not quit smoking for the purpose of the current pregnancy. The questionnaire was also limited in the sense that it was impossible to determine exactly how many women quit during the current pregnancy. However, in an unprompted question 29% of women indicated that they quit during the current pregnancy while 9% reported that they quit during previous pregnancies. Whether or not these women quit after receiving advice from a midwife is unclear. Previous studies have shown that women who quit spontaneously do so without formal intervention, that such women feel supported, they are highly motivated and are aware of the harm caused by smoking during pregnancy (Klesges et al, 2001). The data presented here show that few coloured pregnant women can be described in this way.

Among the quitters in this sample, 7% said that they intended smoking again after the birth or the breastfeeding phase. While the majority of quitters were confident that they would not relapse, 23% said that they were unsure about whether they would start smoking again. Such women had stopped smoking recently and for the purpose of the pregnancy. Studies have also shown that first time mothers who quit for the purpose of the pregnancy either relapse before the birth or shortly thereafter as a result of stress and anxiety caused by the pregnancy (Klesges et al, 2001). For such women support from the clinic staff is crucial in ensuring that they remain smoke-free until the birth of the baby and afterwards. When looking at the relapse rates found in previous studies, the participants' wishes to remain quitters seem over ambitious, unless one accepts that those who are unsure about whether they will smoke again will in all probability relapse after giving birth. In a number of longitudinal studies the smoking relapse rates ranged from 33 to 79 percent six months after giving birth (Edwards et al, 1998).

6.5 Stages of change of smokers and quitters and their views on health according to the Health Belief Model

In this section I will discuss women's stages of change and their beliefs about health according to the Health Belief Model (HBM). Women's stages of change will be discussed in relation to the HBM as the first three stages are particularly related to their perception of health and behaviour change. The HBM is not widely used in tobacco research, as it is believed that most people are aware of the dangers of smoking and that smokers thus perceive a general health threat from smoking. In this study however 46% of women continued to smoke during pregnancy, with a large proportion having no intention to change their smoking behaviour in the near future.

A sizable proportion of smokers (28%) are in the pre-contemplation stage. This stage represents those women who have no intention of changing their smoking behaviour in the near future. Women in this stage usually have a lack of awareness of the damage of their behaviour because they have never experienced the harm caused by smoking, because they are not informed or do not have an understanding of the information given or because they are in denial that they might be causing their babies harm (Prochaska & DiClemente, 1995). According to the Health Belief Model (HBM) women who do not feel at risk of suffering the effects of smoking would not make an attempt to change their behaviour. Those smokers who are aware of the risks involved in smoking may avoid changing their behaviour either because their level of addiction is high or because they fear failure in attempting to quit (having low self-efficacy). The HBM regards self-efficacy as a component of behaviour change. In this sample, 21% of women (Table 5.7) said that they had never made an attempt to stop smoking, either because they do not feel at risk of the danger of smoking or they have low self-efficacy to stop smoking.

A large proportion of smokers (36%) are in the contemplation stage, which implies that they intend changing their smoking behaviour within 6 months. According to theory these women are already aware of the benefits quitting bring and they plan changing their behaviour based on the perceived benefits. However, a reality when collecting data is that respondents might give socially desirable answers and indicating that you plan to quit is much more desirable than stating no obvious intention to quit. However this is still the stage where women are most receptive to change, and for that reason they should be given extra attention in order to move on to the next stage. This stage corresponds with the components of perceived benefits and perceived barriers in the HBM. Women have a sense of ambivalence during this stage and therefore tend to weigh

their perceived benefits of quitting with their perceived barriers created by quitting when considering their smoking status. Women who rate the benefits of quitting (e.g. a healthier baby and a healthier mother) as more important than the barriers (e.g. not being able to relax by smoking and battling with the frustration caused by trying to quit smoking) they are more determined in their intentions to change their smoking behaviour.

Women in the preparation stage have already made at least one attempt to quit, and in this sample 36% of women have done so. This could be a very sensitive stage in the sense that women's follow-up attempt will depend on the experience of past attempts. Women who feel positive about previous attempts need the encouragement from the midwife to persist, while those who feel that they've failed need to be understood, be supported and motivated to try again. Women in the preparation stage tend to have a higher self-efficacy in the sense that they are developing confidence to change their smoking behaviour, and this begins with thinking about quitting, followed by an attempt to see whether quitting can be achieved. The questionnaire did not include a question on 24 hour abstinence, which can be used as a measure of self-efficacy. In a study by Woodby et al. (1999) it was found that women's inability to quit smoking for 24 hours (having low self-efficacy) was a predictor of continued smoking.

The action stage could be an equally sensitive time, especially during pregnancy. Quitters in this stage comprise those women (38%) who quit within the past 6 months. For women to move to the next stage or not relapse, the benefits of quitting need to outweigh the difficulty associated with quitting, as discussed in the HBM. Those women who have quit solely for the purpose of the pregnancy need to be convinced by health providers that quitting holds more long term benefits for the baby as well as their own health. Actions taken by the woman need to be praised by the health care provider as it demonstrates the woman's desire for change. Of the 117 quitters in the sample, 25% said that they experienced quitting as difficult. These quitters need continuous encouragement from the health provider in order to instil the belief in them that they are able to sustain quitting. Though the HBM do not apply to women in this stage as they are already perceive a health threat, they need to be reminded of the consequences of smoking and the benefits of sustained quitting until they reach the maintenance stage.

The majority of the quitters (62%) are in the maintenance stage, which means that they have quit more than six months prior to the interview. During this phase self-efficacy is at its highest as women have already proven to themselves that they can remain smoke-free. However, relapse

prevention should still be an important component of future interventions in order to ensure that these women remain smoke-free.

An important finding regarding smokers is that most are in the contemplation and preparation stages, and that much need to be done to make them aware of the long-term benefits of quitting. Having so many women in contemplation and preparation has implications for interventions in the sense that it need to include intervention materials specifically designed for women in these stages. The challenge would be to ensure that women with an intention to quit do not go through the clinic system unnoticed, and that women in the preparation stage be encouraged and supported to remain quitters throughout and after the pregnancy.

6.6 Knowledge and beliefs of smokers, quitters and non-smokers

The majority of women across all three smoking groups knew that smoking is harmful to the health of the mother. However, table 14 shows that a significantly smaller proportion of smokers than quitters and non-smokers held this belief. This might be due to women's past experiences where they did not perceive themselves to have suffered after smoking during pregnancy. For those women who were pregnant for the first time, the past experiences of relatives and friends also did not convince them that smoking poses personal harm. However, women who smoke could also be in denial and therefore feel the need to rationalise their smoking as not harmful.

A significantly low proportion of smokers than quitters and non-smokers also believed in the severity of the effects of smoking during pregnancy. Of those women who believed that smoking is harmful, most of them could not explain the specific harm or the magnitude of the harm, while some knew about respiratory problems that can be caused by smoking. This is in line with a previous qualitative study in the same population (Everett, unpublished report), where women were aware of the dangers but had difficulty talking about specific effects. Almost all women across the three groups knew that smoking is harmful to the foetus. Of all the possible effects of smoking during pregnancy, foetal growth retardation was rated highest by smokers and quitters. Non-smokers rated respiratory complications caused by smoking during pregnancy highest. It could be that non-smokers have no experience of pregnancy complications caused by smoking. Smokers and quitters however, owing to smoking during pregnancy, may have experience of complications in vitro, and therefore rated low-birth weight highest.

For the knowledge questions women filled in a set of questions by stating whether each was true, false or whether they don't know. All women were aware of what nicotine is and that it reaches the foetus. With the exception of SIDS and premature labour, most of the women in all 3 groups knew the specific dangers of smoking. This is in contrast to findings in the "belief" section discussed in the paragraph above. The 'belief' questions preceded the 'knowledge' questions and women were asked in open-ended questions in what way they perceived smoking to be harmful. The knowledge questions however provided a list of statements for women to respond to. It could be that women do recognise the specific dangers of smoking when these are mentioned to them, or it could be that women answered most questions to be 'true' without really knowing whether this was the case. A limitation of these questions was that they consisted only of true statements, as researchers wanted to avoid giving inaccurate statements which might be accepted by respondents as the truth. When comparing the responses to the list of statements with the unprompted responses women gave in the belief questions above, it is clear that the women in this sample had difficulty thinking of specific effects of smoking on their own. Similarly, unless informed by a midwife of the specific dangers, pregnant women do not perceive themselves as putting the lives of their babies at risk. Thus they are aware of the danger, but not the extent to which smoking can be harmful to their own babies. This suggests that they have not internalised the known danger as an actual risk to themselves and their foetus.

6.7 Pregnant women's attitudes to clinic services

Most women in all three groups reported that they were satisfied with the clinic services. The majority of women indicated that they felt respected by the midwives and that they completely trusted them. A significantly lower proportion of smokers than quitters however felt that the midwives spent enough time with them. The time allocated to a first visit ranges from 20-30 minutes, while follow-up visits usually range from 5 –10 minutes. The time allocated to follow-up visits might not be enough for smokers to talk to the midwife about their smoking or for the midwives to raise the topic. In a previous qualitative study in the same population women mentioned that they did not raise the smoking issue unless the midwife talked about it (Petersen MPH thesis, 2004).

Smokers therefore might need more time than others to gain the courage to raise the topic of their smoking during the consultation with the midwife. Though the majority of women are satisfied with the midwife's explanations of tests and examinations, significantly fewer smokers than non-smokers are satisfied with the midwife's explanations. Again, this might be because smokers have more pregnancy complications due to smoking and therefore need more explanation regarding test results during pregnancy. It could also be that pregnant smokers feel embarrassed about their smoking status and thus rationalise their continued smoking being as a result of the midwife not doing her job efficiently.

The reality of public sector antenatal services is that midwives have little time to spend with each pregnant woman and smoking counselling is only one of the issues midwives have to talk to the pregnant women about. Issues such as alcohol consumption, HIV counselling and their diet need to receive priority in order of their effects on the unborn baby and the mother. Often smoking cessation counselling receives the least attention. Future interventions thus need to be brief and simple and not add to the midwife's burden of having too much to do in too little time.

6.8 Pregnant women's preferred methods for intervention

The purpose of this section was to see what methods of intervention women perceive as most useful for smoking. Asking smokers to list the methods they would be interested in would also give an idea of what methods women would respond to and what methods they would be resistant to. Because quitters have already been through the process of quitting, it was believed that they would already have some experience of what might work. The result showed support groups and individual counselling by a midwife to be most preferred by all three groups. However, previous research on smoking cessation in pregnancy has proven support groups to be highly ineffective in motivating women to quit (Oliver et al, 2001). Women might have answered group support in this study because they believe that talking about their addiction while getting support from peers might help.

However, the fact that the women in this study are poor and have various other life stresses is suggestive that group programmes would be poorly attended, as has been found in previous studies (Walsh & Redman, 1993). Women either have to get back to their work or they may have other children waiting at home and can't afford paying a baby sitter. Using public transport to

attend a group programme may also be too costly. The other preferred methods included videos about the effects of smoking and group counselling by a midwife. An important finding here was that midwife participation was strongly preferred to methods that did not include midwife participation. This is in contrast to the belief midwives hold regarding how pregnant women view them. Results of a qualitative study showed that midwives have the impression that patients are resistant towards them and that they would not be able to bring about behaviour change (Everett, unpublished report). Table 17 shows some significant differences between smokers and non-smokers regarding certain preferred methods. However, this difference could be due to the fact that non-smokers do not have an understanding of what could be effective, as they can't comprehend the process of quitting and what methods could aid in quitting.

6.9 Strength of the study

A strength of the study is that it provides information on the factors associated with smoking versus quitting. This has not been achieved in previous studies on smoking in this population. The information obtained regarding the possible determinants of quitting will allow the tailoring of interventions according to stages of behavioural change. The data have also shown that the smoking prevalence among coloured pregnant women has not decreased since 1996, and this information is valuable to researchers and planners.

The findings of the study are based on a national sample covering the geographic areas where coloured people live. Although it is not a random sample of all low income coloured people in South Africa the data could be reflective of the smoking practices of coloured pregnant women attending public sector antenatal clinics.

Another strength of the study is that interviews were conducted at clinics where the respondents received antenatal care. This gave the researchers greater insight into the operation of the clinic services and how women reacted to the care they received. Such insight could help in the planning of a smoking cessation intervention project that could be implemented at these antenatal clinics.

The actual interviews made women more aware of the magnitude of the problem of smoking among coloured pregnant women. Women were also appreciative of the smoking information sheet handed to them after completion of the questionnaire.

6.10 Limitations of the study

Random sampling was difficult to achieve during the data collection process. While it proved possible to achieve during the pilot phase it turned out problematic during the final data collection.

Another limitation of the study is that it did not include biochemical testing to confirm smoking status, this was due to the high costs of doing such tests.

The questionnaire did not ask women how far into their pregnancy they were at the time of the interview. This has implications for the decision making process of women as some may have been to early into the pregnancy to clearly think about their position on smoking. Knowing how far women were into their pregnancy could also have given an estimate of women were most likely not intending to quit at all during the pregnancy.

The questionnaire only asked non-smoking women whether they share a home with any other smokers. This showed how many non-smoking women are exposed to passive smoking. However, the same question was not asked for smokers and quitters even though this could have been valuable in knowing how many women have the double burden of being exposed to direct and passive smoking. Women were also not asked whether their partners smoke. The literature review and discussion have highlighted the importance of the partner's smoking status in determining whether women quit smoking during pregnancy. Asking the woman whether her partner has changed his smoking status during her pregnancy could also have been useful in giving greater insight into the woman's smoking status during pregnancy.

Though the questionnaire gives an estimate of women who regarded the pregnancy as a cue to quitting, it did not explicitly ask quitters whether they stopped smoking during the current pregnancy. If the questionnaire asked women whether they stopped smoking during pregnancy it would have shown the proportion of spontaneous quitters in the sample.

All the questions in the knowledge section were true statements with which the women had to agree or disagree. There might have been a tendency for women to choose agree even though they had no knowledge about certain issues covered in the knowledge section.

6.11 Conclusion

The study has provided an understanding of the smoking trends of low income coloured pregnant women, and the role of socio-demographic and pregnancy characteristics in smoking and smoking cessation. It also provided a description of the characteristics of smokers, quitters and non-smokers in terms of possible determinants of smoking status. The study has shown that there is a relationship between smoking behaviour during pregnancy and women's socio-demographic characteristics. Variables that came out as significant in the study include: 1) educational level, as significantly fewer smokers than quitters and non-smokers had education beyond primary school, 2) financial support from a partner; significantly fewer smokers than quitters obtained financial support from a partner, 3) planned pregnancies; significantly fewer smokers than quitters and non-smokers had planned their pregnancies, and 4) alcohol use during pregnancy; significantly more smokers than quitters and non-smokers are current drinkers and significantly more smokers than quitters and non-smokers are problem drinkers. All these variables need to be taken into account when tailoring interventions programmes for coloured pregnant women.

Studies have already shown the relationship between smoking status and socio-economic status (Albrecht et al., 1994). This study however emphasises the need for a support system for coloured women who smoke. This includes, the role of the partner, her family members and the midwife in actively assisting women to quit by encouraging and motivating them; and second, the role of health care providers in being understanding of the factors causing or reinforcing women's smoking and ways to modify these.

The study also looked at women's stage of change and what implications the stage of change has for health education. It concludes that midwives need to adopt education approaches adapted to the stages of behaviour change individual women are in.

The study has strengthened our understanding of low income coloured women's knowledge about smoking and smoking cessation. Previous research in this population has shown that women do know that smoking is harmful. However besides low-birth weight and respiratory problems to the child, most women were unaware of any pregnancy complications and how this puts both the mother and the baby at risk. Thus women are aware of some of the effects caused by smoking but they do not understand the magnitude of the impact on the health of the baby. This might be a reflection of the current methods of education within the clinic, which does not take into account each woman's level of education. It could also be a reflection of the communication in the nurse-patient relationship. Pregnant women regard nurses as authoritarian figures, and this creates a barrier in the midwives' relationship with pregnant women.

The study also looked at women's attitudes to midwives and the clinic. Overall, patients reported to be satisfied with clinic services (91%), and this is an indication that the clinic would be the ideal site for a smoking cessation intervention. However, a significantly smaller proportion of smokers than non-smokers seem to be satisfied with the midwife's explanation of procedures. Smokers have lower levels of education than non-smokers and this could be why they need more explanation about the effects of smoking on the pregnancy and the baby, than do non-smokers. Significantly fewer smokers than quitters also feel that the midwife spend enough time with them, and again this could be because smokers need more time to understand what the nurse is saying and they also more time for receiving information about smoking and advice about quitting.

The study also looked at possible educational methods and how women perceive different methods. This can provide researchers with a guide that can be used when planning an intervention in antenatal clinics, although evidence of the effectiveness of methods in this community is still limited.

6.12 Recommendations

- There is a need for a smoking cessation intervention specifically targeted at coloured women attending public sector antenatal clinics. An intervention package should include appropriate material for both the pregnant woman and the midwife. The midwife is the only healthcare provider to see the pregnant woman on a regular basis and they should receive improved

training and support in order to decrease the smoking prevalence among coloured pregnant women.

- Midwives and doctors should be acquainted with the stages of behaviour change. Patients could use the information and advice given by midwives and doctors more constructively if doctors and nurses were able to recognise at which stage women are and provide interventions appropriate to move women along the process of behaviour change.

- Midwives and doctors should also clearly advise women of the benefits of non-smoking and openly discuss women's perceived barriers to cessation. In line with the HBM model there is also a need for them to appreciate the value of praising women for any positive action taken, and encouraging them throughout the pregnancy.

- Midwives and doctors should also be aware of and sensitive to the educational level of patients, in order to make advice and education understandable to the women. This can be done by choosing education methods that are specifically tailored for women with low educational levels, or by simplifying such education in the their communication with patients

- There is a need for consistency among all midwives to follow up on the progress of smokers and quitters, as midwives might be the only persons involved in motivating these women. The midwife needs to express her interest and concern to support the pregnant woman's ongoing motivation to quit or remain a quitter during each visit.

- Midwives should also enquire about the smoking status of the partner or other family members. This would make women more aware about the dangers passive smoking holds for herself, the foetus and once the baby is born. It could also be a practical way of promoting a more supportive social environment if the pregnancy could motivate the family members to stop or reduce their smoking.

- As the questions on the methods for intervention were prompted, it might be beneficial to future interventions if more research were conducted on the methods of intervention preferred by pregnant women. Feasibility studies are also necessary to see whether methods preferred

by women would be feasible within this setting. This should be followed by effectiveness studies to test whether future interventions work in this setting.

- The role of the midwife as playing a key role in future smoking cessation intervention needs to be accepted. Health managers, and the midwives themselves, have to acknowledge the midwives as the most suitable individuals to bring about change in pregnant women's smoking behaviour. Midwives at all clinics thus need to be persuaded of this role, and appropriate training and intervention material should be provided to assist them.

References

1. Albrecht SA, Rosella JD and Patrick T. Smoking among low-income pregnant women: prevalence rates, cessation interventions, and clinical implications. Birth 1994; **21** (3): 155-62

2. Bandura A. Self-efficacy: Toward a unifying theory of behaviour change. Psychological Review 1977a; **84**: 191-215

3. Blair PS, Flemming PJ and Bensley D. Smoking and the sudden infant death syndrome: results from 1993-1995 case-control study for confidential inquiry into stillbirths and deaths in infancy. British Medical Journal 1996; **313**: 195-8

4. Breslau N and Johnson EO. Predicting smoking cessation and major depression in nicotine-dependent smokers. American Journal Public Health 2000; **90** (7): 1122-27

5. Breslau N, Kilbey M and Andreski P. Nicotine dependence and major depression: new evidence from a prospective investigation. Archives of General Psychiatry 1993; **50**: 31-5

6. Bush B, Shaw S, Cleary P, Delbanco TL and Aronson MD. Screening for alcohol abuse using the CAGE questionnaire. American Journal of Medicine. Feb. 1987; **82** (2): 231-5

7. Carey MP, Kalra DL, Carey KB, Halperin S and Richards CS. Stress and unaided smoking cessation: a prospective investigation. Journal Consult Clinical Psychology 1993; **61**(5): 831-8

8. Carmichael SL and Ahluwalia IB. Correlates of postpartum smoking relapse. Results from the Pregnancy Risk Assessment Monitoring System (PRAMS). American Journal Preventive Medicine 2000; **19** (3): 193-6

9. Chaloupka FJ and Wechsler H. Price, tobacco control policies and smoking among young adults. Journal of Health Economics 1997; **16**(3): 359-73

10. Christen AG. Helping patients quit smoking: Lessons learned in the trenches. Quintessence International; **29**:253-259

11. Christensen AL, Tobiassen M, Wielandt H, Bakketeig L and Host A. Repeated validation of parental self-reported smoking during pregnancy and infancy: A retrospective cohort study of infant at high risk for allergy development. Paediatric Perinatal Epidemiology 2004; **18**: 73-9

12. Clasper P and White M. Smoking cessation interventions in pregnancy: practices and views from midwives, GP's and obstetricians. Health Education Journal 1995; **54**: 150-62

13. Cnattingius S, Lindmark G and Meirik O. Who continues to smoke while pregnant? J of Epidemiology and Community Health 1992; **46**: 218-21

14. Coleman T and Wilson A. Anti-smoking advice in general practice consultations: general practitioners' attitudes, reported practice and perceived problems. British Journal General Practice 1996; **46**: 87-91

15. Consensus workshop on smoking cessation during pregnancy. Sponsored by the Robert Wood Johnson Foundation and the Smoke Free Families Program in collaboration with the Health Resources and Service Administration and the Centres for Disease Control and Prevention. Rockville, Maryland, 9-10 April 1998.

16. Connor SK and McIntyre L. The sociodemographic predictors of smoking cessation among pregnant women in Canada. Canadian Journal Public Health 1999; **90** (5): 352-5

17. Cooke M, Mattick R and Walsh R. Differential uptake of a smoking cessation programme disseminated to doctors and midwives in antenatal clinics. Addiction 2001; **96**: 495-505

18. Crittenden KS, Manfredi C. Lacey L, Warnecke R and Parsons J. Measuring readiness and motivation to quit smoking among women in public health clinics. Addictive Behaviours; **19**: 497-507

19. Curry SJ, McBride C, Grothaus L, Lando H and Pirie P. Motivation for smoking cessation among pregnant women. Psychology of Addictive Behaviours 2001; **15** (2): 126-32

20. Deeks JJ and Altman DG. Diagnostic Tests 4: Likelihood ratios. British Medical Journal. July 2004; **329**: 168-9

21. DiClemente CC, Mullen PD and Windsor RA. The process of pregnancy smoking cessation: implications for intervention. Tobacco Control 2000; **9** (3): iii16-21

22. Ebrahim SH, Decoufle P and Palakathodi AS. Combined tobacco and alcohol use by pregnant and reproductive-aged women in the United States. Obstetrics and Gynecology 2000; **96** (5): 761-71

23. Edwards N and Sims-Jones N. Smoking and smoking relapse during pregnancy and postpartum: Results of a qualitative study. Birth 1998; **25** (2): 94-100

24. Ehrlich RI, Du Toit D, Jordaan E, Zwarenstein M, Potter P, Volmink JA and Weinberg E. Risk factors for childhood asthma and wheezing. Importance of maternal and household smoking. American Journal Respiratory and Critical Care Medicine 1996; **154** (3 Pt 1): 681-8

25. Eriksson KM, Salvesen KA, Nesheim BI, Nylander G and Rasmussen S. Smoking habits among pregnant women in Norway 1994-1995. Acta of Obstetrics and Gynaecology Scandinavia 1998; **72**: 159-64

26. Ershoff DH, Solomon LJ and Mullen PD. Predictors of intentions to stop smoking early in prenatal care. Tobacco Control 2000; **9** (3): iii41-45

27. Evans SJ. Good surveys guide. British Medical Journal 1991; **302** (6772): 302-3

28. Fiore M. A clinical practice guideline for treating tobacco use and dependence. A US Public Health Service Report. JAMA 2000, **283** (24): 3244 - 52

29. Floyd RL, Rimer BK, Giovino GA, Mullen PD and Sullivan SE. A review of smoking in pregnancy: Effects on pregnancy outcomes and cessation efforts. Annual Review Public Health 1993; **14**: 379-411

30. Glanz K, Lewis FM and Rimer BK (1997). Health Behavior and Health Education - Theory Research and Practice. Jossey-Bass Publishers, San Francisco

31. Haire-Joshu D. smoking, cessation and the diabetes health care team. The Diabetes Educator 1994; **17**: 54-64

32. Haslam C and Draper E. Stage of change is associated with assessment of the health risks of maternal smoking among pregnant women. Social Science and Medicine 2000; **51**: 1189-96

33. Hymowitz N, Schwab M, McNerney C, Schwab J, Eckholdt H and Haddock K. Postpartum relapse to cigarette smoking in inner city women. Journal National Medical Association 2003; **95** (6): 461-74

34. Isohanni M, Oja H, Moilanen I, Koiranen M and Rantakallio P. Smoking or quitting during pregnancy: association with background and future social factors. Scandinavian Journal Social Medicine 1995; **23**: 32-8

35. Jaakkola JJ and Gissler M. Maternal smoking in pregnancy, fetal development, and childhood asthma. American Journal Public Health 2004; **94** (1): 136-40

36. Janz NK and Becker MH. "The health belief model: A decade later". Health Education Quarterly 1984; **11**: 1-47

37. KatzenellenbogenJM, Joubert G and Abdool Karim SS, (1997). Epidemiology – A manual for South Africa. Cape Town, Oxford University Press, South Africa

38. Klesges LM, Johnson KC and Marnard M. Smoking cessation in pregnant women. Obstetrics and Gynecology Clinics North America 2001; **28**(2): 269-82

39. Ko M and Schulken ED. Factors related to smoking cessation and relapse among pregnant smokers. American Journal Health Behavior 1998; **22**: 83-9

40. Lu Y, Tong S and Oldenburg B. Determinants of smoking and cessation during and after pregnancy. Health Promotion International 2001; **16** (4): 355-65

41. Ludman EJ, Curry SJ, Grothaus LC, Graham E, Stout J and Lozano P. Depressive symptoms, stress and weight concerns among African American and European American low-income female smokers. Psychology Addictive Behavior. 2002; **16**(1): 68-71

42. Ludman EJ, Nelson JC, Grothaus LC, McBride CM, Curry SJ, Lando HA and Pirie PL. Stress, depressive symptoms, and smoking cessation among pregnant women. Health Psychology 2000; **19** (1): 21-7

43. Lumely J, Oliver S, Waters E. Interventions for smoking cessation during pregnancy. Cochrane Database Systems Review 2000. (2): CD001055

44. Manfredi C, Crittenden KS, Cho YI, Engler J and Warnecke R. Minimal smoking cessation interventions in prenatal, family planning, and well-child public health clinics. American Journal Public Health 2000; **90**: 423-27

45. Marks AS, Steyn K and Ratheb E. Tobacco use by black women in Cape Town. MRC Policy Brief March 2001; **3**: 1-4

46. Marlatt GA. (1982). Relapse prevention: A self-control programme for treatment of addictive behaviors. In Sturat RB (Ed.), Adherence, compliance and generalization in behavioral medicine. (pp. 329-377). New York: Brunner/Mazel

47. Marsh A and McKay S (1994), Poor Smokers, Policy Studies Institute, London UK

48. Mas R, Escriba V and Colomer C. Who quits smoking during pregnancy? Scandinavian Journal Social Medicine 1996; **24**: 102-6

49. May PA, Brooke L, Gossage P, Croxford J, Adnams C, Jones K, Robinson L and Viljoen D. Epidemiology of fetal alcohol syndrome in a South African Community in the Western Cape Province. American Journal Public Health 2000; **90**: 1905-12

50. McKnight A and Merret JD. Smoking in Pregnancy – a health education problem. Journal Royal College of General Practitioners 1986, **36**: 161-4

51. Mcleod D, Benn C, Pullon S, Viccars A, White S, Cookson T and Dowell A. The midwife's role in facilitating smoking behaviour change during pregnancy. Midwifery 2003; **19**: 285-97

52. Melvin CL, Dolan –Mullen P, Windsor RA, Whiteside HP & Goldenberg RL. Recommended cessation counselling for pregnant women who smoke: A review of the evidence. Tobacco Control 2000, **9** (3): iii80-84

53. Mullen PD, Richardson MA, Quinn VP and Ershoff DH. Postpartum return to smoking: who is at risk and when. American Journal Health Promotion 1997; **11**: 323-30

54. Nafstad P, Botten G and Hagen J. Partner's smoking: a major determinant for changes in women's smoking behaviour during and after pregnancy. Public Health 1996; **110**: 379-85

55. O'Campo P, Faden RR, Brown H and Gielen AC. The impact of pregnancy on women's prenatal and postpartum smoking behavior. American Journal Preventive Medicine 1992; **8** (1): 8-13

56. Ockene JK, Ma Y, Zapka JG, Pbert LA and Goins KV, Stoddard AM. Spontaneous cessation of smoking and alcohol use among low-income pregnant women. American Journal Preventive Medicine 2002; **23** (3): 150-9

57. Odendaal HJ. Adverse effects of maternal cigarette smoking on preterm labour and abruptio placentae. International Journal Gynecology and Obstetrics 2001; **74**: 287-88

58. Oliver S, Oakley L, Lumley J and Waters E. Smoking cessation programmes in pregnancy: Systematically addressing development, implementation, women's concerns and effectiveness. Health Education Journal 2001; **60** (4): 362-70\

59. Pather MK, De Villiers PJT and Barnes JM. Missed opportunities for antismoking eduction at community health centres in the Cape Metropolitan area. SA Family Practice 2000; **22** (6): 9-14

60. Petersen R, Clark KA, Hartmann KE and Melvin CL. Getting focused: missed opportunities for smoking interventions for pregnant women receiving Medicaid. Preventive Medicine. 2005 Feb; **40**(2):209-15.

61. Petersen Z. The visible woman. Smoking and possibilities for transparency in the nurse-patient relationship – a study of pregnant South African women. Master of Public Health Thesis, series 2004:16. Umea International School of Public Health.

62. Picket KE, Wakschlag LS, Dai L and Leventhal BL. Fluctuations of maternal smoking during pregnancy. Obstetrics and Gynecology 2003; **101** (1): 140-7

63. Pletsch PK, Morgan S and Pieper AF. Context and beliefs about smoking and smoking cessation. MCN American Journal Maternal Child Nursing 2003; **28** (5): 320-5

64. Pletsch PK. Reduction of primary and secondary smoke exposure for low-income black pregnant women. Nursing Clinics North America 2002; **37**: 315-29

65. Prochaska JO and DiClemente CC. An empirical typology of subjects within stage of change. Addictive Behaviors 1995; **20** (3): 299-320

66. Prochaska J and DiClemente C. Stages and process of change of smoking: Toward an intergrated model of change. Journal Consulting and Clinical Psychology 1983; **5**: 390-395

67. Prochaska JO and Norcross JC. Attendance and outcome in a worksite weight control program: Processes and stages of change as process and predictor variables. Addictive Behaviours 1992; **17**: 35-45

68. Prochaska J, DiClemente C and Norcross J. In search of how people change. American Psychologist 1994; **47**: 1102-1113

69. Prochaska JO and DiClemente CC. Toward a comprehensive, transtheoretical model of change: stages of change and addictive behaviours. In: Miller WR, Heather N,eds. Treating addictive behaviours, 2nd edition. New York: Plenum, 1998: 3-23

70. Prochaska JO, Redding CA and Evers KE. The transtheoretical model and stages of change. In: Glanz K, Lewis FM, Rimer BK. Health behaviour and health education 2nd ed. 1997. Jossey-Bass Publishers San Francisco.

71. Pretorius TB (1995). Inferential Statistics, hypothesis testing and decision-making. Percept Publishers, Cape Town

72. Raw M, McNeill A & West R. Smoking cessation guidelines for health professionals – a guide to effective smoking cessation interventions for the health care system. Thorax 1998; **53** (5): S1-S18

73. Rollnick S, Butler C, Stott N. Helping smokers make decisions. The enhancement of brief motivational interviewing for general medical practice. Patient education and counselling 1997; **31**: 191-203

74. Rollnick S, Heather N and Bell A. negotiating behaviour change in medical settings: The development of brief motivational interviewing. Journal Mental Health 1992; **1**: 25-37

75. Rosenstock. The health belief model: explaining health behaviors through expectancies. In Glanz K, Lewis F, Rime B (Eds) (1990). Health behaviour and health education: Theory, research practice. Jossey-Bass, Oxford, pp. 39-62

76. Ruggiero L and De Groot M. Smoking patterns of low-income ethnoculturally diverse pregnant women: are we casting the net wide enough? Addictive Behaviour 1998; **23**(4): 549-54

77. Ruggiero L, Redding CA, Rossi JS and Prochaska JO. A stage matched smoking ceasstion program for pregnant smokers. American Journal Health Promotion 1997; **12** (1): 31-33

78. Samet JM and Yoon S (Eds), (2001). Women and the tobacco epidemic. Challenges for the 21st century. WHO in collaboration with Inst Global Tobacco Control and Johns Hopkins Scool of Pub Health.

79. Solomon LJ, Secker-Walker RH, Skelly JM and Flynn BS. Stages of change in Smoking during pregnancy in low-income women. Journal Behavioural Medicine 1996; **19** (4): 333-45

80. South Africa Demographic and Health Survey 1998, Full Report. Pretoria: Department of Health 2002.

81. Statistics South Africa, 2001. Digital Census Atlas (Electronic). http:/www.statssa.gov.za/census2001/digiAtlas/index.html

82. Steyn K, Bradshaw D, Norman R, Laubscher R and Saloojee Y. Tobacco use in South Africans during 1998: the first demographic and health survey. Journal Cardiovascular Risk 2002; **9**: 161-70

83. Steyn K, Yach D, Stander I and Fourie J. Smoking in urban pregnant women in South Africa. South African Medical Journal 1997; **87**: 460-63

84. Swart D, Reddy P, Ruiter RA and de Vries H. Cigarette use among male and female grade 8-10 students of different ethnicity in South African schools. Tobacco Control 2003; **12** (1): e1

85. Thue E, Schei B and Jacobsen G. Psychosocial factors and heavy smoking during pregnancy among parous Scandinavian women. Scandinavian Journal Primary Health Care 1995; **13**: 182-7

86. US Department of Health Services, (1980). The Health Consequences of Smoking for Women. A Report of the Surgeon General. US Department of Health and Human Services, Public Health Service, Office of Smoking and Health, Rockville, MD

87. Valanis B, Lichtenstein E, Mullooly JP, Labuhn K, Brody K, Severson HH and Stevens N. Maternal smoking cessation and relapse prevention during health care visits. American Journal Preventive Medicine 2001; **20** (1): 1-8

88. Van Walbeek CP (2000). Impact of the recent tobacco excise tax increases on future government revenue potential. Occasional Paper: Applied Fiscal Research Centre (UCT), Cape Town

89. Van Walbeek CP. Recent trends in smoking prevalence in South Africa: Some evidence from AMPS data. Economics of Tobacco Control Project (UCT) 2001; research release no. 3

90. Wakefield M, Reid Y, Roberts L and Mullins R. Results of a qualitative study of smoking among pregnant adolescents. Journal Adolescent Health 1998; **22**: 2-3

91. Walsh RA, Lowe JB and Hopkins PJ. Quitting smoking in pregnancy. Medical Journal of Australia 2001; **175** (6): 320-3

92. Walsh RA, Redman S, Brinsmead M and Arnold B. smoking cessation in pregnancy: a survey of the medical and nursing directors of public antenatal clinics in Australia. Australia New Zealand Obstetrics and Gynaecology 1995; **35** (2): 144-50

93. Walsh R and Redman S. Smoking cessation in pregnancy: do effective programs exist. Health Promotion International 1993; **8**: 111-27

94. Ward S. Addressing nicotine addiction in women: the role of the midwife. Journal Nurse Midwifery 1999; **44** No.1

95. Webster M, Mcleod D and Pullon S, (2002). Smoking cessation and nicotine replacement therapy during pregnancy and breastfeeding. Report, Department of General Practice, Wellington School of Medicine, New Zealand.

96. Windsor R, Boyd N and Orleans C. A meta-evaluation of smoking cessation intervention research among pregnant women: improving the science and art. Health Education Research, Theory and Practice 1998; 13 (3): 419-38

97. Women and Smoking, A Report of the Surgeon General – 2001. Centers for Disease Control and Prevention CDC.

98. Woodby LL, Windsor RA, Snyder SW, Kohler CL and DiClemente CC. Predictors of smoking cessation during pregnancy. Addiction 1999; **94** (2): 283-92

99. Zapka JG, Pbert L, Stoddard AM, Ockene JK, Goins KV and Bonollo DB. Smoking cessation counselling with pregnant and postpartum women: a survey of community health center providers. American Journal Public Health 2000; **90n** (1): 78-84

100. Zhand EG, Coates TJ, Richard RJ and Cummings SR. Counselling medical patients about cigarettes smoking: a comparison of the impact of training on nurse practitioners and physicians. Nurse Practitioner 1990; **15**: 10-18

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24 June 2002

REC REF: 129/2002

Dr. K. Steyn
Chronic Diseases of Lifestyle Unit
P.O. Box 19070
Tygerberg, 7505

Dear Dr. Steyn

SMOKING CESSATION INTERVENTION FOR DISADVANTAGED PREGNANT SOUTH AFRICAN WOMEN

Thank you for your letter to the Research Ethics Committee dated 23 May 2002.

It is a pleasure to inform you that the Committee has formally approved your study

Please quote the Reference number in all correspondence.

Yours sincerely

A/PROF. CR SWANEPOEL
CHAIRPERSON

B

CONSENT FORM
(Patients)

STUDY: Smoking cessation intervention programme for previously disadvantaged South African women.

I have been informed about the purpose and nature of the study. I understand that my participation is voluntary, that I will remain anonymous and that all information is regarded as confidential.

Furthermore, I have been informed about the advantages that may result from this research. I am aware of the time it will take to complete the questionnaire, and understand that it will not interfere with my appointment at the clinic.

I understand that I can withdraw my consent at any time and that this would have no effect on future medical care at this or any other clinic. I am also not obliged to complete the questionnaire if I am unhappy with any part thereof.

The researchers will oversee the procedure and the clinic staff will not be involved in this process.

I agree to participate in this study:

SIGNED: .....

DATE: .....

RESEARCHER: .....

C

TOESTEMMINGS VORM

(Pasiente)

STUDIE: Rookstaakintervensie vir voorheen benadeelde Suid-Afrikaanse vroue

Ek is ingelig oor die doel en die aard van die studie. Ek verstaan dat my deelname vrywillig is, dat ek anoniem sal bly en dat alle informasie as konfidensieël beskou sal word.

Ek is verder ingelig oor die voordele wat hierdie navorsing tot gevolg sal hê. Ek is ook bewus van die tyd wat dit sal neem om die vraelys te voltooi, en aanvaar dat dit nie my besoek by die kliniek sal beinvloed nie.

Ek verstaan dat ek my toestemming te enige tyd kan onttrek en dat dit geen invloed sal hê op toekomstige mediese behandeling by hierdie of enige ander kliniek nie. Ek is ook nie verplig om die vraelys te voltooi indien ek ontevrede is met enige deel daarvan nie.

Ek aanvaar dat die navorsers die proses sal oorsien en dat die kliniek personeel nie betrokke sal wees nie.

Ek stem in om deel te neem aan hierdie studie:

GETEKEN: .....

DATUM: .....

NAVORSER: .....

THE BENEFITS OF QUITTING

If you smoke 20 cigarettes a day, and then quit, this is how your body goes about healing itself: if you smoke more, it may take a little longer; if you smoke less, it may be quicker.

WITHIN 8 HOURS your lungs begin to function better and you can do more before running out of breath.

WITHIN 24 HOURS your sense of taste and smell improves and your breath, hair, fingers and teeth are cleaner.

AFTER A WEEK exercising becomes easier.

AFTER A MONTH the blood supply to your hands and feet increases and you have more energy.

AFTER 3 MONTHS the tiny hairs which clean your lungs begin to recover and remove the mucus that has built up in your lungs. Men become more fertile.

AFTER 1 YEAR your risk of lung cancer is reduced and your risk of heart disease is down to almost half of that of someone who continues to smoke. Fifteen years after stopping, the risk of heart disease is almost the same as for a non-smoker.

It is most beneficial to quit before the age of 35, but quitting at any age increases life expectancy. For example, people who quit before the age of 50, have one half the risk of dying in the next 15 years, compared with smokers who continue.

Other benefits

If you stop smoking, you will pay less on insurance premiums and save a lot of money. For example, if you smoke a packet of 20 a day, you will save about R 2 052.00 in a year. You will feel the satisfaction of succeeding at a difficult task and taking control of your life. You will also feel good about protecting the health of your family and other people around you.

REASONS TO QUIT

- Non-smokers perform better than smokers in sport and exercise. Even teenage smokers are less fit than their non-smoking peers.
- Smoking stains the teeth and fingers, and because smoking starves the skin of oxygen, smokers age more quickly than non-smokers.
- There are also risks for non-smoking adults who live with smokers: they have a 25 % higher risk of developing lung cancer, and a 30% increased risk of death from heart attack when compared to people who are not regularly exposed to tobacco smoke.
- Smoking affects fertility : men who smoke have lower sperm counts and produce more abnormal sperm. Women who smoke take longer to get pregnant and are more likely to miscarry.
- Smoking has a direct effect on the baby if a woman smokes during pregnancy. The chemicals in the smoke decrease the amount of oxygen available to the foetus. This places a strain on the baby's heart and reduces the breathing movements the baby practises for birth. Babies born to mothers who smoke during pregnancy are more likely to be underweight, premature, or stillborn.
- There are also risks after the baby is born. Cigarette smoke is more dangerous for children than adults because their lungs are smaller and more sensitive. Children who live with smokers are more likely to have serious chest infections, such as bronchitis and pneumonia, especially during the first year of life. They are also more at risk of developing asthma and dying from cot death.

DECIDING TO QUIT

Some people find quitting smoking quite easy, others find it the challenge of a lifetime. The most important part of deciding to stop is knowing your reasons. There are plenty of good reasons that can help you make a firm decision to quit.

HOW SMOKING AFFECTS YOUR HEALTH

Tobacco contains over 4 000 chemicals. The most harmful ones include :

NICOTINE is the addictive drug in tobacco which makes you dependent on smoking. It also raises your blood pressure and heart rate each time you smoke. This puts a strain on your heart and blood vessels and increases your chance of a heart attack.

CARBON MONOXIDE is a gas found in car exhaust fumes. It decreases the amount of oxygen your blood carries to your muscles, brain and body tissue, and makes your heart work harder to meet your body's needs. It also limits your lung's ability to clean themselves, which increases your risk of lung infections.

TAR spreads through your respiratory system and coats your lungs like soot in a chimney. It contains a number of cancer-causing substances.

Other toxic chemicals in cigarettes include **ammonia** (found in floor cleaner), **acetone** (found in nail polish remover), **arsenic** (found in ant poison), and **DDT** (one of the most harmful insecticides).

GIVING UP

There are many ways in which people give up smoking. Different methods suit different people. Most smokers quit without enrolling in smoking cessation courses.

Stopping suddenly, from one day to the next, is the most successful method for most people.

For others a more gradual approach is easier. One way is for you to cut down by 5 cigarettes a day or decide to cut your ration by half every day until you give up all together. Another method is to delay the first cigarette by one or two hours, then over the next few days, delay the first cigarette for longer and longer until your first smoke is in the evening. You can then give up the next day.

Changing your smoking patterns is the first step in gradually giving up. The following suggestions may help.

CHANGE YOUR ROUTINE You can, for example, avoid smoking at your regular times. Try putting two rubber bands around your smoking packet: taking them off changes your routine. Change the way you hold a cigarette or buy a brand you don't like.

Delay opening a packet or lighting a cigarette for five minutes. If the urge passes, avoid smoking that cigarette.

CHANGE SITUATIONS in which you would normally smoke. Try smoking in an uncomfortable or inconvenient place, for example, stand up to smoke or smoke outside. Try not smoking after a meal, when you drink alcohol or speak on the phone.

DISTRACT YOURSELF Go for a walk, breathe deeply or talk to someone rather than light a cigarette when you feel stressed.

E

CONFIDENTIAL QUESTIONAIRE

Office use only

** Study no.* [ ][ ][ ] 3

(A): Basic and demographic information. To be completed by all

1 City [ ] 4

2 Name of clinic [ ][ ] 6

3 Do you have a telephone at home? Yes [1] No [2] [ ] 7

4 How old are you? Age in years [ ][ ] 9

5 What is the highest standard you passed at school. Indicate in either 'grade' or 'standard' and not both

Grade: [1] [ ][ ] 11

OR

Standard [2] [ ][ ]

6 Have you had any further education after school? (e.g.. Diploma. Certificate etc.)
Yes [1] No [2] [ ] 12

7 Do you currently work for money?
Yes [1] No [2] [ ] 13

8 Is this your first pregnancy?
Yes [1] No [2] [ ] 14
If your answer is 'yes' go to question 17!!!

9 How many months were you pregnant with your first booking at the clinic? (This pregnancy)

1-3 months [1]
4-6 months [2] [ ] 15
7-9 months [3]

10 How many times have you been pregnant? (including this pregnancy and miscarriages)
no. of pregnancies [ ][ ] 17

11.a Has any of your pregnancies ended in miscarriages? (Not abortion)
Yes [1] No [2] [ ] 18

11.b If 'yes', how many miscarriages have you had?
no. of miscarriages [ ][ ] 20

The following questions (12-14) deals with babies that are stillborn, and not miscarriages

12 Were any of your babies stillborn (Died after 20 weeks/5 months of pregnancy)
Yes [1] No [2] [ ] 21

13 Has any of your babies died within six weeks of birth?
Yes [1] No [2] [ ] 22

14.a Has any of your babies died between six-twelve weeks after birth?
Yes [1] No [2] [ ] 23

b If the answers from numbers 11-13 is 'Yes', please explain what was wrong with the baby that died. *In case more than one child dies, please give reasons for each*

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25

15 Were any of your babies very small at birth (low birth weight)? Yes 1 | No 2 | 26

16 How many living children do you have now? no of living children | 28

17.a Has this pregnancy been normal so far? Yes 1 | No 2 | 29

b If 'no' (abnormal), please explain what is wrong with the pregnancy?

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31

18 Please make a cross (X) in the appropriate box

Married	1	
Unmarried	2	
Unmarried, but live my boyfriend		
Divorced	3	32
Widow	4	
Separated, not divorced but living apart	5	

19 Was this baby planned (this pregnancy)? Yes 1 | No 2 | 33

20 Do you currently live with the father of your unborn baby? Yes 1 | No 2 | 34

21 Does the father of your unborn baby currently earn money? Yes 1 | No 2 | 35

22 Does the father of your unborn baby support you financially? Yes 1 | No 2 | 36

23 Which of the following people are standing by you and giving you emotional support during this pregnancy?

a) Nobody	1	37
b) The father of your unborn baby ✓	2	
c) Your mother	3	
d) Your father	4	
e) Your brothers and/or sisters	5	
f) Your grandmother	6	
g) Your friends	7	
h) Others, please specify.....	8	45

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.....

24 What type of house do you live in?

Brick house/flat	1	
Wendy house	2	
A shack in your yard	3	46
A shack in a squatter area	4	
Other, please specify.....	5	
.....		
.....		

25 How many rooms (including kitchen and bathroom) are there in your house?

no. of rooms		48

26 How many people, including yourself, lives in this house? 50

27 Make a cross (X) next to all sharing a house with you.

a) Husband/father of your unborn baby	1	51
b) Your own children	2	
c) Your mother and/or father	3	
d) Your husband/father of your unborn baby's parents	4	
e) Your brothers and sisters	5	
f) Your husband/father of your unborn baby's siblings	6	
e) Your grandmother and/or grandfather	7	
f) Other, please specify.....	8	59
.....		
.....		
.....		

28 Please cross (X) the one that applies to you.

I am currently a smoker and do not intend to quit within the next six months	1	
I am currently a smoker and seriously consider quitting in the next six months	2	
I seriously plan to quit in the next month and have tried at least once within the past ye	3	60
I am a former smoker and have not smoked at all for the past six months	4	
I am a former smoker and have not smoked at all for more than six months	5	
I do not smoke	6	

29 Do you smoke cigarettes now?

Yes, every day *(Please go to section B)*	1	
Yes, not every day but at least one cigarette a month *(Please go to section B)*	2	61
No, not at all, but I did smoke on a daily basis in the past *(Please go to section D)*	3	
No I have never smoked *(Please so to section C)*	4	

If you <u>smoke</u> on a daily basis, go to section <u>B, page 4</u>

If you are a <u>non-smoker</u>, go to section <u>C, page 5</u>

If you are a former smoker <u>(quitter)</u>, go to section <u>D, page 6</u>

Study no. 3

(B): To be completed by smoker only

1 How old were you when you started smoking?

Age in years 5

2 How many cigarettes do you smoke now?

daily smokers: e.g.. *5 cigarettes per day* [1] 8

occasional (social) smokers: e.g.. *12 per month* [2]

3 Which one of the following describes you best?

I have been smoking less since becoming pregnant	1
I have been smoking more since becoming pregnant	2
My smoking has not changed since becoming pregnant	3

9

4 When do you tend to smoke most. Please choose *one of the following*

I smoke more in the mornings	1
I smoke more in the evenings	2
I smoke more at night	3
I smoke more during weekends	4
I only smoke at social gatherings	5
I smoke the same amount of cigarettes throughout the day	6

10

5 Which of the following describes you best? *(Please choose only one option)*

I smoke more when I am alone	1
I smoke more when I am with my husband/boyfriend	2
I smoke more when I am with friends or others that smoke	3
I always smoke the same amount of cigarettes	4

11

6.a What are your reasons for continuing to smoke? *(Make a cross next to all that apply to you)*

a) Helps me cope with daily tension/stress	1
b) Helps me cope with unemployment	2
c) Helps me cope with loneliness during my pregnancy	3
d) Helps me cope with my difficult pregnancy	4
e) Helps me deal with problems in my family	5
f) Helps me cope with looking after my children	6
g) Helps me cope with crime/violence in my community	7
h) Helps me get through the day	8
i) I smoke because my friends smoke	9
j) It helps me control my weight	10
k) None of the above	11

12 24

b If you chose 'None of the above', explain why you continue to smoke

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26

7 Have you ever tried to stop smoking?

Yes, I have tried to stop smoking	1
No, I have not tried to stop smoking	2
I have never tried but want to stop smoking	3

27

8 Have you ever tried any of the following in your attempts to stop smoking?

a) Nicotine patch	1		28
b) Nicotine gum	2		
c) Nicotine spray	3		
d) Stop smoking (quit) counseling	4		
e) Brochures/pamphlets on how to stop smoking	5		
f) Other, please specify.....	6		34

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9.a Do you think that you should stop smoking — Yes 1 / No 2 — 35

b If 'yes', please explain why

.....

.....

..... — 37

(C): **To be completed by non-smokers**

1 Have you ever smoked a cigarette — Yes 1 / No 2 — 38

2 Which one of the following describes your feelings at present?

I have a strong desire to smoke	1	
I sometimes have the desire to smoke	2	39
I don't feel that I should start smoking	3	

3.a Do you think that you would start smoking while you are pregnant with this baby — Yes 1 / No 2 — 40

b If 'yes' please explain why

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..... — 42

4.a Do you live with people who smoke? — Yes 1 / No 2 — 43

b If 'yes' do they smoke in your presence? — Yes 1 / No 2 — 44

5.a Does smoking from others bother you?

yes	1	
no	2	45
sometimes	3	

b If 'yes' please explain why

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.....

47

6 Does any of your friends ever encourage you to smoke? Yes [1] No [2] 48

study number 3

(D): To be completed by former smokers (quitters).

1 How old were you when you smoked on a daily basis? Age in years 5

2 How many years did you some daily? *If you stopped smoking and started again, please indicate total years smoked* total smoking years 7

3 What helped you to stop smoking?

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9

4 What were the positive *(good)* aspects about quitting?

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11

5 What were the negative *(bad)* aspects about quitting?

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13

6.a How long ago did you stop smoking on a daily basis?

no. of years stopped 15

b If you stopped smoking less than a year ago, how long ago in months did you stop?

no. of months stopped 17

7 How many cigarettes a day did you smoke before quitting?

no of cigarettes 19

8 Why did you stop smoking? *(You may choose more than 1 of the following)*

a) I stopped smoking because the father of my unborn baby wanted me to	1		20
b) I stopped smoking because the midwives advised me to	2		
c) I stopped smoking because the doctor advised me to	3		
d) I stopped smoking because my mother suggested that I should	4		
e) I stopped smoking because it is bad for my health	5		
f) I stopped smoking because it is harmful to my unborn baby	6		
g) I stopped smoking because cigarettes are too expensive	7		
h) Other, please explain.....	8		28
.....			
.....			
.....			

9 Which of the following has helped you to stop smoking? *(Please cross all that is applicable)*

a) Nothing/nobody has helped me to stop smoking	1		29
b) The father of my unborn baby	2		
c) My mother	3		
d) My friends	4		
e) The midwives at the clinic	5		
f) The doctors at the clinic	6		
g) Television programmes about the effects of smoking	7		
h) Radio programmes about the effects of smoking	8		
i) Brochures and pamphlets about the effects of smoking	9		
j) Nicotine replacement therapy (gum, patch etc.)	10		
k) Other, please explain.....	11		41
.....			
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10 Which one of the following describes you best?

I experienced quitting as very easy	1		
I experienced quitting as easy	2		42
I experienced quitting as difficult	3		
I experienced quitting as very difficult	4		

11.a Do you think that you will start smoking again?

Yes I think that I would start again before my baby is born	1		
Yes. After the birth of my baby	2		
Ye, after I had stopped breast-feeding my baby	3		43
No, I would never smokes cigarettes again	4		
I'm not sure	5		

b If 'yes', why

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..... 45

(E): Alcohol and drug use: To be completed by all

1 Have you ever consumed alcohol? Yes [1] No [2] 46

2 Do you drink alcohol now? Yes [1] No [2] 47

If your answer to question 2 was 'yes' please answer questions 3-9
If your answer to question 2 was 'no' go to question 10

3 How much alcohol do you drink during the week?

I don't drink during the week	1	
1-2 drinks per day	2	48
3-4 drinks per day	3	
5 or more drinks per day	4	

4 How much alcohol do you drink during weekends?

I don't drink during the weekends	1	
1-2 drinks per day	2	49
3-4 drinks per day	3	
5 or more drinks per day	4	

5 Have you felt that you ought to drink less? Yes [1] No [2] 50

6 Does it annoy you when people criticize your drinking? Yes [1] No [2] 51

7 Have you ever felt bad or guilty about your drinking? Yes [1] No [2] 52

8 Have you ever had a drink first thing in the morning to calm your nerves or to get rid of a hangover? Yes [1] No [2] 53

9 Do you usually smoke more when you are drinking?

Yes	1	
No	2	54
Unsure	3	

10.a Do you use any drugs? Yes [1] No [2] 55

b If 'yes' which of the following drugs do you use?

Marijuana (Dagga)	1	56
Ecstasy		
Mandrax tablets (Pill)	3	
Other, please explain.....	5	60

.....

11 Do you use snuff now?

a) Yes, every day. *(Please go to question 12)*	1	
b) Yes, not every day but at least once per month. *(Please go to question 12)*	2	61
c) No, not every day but I did use snuff on a daily basis in the past	3	
d) No, I have never used snuff	4	

12 If "yes" which of the following do you inhale?

b) Glue	2	
c) Household solvents (e.g.. Paraffin, cleaners etc.)	3	
d) Other, please explain.....	4	65

13 Do you use chewable tobacco (pruimtabak)? Yes 1 No 2 66

study no. 3

(F): Basic knowledge: To be completed by all

1.a Do you think that smoking during pregnancy would have an effect on you? Yes 1 No 2 4

b If "yes", please explain how smoking during pregnancy could affect you

.....
.....
..... 6

2.a Do you think that smoking during pregnancy would have an effect on your baby? Yes 1 No 2 7

b If "yes", please explain how smoking during pregnancy could affect your baby

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..... 9

3 How harmful is smoking during pregnancy?

Not at all harmful	1	
A little harmful	2	
Fairly harmful	3	10
Very harmful	4	
Extremely harmful	5	

4 What do you think is more harmful that to smoke during pregnancy, name 3 examples?

1) 11
2) 13
3) .....

5 Do you think that smoke from others around you could effect your unborn baby? Yes 1 No 2 14

6.a Do you think that your smoking and the smoking of others could have an effect on your baby once he/she is born? | Yes 1 | No 2 | | 15

b If yes, in hat way can it affect your baby?

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| | 17

Please answer all the following questions

7 Answer TRUE, FALSE OR DON'T KNOW

	TRUE	FALSE	Don't know	
Nicotine is the addictive substance in cigarettes	1	2	3	18
Nicotine is passed to the baby through the breast milk	1	2	3	
Nicotine reaches the baby during pregnancy	1	2	3	20

8 Smoking during pregnancy could have the following effects:

	TRUE	FALSE	Don't know	
Miscarriage	1	2	3	21
Slow growth of the baby inside the uterus	1	2	3	
Low birth-weight babies (too small at birth)	1	2	3	
Premature labour	1	2	3	
"Bleeding" from the placenta before labour	1	2	3	
Still born babies	1	2	3	26

9 Smoking during pregnancy has the following effects on a baby after birth

	TRUE	FALSE	Don't know	
Cot death (sudden death of a baby before the first birthday)	1	2	3	27
Abnormal lung development	1	2	3	
Slow brain development in early childhood	1	2	3	
Learning problems at school	1	2	3	
Lung problems (such as bronchitis and/or asthma)	1	2	3	31

F. Program choices

1. Do you think that information and help provided at the clinic could help pregnant women to quit?

Yes [1]	No [2]		
			32

2. Are there any places in your community where people could get information and help about quit smoking?

Yes [1]	Nee [2]	don't know [3]		
				33

2.1 If there are, please name all the possible places

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..... 35

3. Below is a list of methods that could be used to teach pregnant women about the dangers of smoking. Please give your opinion..

	Not effective	*Little effective*	*Fairly effective*	*Effective*	*Very effective*		
a) Pamphlets on the effects of smoking	1	2	3	4	5		36
b) Magazines (YOU etc.)	1	2	3	4	5		
c) Talks by women who have stopped	1	2	3	4	5		
d) Advice via a telephone service (quit line)	1	2	3	4	5		
e) A Video on the effects of smoking	1	2	3	4	5		
f) Television programmes on the effects of smoking	1	2	3	4	5		
g) Radio talks/programmes	1	2	3	4	5		
h) Group counseling by a midwife	1	2	3	4	5		
I) Individual counseling by a midwife	1	2	3	4	5		
j) Support groups to help women stop smoking	1	2	3	4	5		
k) Storie verhale (comics) oor ophou rook	1	2	3	4	5		
l) Spotprente oor ophou rook	1	2	3	4	5		
m) Other, please specify.....							52
.....							
.....							

4. Do you want to learn more about stop smoking during pregnancy?

Yes [1]	No [2]		
			53

4.1 If "yes" please explain what you would like to learn

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5. Who would you most trust to teach you about smoking and the dangers of smoking. You may choose more than one answer.

a) The midwives at the antenatal clinic	1		56
b) The doctors at the antenatal clinic	2		
c) Other community workers	3		
d) Qualified teachers	4		
e) People belonging to my church group	5		
f) Other, please specify.....	6		62
.....			
.....			

Questions 6-13 for smokers only!

6. If there should be an educational programme on smoking during pregnancy, in what language would you prefer to have such a programme?

English	1		
Standard Afrikaans	2		63
Your own use of Afrikaans	3		

7. Where would you most prefer to have a stop smoking programme?

a) In the antenatal clinic	1		64
b) At your local school	2		
c) At your local church/mosque	3		
d) In your home	4		
e) T your work	5		
f) At community gatherings	6		
g) Other, please specify.....	7		71
.....			
.....			

8. How much do you know about smoking during pregnancy?

Very little	1		
A fair amount	3		72
All I need to know	4		

9. How much to you know about quitting?

Very little	1		
A fair amount	3		73
All I need to know	4		

10. How do you feel about talking to midwives about smoking? *Choose only one of the following*

I feel free to talk to midwives about smoking	1		
I do not feel free to talk to midwives about smoking	2		74
I never ask the midwives questions about smoking	3		

11. Which one of the following applies to you. *Choose one of the following.*

I have enough confidence to ask midwives questions about smoking during pregnancy	1	
I am too scared to ask midwives questions about smoking during pregnancy	2	75
I do not need to ask midwives questions about smoking during pregnancy	3	

Study no 3

12. Would you have participated if there was a quitting programme at the clinic?

Yes 1 | No 2 | 4

13 . Would you have participated if there was a quitting programme elsewhere in the community?

Yes 1 | No 2 | 5

14. Are you satisfied with the care you receive at this clinic?

Yes 1 | No 2 | 6

15. How satisfied were you with the service given the past few visits? *Please indicate your opinion on the right hand side of the page.*

	Strongly agree	Agree	Uncertain	Do not agree	Strongly disagree		
a) I am very happy with the service	1	2	3	4	5		7
b) It was difficult to obtain an appointment	1	2	3	4	5		
c) Reception/clerk is very friendly and polite	1	2	3	4	5		
d) The sister treats me with respect	1	2	3	4	5		
e) The service is hopeless	1	2	3	4	5		
f) The sister spent a lot of time with me	1	2	3	4	5		
g) Getting to the clinic was easy	1	2	3	4	5		
h) I do not completely trust the sister	1	2	3	4	5		
I) The sister does not listen to me	1	2	3	4	5		
j) The sister does tests without explaining why	1	2	3	4	5		
k) The sister did her best to put me at ease	1	2	3	4	5		
l) The sister appears very confident	1	2	3	4	5		
m) The sister explains what to expect from results	1	2	3	4	5		
n) I had to wait a long time to see the sister	1	2	3	4	5		
o) The sister is very thorough	1	2	3	4	5		
p) The sister does unnecessary examinations	1	2	3	4	5		29

16. What would you like to improve regarding the care you receive at the clinic?

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..... 31

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How do you feel about completion of the questionnaire?

Answers I gave in this questionnaire:	Agree	Do not agree		
a) …would not be connected to my name	1	2		32
b) ... will not be seen by the midwives	1	2		
c) …will only be seen by the midwives	1	2		
d) …will not influence the treatment I receive at this clinic	1	2		35

The end!!! Thank you very much for your participation in this study.

F

VERTROULIKE VRAELYS

Kantoor gebruik alleenlik

** Studie no.* 3

(A): Basiese en demografiese inligting. Moet deur almal voltooi word

1 Stad..... 4

2 Naam van kliniek:..... 6

3 Het jy 'n telefoon by jou huis? Ja 1 Nee 2 7

4 Hoe oud is jy? Ouderdom in jare 9

5 Wat is die hoogste standerd wat jy op skool geslaag het? Kies óf 'graad' óf "standerd", en nie albei nie

Graad 1 11

OF

Standerd 2

6 Het jy enige verdere opleiding na skool gehad? (bv. Diploma. Sertifikaat ens.) Ja 1 Nee 2 12

7 Werk jy op die oomblik vir geld? Ja 1 Nee 2 13

8 Is dit jou eerste swangerskap? Ja 1 Nee 2 14

Indien jou antwoord "ja" gaan na vraag 17

9 Hoeveel maande was jy swanger met jou eerste besoek aan die kliniek? (Die huidige swangerskap)

1-3 maande 1
4-6 maande 2 15
7-9 maande 3

10 Hoeveel keer was jy al swanger? (insluitende dié swangerskap en vorige miskrame)

aantal swangerskappe 17

11.a Het enige van jou swangerskappe in 'n miskraam geeindig? (Nie aborsie nie) Ja 1 Nee 2 18

11.b Indien "Ja" hoeveel miskrame het jy gehad?

aantal miskrame 20

Die volgende vrae (12-14)handel oor babas wat doodgebore is en nie miskrame nie.

12 Was enige van jou babas doodgebore? *(Na 20 weke of 5 maande van swangerskap)*

Ja 1 Nee 2 21

13 Het enige van jou babas ses weke na geboorte gesterf? Ja 1 Nee 2 22

14.a Het enige van jou babas tussen ses en twaalf weke na geboorte gesterf? Ja 1 Nee 2 23

b Indien die antwoorde vanaf vraag 11-13 'Ja' is, verduidelik asb. wat fout was met die baba wat gesterf het. *Indien meer as een kind gesterf het, gee asb. redes vir elk*

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.....

25

15 Was enige van jou babas baie klein met geboorte? (lae geboorte gewig)

Ja 1 Nee 2 26

16 Hoeveel lewende kinders het jy nou? aantal lewende kinders 28

17.a Was hierdie swangerskap sover normaal? Ja 1 Nee 2 29

b Indien "nee" (abnormaal), verduidelik asseblief wat verkeerd is

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31

18 Maak asseblief 'n kruis (X) in die blok wat van toepassing is

Getroud	1
Ongetroud	2
Ongetroud, maar woon saam met kêrel (boyfriend)	
Geskei	3
Weduwee	4
Uitmekaar (nie geskei nie maar julle woon apart)	5

32

19 Was hierdie baba beplan (diè swangerskap? Ja 1 Nee 2 33

20 Woon jy op die oomblik met die pa van jou ongebore baba? Ja 1 Nee 2 34

21 Verdien die pa van jou ongebore baba op die oomblik geld? Ja 1 Nee 2 35

22 Help die pa van die ongebore baba jou finansieel? Ja 1 Nee 2 36

23 Watter van die volgende mense ondersteunstaan jou by gedurende die swangerskap? *(emosionele ondersteuning)*

a) Niemand nie	1
b) pa van jou ongebore baba	2
c) Jou ma	3
d) Jou pa	4
e) Jou susters en broers	5
f) Jou ouma	6
g) Jou vriende	7
h) Ander, spesifiseer asseblief.....	8

37

45

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24 In watter tipe huis woon jy?

Baksteen huis/woonstel	1	
Wendy huis	2	
'n Opslaanhuis in jou agterplaas	3	46
'n Opslaanhuis in'n plakkersarea	4	
Ander, spesifiseer asseblief.....	5	
.....		
.....		

25 Hoeveel vertrekke (insluitende die kombuis en badkamer) is daar in jou huis?

aantal kamers		48

26 Hoeveel mense, insluitende jouself, woon in die huis? 50

27 Maak 'n kruis (X) langs almal wat saam met jou in dié huis woon.

a) Man/pa van jou ongebore baba	1	51
b) Jou eie kinders	2	
c) Jou ma en/of pa	3	
d) Die ouers van jou man/pa van jou ongebore baba	4	
e) Jou broers en sisters	5	
f) Broers/susters van jou man/pa van jou ongebore baba	6	
e) Jou ouma en/of oupa	7	
f) Ander, spesifiseer asb.....	8	59
.....		
.....		
.....		

28 Maak asseblief 'n kruis (X) langs die een wat by jou van toepassing is.

Ek is tans 'n roker, en beplan nie om in die volgende 6 maande op te hou nie	1	
Ek is tans 'n roker, en oorweeg sterk om in die volgende 6 maande op te hou	2	
Ek beplan beslis om die komende maand op te hou en het ten minste 1 keer probeer	3	60
Ek was 'n roker, maar het vir minder as 6 maande glad nie gerook nie	4	
Ek was 'n roker, maar het vir meer as 6 maande glad nie gerook nie	5	
Ek rook glad nie	6	

29 Rook jy nou sigarette?

Ja, elke dag *(Gaan asseblief na afdeling B)*	1	
Ja, nie elke dag nie, maar ten minste 1 sigaret per maand *(Gaan asseblief na afd. B)*	2	61
Nee, glad nie, maar ek het in die verlede daagliks gerook *(Gaan asb. na afd. D)*	3	
Nee, ek het nog nooit gerook nie*(Gaan asb. na afd. C)*	4	

Indien jy daaglikse rook gaan na afdeling B, bladsy 4

Indien jy 'n 'nie-roker' is, gaan na afdeling C, bladsy 5

Indien jy 'n voorheen gerook het (quitter), gaan na seksie D, bladsy 6

studie nr

(B): Om alleenlik deur rokers voltooi te word 3

1 Hoe oud was jy toe jy begin rook het?

Ouderdom in jare	5

2 Hoeveel sigarette rook jy?

daaglikse rokers: bv. *5 sigarette per dag* [1]	8
geleentheidsrokers (sosiaal: bv. *12 per maand* [2]	

3 Watter een van die volgende beskryf jou die beste?

Ek rook minder vandat ek swanger is	1	
Ek rook meer vandat ek swanger is	2	9
My rokery het nie verander vandat ek swanger is nie	3	

4 Wanneer is jy geneig om die meeste te rook. *Kies asb. een van die volgende*

Ek rook meer soggens	1	
Ek rook meer smiddae	2	
Ek rook meer saans	3	10
Ek rook meer gedurende naweke	4	
Ek rook net by sosiale geleenthede	5	
Ek rook dieselfde hoeveelheid reg deur die dag	6	

5 Watter een beskryf jou de beste? *(Kies asseblief net een opsie)*

Ek rook meer wanneer ek alleen is	1	
Ek rook meer wanneer ek by my man/kêrel is	2	11
Ek rook meer wanneer ek by vriende of ander is wat rook	3	
Ek rook altyd dieselfde hoeveelheid sigarette	4	

6.a Wat is die rede/s hoekom jy aanhou rook? *(Maak 'n kruis langs almal wat op jou van toepassing is)*

a) Help my om daagliks spanning te hanteer	1	12
b) Help my om werkloosheid te hanteer	2	
c) Help my om eensaamheid tydens swangerskap te hanteer	3	
d) Help my om my moeilike swangerskap te hanteer	4	
e) Help my om probleme in my familie te hanteer	5	
f) Help my om die versorging van my kinders te hanteer	6	
g) Help my om geweld/misdaad in my gemeenskap te hanteer	7	
h) Help my om deur die dag te kom	8	
i) Ek rook omdat my vriende rook	9	
j) Help my om my gewig te beheer	10	
j) Geen van die bogenoemde nie	11	24

b Indien jy "Geen van die bogenoemde" gekies het, verduidelik hoekom jy aanhou rook

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7 Het jy al ooit probeer om op te hou rook?

Ja, ek het probeer om op te hou rook	1	
Nee, ek het nie probeer om op te hou rook nie	2	27
Ek het nog nooit probeer nie, maar wil ophou rook	3	

8 Het jy enige van die volgende probeer in jou pogings om op te hou rook?

a) Nikotienplakker (patch)	1	28
b) Nikotiengom (gum)	2	
c) Nikotiensproei (spray)	3	
d) Raadgewing om op te hou rook (counseling)	4	
e) Brosjures/pamflette oor hoe om op te hou rook	5	
f) Ander, spesifiseer asb.....	6	34
.....		
.....		
.....		

9.a Dink jy dis nodig vir jou om op te hou rook? Ja 1 Nee 2 35

b Indien "Ja", verduidelik asb. hoekom

..... 37

..... 37

..... 37

(C): **Om deur nie-rokers voltooi te word**

1 Het jy al ooit 'n sigaret gerook? Ja 1 Nee 2 38

2 Watter een van die volgende beskryf hoe jy huidig voel?

Ek het 'n sterk begeerte om te rook	1	
Ek kry somtyds die begeerte om te rook	2	39
Ek voel nie dat ek moet begin rook nie	3	

3.a Dink jy dat jy sal begin rook terwyl jy swanger is met die baba? Ja 1 Nee 2 40

b Indien "Ja", veduidelik waarom

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..... 42

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..... 42

4.a Woon jy saam met mense wat rook? Ja 1 Nee 2 43

b Indien "Ja", rook hulle in jou teenwoordigheid? Ja 1 Nee 2 44

5.a Pla die rook van ander jou?

ja	1	
nee	2	45
somtyds	3	

b Indien "ja", verduidelik waarom

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.....
.....
.....

47

6 Moedig enige van jou vriende jou ooit aan om te rook? Ja [1] Nee [2] 48

studie nr. 3

(D): <u>Om deur persone wat voorheen gerook het (quitters) voltooi te word.</u>

1 Hoe oud was jy toe jy daaglikse begin rook het? Ouderdom in jare 5

2 Hoeveel jaar het jy daagliks gerook? *Indien jy opgehou en weer begin rook het, dui asseblief totale rookjare aan* totale rook jare 7

3 Wat het jou gehelp om op te hou rook?

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9

4 Wat was die positiewe (*goeie*) aspekte toe jy opgehou rook het?

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11

5 Wat was die negatiewe (*slegte*) aspekte toe jy opgehou rook het?

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13

6.a Hoe lank gelede het jy opgehou om daagliks te rook?

aantal jare opgehou rook 15

b Indien jy minder as 'n jaar gelede opgehou rook het, hoeveel maande gelede het jy opgehou? aantal maande opgehou rook 17

7 Hoeveel sigarette het jy per dag gerook voordat jy opgehou het? aantal sigarette 19

8 Hoekom het jy opgehou rook? *(Jy mag meer as een van die volgende kies)*

a) Ek het opgehou rook omdat die pa van die baba wou hê dat ek moet	1		20
b) Ek het opgehou rook omdat die vroedvroue my aangeraai het om op te hou rook	2		
c) Ek het opgehou rook omdat die dokter my aangeraai het om op te hou rook	3		
d) Ek het opgehou rook omdat my ma voorgestel het ek moet ophou rook	4		
e) Ek het opgehou rook omdat dit sleg is vir my gesondheid	5		
f) Ek het opgehou rook omdat dit sleg is vir my ongebore baba	6		
g) Ek het opgehou rook omdat sigarette te duur is	7		
h) Ander, spesifiseer asb.....	8		28
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.....			
.....			

9 Watter van die volgende het jou gehelp om op te hou rook? *(Maak 'n kruis langs die wat van toepassing is*

a) Niks/niemand het my gehelp om op te hou nie	1		29
b) Die pa van my baba	2		
c) My ma	3		
d) My vriende	4		
e) Die vroedvroue by die kliniek	5		
f) Die dokters by die kliniek	6		
g) Televisieprogramme oor die gevolge van rook	7		
h) Radioprogramme oor die gevolge van rook	8		
i) Brosjures en pamflette oor die gevolge van rook	9		
j) Nikotienvervangingsterapie (gom, plakker ens.)	10		
k) Ander, spesifiseer asb.....	11		41
.....			
.....			
.....			

10 Watter een van die volgende beskrywings is op jou van toepassing?

Ek het baie maklik opgehou rook	1		
Ek het maklik opgehou rook	2		42
Ek het moeilik opgehou rook	3		
Ek het baie moelik opgehou rook	4		

11.a Dink jy dat jy weer sal begin rook?

Ja ek dink ek sal weer begin rook voor my baba gebore is	1		
Ja, ek dink ek sal weer begin rook na my baba gebore is	2		
Ja, ek sal weer begin rook wanneer ek klaar is met die borsvoeding van my baba	3		43
Nee, ek sal nooit weer sigarette rook nie	4		
Ek is nie seker nie	5		

b Indien "Ja, hoekom?

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.....

45

(E): Alkohol- en dwelmgebruik: Om deur almal voltooi te word

1 Het jy al ooit alkohol ingeneem? Ja 1 Nee 2 46

2 Drink jy nou alkohol? Ja 1 Nee 2 47

As jou antwoord na vraag 2 "ja" was, antwoord asseblief vrae 3-9
As jou antwoord na vraag 2 "nee" was, gaan na vraag 10

3 Hoeveel alkohol drink jy gedurende die week?

Ek drink nie gedurende die week nie	1
1-2 drankies per dag	2
3-4 drankies per dag	3
5 of meer drankies per dag	4

48

4 Hoeveel alkohol drink jy oor naweke?

Ek drink nie gedurende die naweek nie	1
1-2 drankies per dag	2
3-4 drankies per dag	3
5 of meer drankies per dag	4

49

5 Het jy al ooit gevoel dat jy minder behoort te drink? Ja 1 Nee 2 50

6 Irriteer dit jou as mense jou drinkery kritiseer? Ja 1 Nee 2 51

7 Het jy al ooit sleg of skuldig gevoel oor jou drinkery? Ja 1 Nee 2 52

8 Het jy al ooit 'n drankie eerste ding in die more gehad om jou senuwees te kalmeer of om ontslae te raak van 'n "hangover"? Ja 1 Nee 2 53

9 Rook jy gewoonlik meer wanneer jy drink?

Ja	1
Nee	2
Onseker	3

54

10.a Gebruik jy enige dwelmmiddels? Ja 1 Nee 2 55

b Indien "ja", watter van die volgende dwelms gebruik jy?

Dagga	1
"Ecstacy"	
Mandrax tablette (Pil)	2
Ander, verduidelik asb.....	3
.....	

56

60

11 Gebruik jy nou snuif?

a) Ja, elke dag. *(Gaan asb. na vraag 12)*	1	
b) Ja, nie elke dag nie, maar ten minste een keer per maand. *(Gaan na vraag 12)*	2	61
c) Nee, nie elke dag nie maar ek het in die verlede daagliks gesnuif	3	
d) Nee, ekhet nog nooit snuif gebruik nie	4	

12 Indien "ja", watter van die volgende snuif of "trek" jy in?

b) Gom (Glue)	2	
c) Huishoudelike oplosmiddels (bv. Parrafin, reinigers ens.)	3	
d) Ander, verduidelik asb.....	4	65

13 Gebruik jy "pruimtabak" (koubare tabak? Ja 1 Nee 2 66

studie nr.

(F): Basiese kennis: Om deur almal voltooi te word 3

1.a Dink jy dat rook tydens die swangeskap 'n effek op jou sal hê? Ja 1 Nee 2 4

b Indien "Ja", verduidelik asb. hoe rook tydens swangerskap jou kan affekteer

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.....
..... 6

2.a Dink jy dat rook tydens swangerskap 'n effek sal hê op jou baba? Ja 1 Nee 2 7

b Indien "Ja", verduidelik asb. hoe dit jou baba kan affekteer.

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.....

3 Hoe skadelik is rook tydens swangerskap?

Glad nie skadelik nie	1	
'n Bietjie skadelik	2	
Redelik skadelik	3	10
Baie skadelik	4	
Uiters skadelik	5	

4 Wat dink jy is meer gevaarlik as om te rook gedurende swangerskap, noem 3 voorbeelde?

1) 11
2) .....
3) 13

5 Dink jy dat die rook van ander mense naby jou 'n effek kan hê op jou ongebore baba? Ja 1 Nee 2 14

6.a Dink jy dat jou rook en die rook van anders 'n effek op jou baba sal hê as hy/sy eers gebore is?

Ja [1]	Nee [2]		
			15

b Indien "Ja", hoe kan dit jou baba affekteer?

.....		
.....		17
.....		
.....		

Antwoord asb. al die volgende vrae

7 Antwoord WAAR, ONWAAR of WEET NIE	waar	onwaar	weet nie		
Nikotien is die verslawingstof in sigarette	1	2	3		18
Nikotien word deur die borsmelk na die baba oorgedra	1	2	3		
Nikotien bereik die baba gedurende swangerskap	1	2	3		20

8 Rook gedurende swangerskap kan die volgende gevolge hê:	waar	onwaar	weet nie		
Miskraam	1	2	3		21
Tè stadige groei van die baba in die baarmoeder	1	2	3		
Lae geboortegewig babas (te klein met geboorte)	1	2	3		
Vroë kraam (breek van water)	1	2	3		
"Bloeding" vanaf die plasenta voor die geboorte	1	2	3		
Babas wat doodgebore word	1	2	3		26

9 Rook gedurende swangerskap het die volgende gevolge op 'n baba na geboorte:	waar	onwaar	weet nie		
Wiegiedood (skielike dood voor 1ste verjaarsdag)	1	2	3		27
Abnormale longontwikkeling	1	2	3		
Stadige ontwikkeling van sie brein in vroeë kinderjare	1	2	3		
Leerprobleme op skool	1	2	3		
Longprobleme (soos brongitis of asma)	1	2	3		31

F. Programkeuses

1. Dink jy dat inligting en hulp wat by die kliniek aangebied word swanger vroue kan help om op te hou rook? Ja [1] Nee [2] 32

2. Is daar enige plekke in jou gemeenskap waar mense kan gaan vir inligting en hulp om op te hou rook? Ja [1] Nee [2] Weet nie [3] 33

2.1 Indien daar is, noem asb. al die moontlike plekke

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3. Hieronder is 'n lys metodes wat gebruik kan word om swanger vroue te leer oor die gevare van rook in te lig. Gee jou mening

	Werk glad nie	*Werk 'n bietjie*	*Werk Redelik*	*Werk goed*	*Werk uitstekend*	
a) Pamflette oor die gevolge van rook	1	2	3	4	5	36
b) Tydskrifte (huisgenoot ens.)	1	2	3	4	5	
c) Gesprekke deur vroue wat opgehou het	1	2	3	4	5	
d) Advies via telefoondiens (quit line)	1	2	3	4	5	
e) 'n Video oor die gevolge van rook	1	2	3	4	5	
f) Televisieprogramme oor rook gevolge	1	2	3	4	5	
g) Radiogesprekke/programme	1	2	3	4	5	
h) Groepvoorligting deur 'n vroedvrou	1	2	3	4	5	
i) Individuele voorligting deur 'n vroedvrou	1	2	3	4	5	
j) Ondersteuningsgroep om vroue te help ophou rook	1	2	3	4	5	
k) Storieverhale (comics) oor ophou rook	1	2	3	4	5	
l) Spotprente oor ophou rook	1	2	3	4	5	

m) Ander, spesifiseer asb..... 52

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.....

4. Wil jy meer leer oor hoe om op te hou rook gedurende swangerskap? Ja [1] Nee [2] 53

4.1 Indien "Ja", verduidelik wat jy graag sal wil leer

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5. Wie sal jy die meeste vertrou om jou te leer oor rook en rookgevare? Jy mag meer as 1 antwoord kies.

a) Die vroedvroue by die voorgeboorte kliniek	1		56
b) Die dokters by die voorgeboorte kliniek	2		
c) Ander gemeenskapswerkers	3		
d) Gekwalifiseerde onderwysers	4		
e) Mense wat aan my kerk groep behoort	5		
f) Ander, spesifiseer asb.....	6		62
.....			
.....			

Vrae 6-13 vir rokers alleenlik!

6. Indien daar 'n opvoedkundige program oor rook gedurende swangerskap sou wees, in watter taal sal jy verkies om so 'n program te he?

Engels	1		
Standaard (suiwer) Afrikaans	2		63
Jou eie Afrikaans gebruikers taal	3		

7. Waar sal jy eerder verkies om 'n rookstaakprogram by te woon?

a) In die voorgeboorte kliniek	1		64
b) By jou plaaslike skool	2		
c) By jou plaaslike kerk/moskee	3		
d) In jou woning	4		
e) By jou werk	5		
f) By gemeenskapsbyeenkomste	6		
g) Ander, spesifiseer asb.....	7		71
.....			
.....			

8. Hoeveel weet jy omtrent rook gedurende swangerskap?

Baie min	1		
'n Redelike hoeveelheid	3		72
Alles wat ek behoort te weet	4		

9. Hoeveel weet jy omtrent ophou rook?

Baie min/feitlik niks	1		
'n Redelike hoeveelheid	3		73
Alles wat ek behoort te weet	4		

10. Hoe voel jy daaroor om met vroedvroue te praat oor rook? *Kies asb.net een van die volgende*

Ek voel vry om met die vroedvroue te praat oor rook	1		
Ek voel nie vry om met die vroedvroue te praat oor rook nie	2		74
Ek vra nooit die vroedvroue vrae oor rook nie	3		

11. Watter een van die volgende is van toepassing op jou. *Kies een van die volgende.*

Ek het genoeg vertroue om die vroedvroue vrae te vra oor rook gedurende my swangerskap	1	
Ek is te bang om die vroedvroue vrae te vra omtrent rook gedurende swangerskap	2	75
Ek het nie nodig om die vroedvroue vrae te vra omtrent rook gedurende swangerskap nie	3	

Studie no. 3

12. As daar 'n rookstaakprogram by die kliniek was, sou jy deelgeneem het?

Ja [1] Nee [2] 4

13 . As daar 'n rookstaakprogram elders in die gemeenskap was, sou jy deelgeneem het?

Ja [1] Nee [2] 5

14. Is jy tevrede met die sorg wat jy by die kliniek ontvang? Ja [1] Nee [2] 6

15. Hoe tevrede was jy met die diens wat die afgelope paar weke by die kliniek gelewer is?

Dui jou mening op die regterkant aan	Stem beslis saam	Stem saam	Onseker	Stem nie saam nie	Stem beslis nie saam	
a) Ek is baie tevrede met die diens	1	2	3	4	5	7
b) Dit was moelik om 'n afspraak te kry	1	2	3	4	5	
c) Ontvangs/klerk is vriendelik en hoflik	1	2	3	4	5	
d) Die suster het my met respek behandel	1	2	3	4	5	
e) Die diens is hopeloos	1	2	3	4	5	
f) Die suster het baie tyd met my spandeer	1	2	3	4	5	
g) Dit is maklik om by die kliniek uit te kom	1	2	3	4	5	
h) Ek vertrou nie heeltemal die suster nie	1	2	3	4	5	
I) Die suster luister nie na my nie	1	2	3	4	5	
j) Die suster doen toetse sonder om te verduidelik	1	2	3	4	5	
k) Die suster doen haar beste om my gerus te stel	1	2	3	4	5	
l) Die suster kom baie versekerd voor	1	2	3	4	5	
m) Die sr. verduidelik wat om van uitslae te verwag	1	2	3	4	5	
n) Ek moes lank wag voordat die suster my kon sien	1	2	3	4	5	
o) Die suster is baie deeglik	1	2	3	4	5	
p) Die suster doen onnodige ondersoeke	1	2	3	4	5	29

16. Wat sal jy graag wil verbeter in verband met die sorg wat jy by die kliniek ontvang?

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Hoe voel jy oor die voltooiing van hierdie vraelys?

Antwoorde wat ek in hierdie vraelys gegee het:	Stem saam	Stem nie saam nie		
a) ...sal nie aan my naam gekoppel kan word nie	1	2		32
b) ... sal nie deur die vroedvroue gesien word nie	1	2		
c) ...sal net deur die navorsers gesien word	1	2		
d) ...sal nie die behandeling wat ek by dié kliniek kry beinvloed nie	1	2		35

Die einde!!! Baie dankie vir U deelname in die studie.