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Factors influencing cessation attempts among current tobacco users attending the outpatient department of Dr Yusuf Dadoo hospital

Bokoro, Arlette Ilali

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FACTORS INFLUENCING CESSATION ATTEMPTS AMONG CURRENT TOBACCO USERS ATTENDING THE OUTPATIENT DEPARTMENT OF DR YUSUF DADOO HOSPITAL

A research report submitted to the
Faculty of Health Sciences,
University of the Witwatersrand
in partial fulfilment of the requirements for the degree of
Master of Medicine in Family Medicine

by

Dr ARLETTE ILALI BOKORO

Supervisor: **Dr E. Reji**
Co-Supervisor: **Prof. OB Omole**

Johannesburg 2019

DECLARATION

I, Arlette Ilali Bokoro, hereby declare that this research report is my own work. It is submitted for the degree of Master of Medicine in Family Medicine at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

Signed: ----------

30 of May 2019

Student No: 699719

DEDICATION

In loving memory of my dearest parents, Ilali Lukoji Andre and Bukasa Tshibunda Georgette.

ABSTRACT

Introduction

Tobacco use is one of the major risk factors for chronic diseases and premature death worldwide. Despite this, tobacco use is prevalent, especially in the developing countries such as South Africa. Considering that cessation of all forms of tobacco use is associated with reduced risks for adverse health outcomes, data on factors influencing successful tobacco use cessation is critical in informing comprehensive management of chronic diseases. Although most tobacco users desire to quit, and do make attempts to cease, many fail and repeated attempts to quit may be necessary for successful cessation. However, most studies on this topic have been conducted in developed countries where the contexts are different from South Africa.

Aim

To determine the factors influencing cessation attempts among current tobacco users attending the Outpatient Department at the Dr Yusuf Dadoo Hospital.

Methods

This was a cross-sectional study involving 275 consecutively sampled tobacco users attending the Outpatient Department at the Dr Yusuf Dadoo Hospital. A researcher-administered questionnaire written in English was used to collect data on participants' characteristics (socio-demographic and clinical), their tobacco use patterns, and quit-attempts, including the participants' perceptions of the importance of quitting, and their self-confidence in quitting tobacco use. Data analysis was performed using STATA-10 software and included descriptive statistics, a chi-square test, and logistic regression. Outcomes of the analysis included: participants' socio-demographic and clinical characteristics; tobacco use patterns; the proportion of participants who have attempted to quit (never and in the last year); the motivations and barriers to their quit attempts; and the factors significantly associated with tobacco use cessation.

Results

Most participants were black Africans (61.8%), males (65.8%), unemployed (53.83%), and unmarried (61.09%) with secondary school level education (48.73%). The mean participant age was 46.5 years (SD±15.2) with the most common age group being 40-64 years. Eighty-seven percent of the participants smoked cigarettes, while 10% used snuff.

Most participants: have made a quit-attempt (74%); perceived it important to quit (92.0%); and felt confident to quit (75.0%). Females were more likely to use snuff than their male counterparts (OR: 36.06, CI: 8.34-155.84, p-0.00). White tobacco users were 1.7 times more likely to attempt quitting than any other group (OR: 1.66, CI: 1.00-2.75, p-0.05). Married participants were twice as likely to quit tobacco use in comparison to their single counterparts (OR=2.13, 95% CI: 1.17-3.85, p-0.013). Health concerns were the most common motivation for attempting to quit (64%), while stress followed by cravings were most common barriers to cessation (37.4% and 33.5% respectively). Only 1.97% (n=4) of tobacco users were motivated to quit after receiving advice from a healthcare worker.

Conclusion:

This study established that most tobacco users wished to quit and were making quit-attempts. Interventions aimed at promoting tobacco use cessation in the hospital setting should take account of motivations and barriers to quit-attempts. The very low proportion of participants motivated by advice from a healthcare worker indicates the need for healthcare providers to use clinical encounters to address patients' tobacco use behaviours, utilising patients' health concerns to promote quit-attempts.

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ABBREVIATIONS

BMI:	Brief motivational interview
COPD:	Chronic Obstructive Pulmonary Disease
CVD:	Cardiovascular Disease
DYDH:	Dr Yusuf Dadoo Hospital
ETS:	Environmental Tobacco Smoke
GATS:	Global Adult Tobacco Survey
GHO:	Global Health Observatory
HCW:	Healthcare Worker
HREC:	Human Research Ethics Committee
HSCP:	Health and Social Care Professional
IHD:	Ischaemic Heart Disease
KNHANES:	Korea National Health and Nutrition Examination Survey
MHP:	Mental Health Patient
NCD:	Non-Communicable Disease
NRT:	Nicotine Replacement Therapy
OPD:	Outpatient Department
PTB:	Pulmonary tuberculosis
SA:	South Africa
SADHS:	South African Demographic and Health Survey
SANHANES:	South African National Health and Nutrition Examination Survey
SCT:	Social Cognitive Theory

SLT:	Smokeless Tobacco
TB:	Tuberculosis
UK:	United Kingdom
USA:	United States of America
WHO:	World Health Organization

DEFINITION OF TERMS

In this study, keywords are defined as follows:

Factors influencing cessation: refer to one or several things that cause or influence something to cease, e.g. cessation in this study.[1]

Current tobacco smokers: respondents who currently smoke tobacco, either every day or some days.[2]

Tobacco use: consumption of tobacco products in different ways, like chewing, burning, and inhalation.

Snuff: smokeless tobacco in the form of powder that is inhaled through the nostrils or chewed.

Cessation: stopping or giving up on tobacco use.

Environmental tobacco smoke (ETS): refers to being exposed to someone else's tobacco smoke. Also called passive smoke or second hand smoke.

Quit attempt: to try to stop or give up on tobacco use for at least 24 hours.

Ever quit: to try to stop tobacco use at any time before but failed (since all participants currently used tobacco)

CHAPTER 1: INTRODUCTION

1.1 Background

Tobacco use constitutes one of the major risk factors of chronic diseases and premature death worldwide.[3] Despite this, the Global Health Observatory (GHO) data of 2012 reported that 21% of the world population aged 15 and above smoked tobacco products, with men smoking more than women (36% vs. 7%).[4] Similarly, data sourced from the South African National Health and Nutrition Examination Survey (SANHANES-1) of 2012 indicated that 20.8% of participants in South Africa (SA) had a history of smoking tobacco, and that 6.7% used other tobacco products.[5]

Approximately 6.3 million people succumb each year due to tobacco-related illnesses, and if the current trend continued, the number of deaths is expected to reach to more than 8 million a year by 2030.[6] In SA, tobacco smoking ranked third out of 17 mortality risk factors, accounting for approximately 8-9% of deaths among those over the age of 35 years in the year 2000.[7] These deaths resulted mostly from chronic diseases such as: chronic obstructive pulmonary disease (COPD) (28%); tuberculosis (TB) (19%); lung cancer (10%); ischaemic heart disease (IHD) (12%); and stroke and peripheral vascular disease (PVD) (9%).[8]

Considering that non-communicable diseases (NCDs) caused most of these deaths, it is important to assist tobacco users to quit in order to reduce their risk of suffering from one or more of these diseases.[9-10]

Quitting tobacco use is an exceedingly difficult challenge, given that about 72% of adult smokers would like to quit, but only 24% have actually tried quitting, and less than 10% of daily cigarette smokers will successfully quit.[11] Quitting snuff use is equally challenging. Of 56% smokeless tobacco (SLT) users who desire to stop using snuff, about 42% of them were unable to do so.[12]

Anecdotal evidence suggests that tobacco users at the Outpatient department of Dr Yusuf Dadoo hospital struggling to quit despite being diagnosed with chronic diseases and given health education on multiple health risks related to tobacco use. This prompted the researcher to explore this problem with the aim of understanding this population group in order to help them overcome this harmful habit.

Given the difficulty associated with tobacco use cessation, it is important to identify the factors that facilitate and impede quitting attempts among tobacco users. Identifying these factors could assist in developing personalised and tailor-made interventions that could improve the success rate among those who wish to quit. More importantly, studies that have reported on motivations and barriers to tobacco use cessation have only been conducted outside of SA,[13-14] where sociodemographic contexts are different. Considering the high prevalence of tobacco use in SA, the low rate of successful quit attempts, the importance of tobacco use as a risk factor for morbidity and mortality in SA, and the benefits of cessation, there is a need for local data that promotes understanding of the factors influencing cessation, as part of a comprehensive approach to improving the success rate of quit-attempts among patients in primary healthcare.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature review is used to acknowledge what is already known about the subject and to determine if any gaps exist in understanding tobacco use cessation. The search for relevant articles was accomplished by using Google scholar, Pub Med and the Cochrane database as search engines. The keywords used included: tobacco use, cessation and outpatient. The high number of articles resulting from the above keywords forced the researcher to apply filters to reduce the number of articles. This chapter will provide a discussion of the following: epidemiology; tobacco use and health impact; factors influencing tobacco use cessation attempts; and conclusion.

2.2 Epidemiology

Approximately one billion people worldwide smoke tobacco, with an annual consumption of almost six trillion cigarettes.[14] Global data on SLT use is not easily available, even though SLT is widely used in Asia, Africa, the Middle East, and to a lesser extent in Europe and the United States of America (USA).[15] The prevalence of SLT in Sweden and Norway is 19% for men vs. 4% for women, and 11% for men vs. 1% for women, respectively. In the USA, 3.5% of people aged 12 and older use SLT, whereas in India, the prevalence is 36.7% for men and 9% for women.[15]

In SA, older and less educated persons are more likely to be tobacco users.[3]The prevalence of tobacco users is as follows: adult males (35.1%), adult females (10.2%), male youth (29.3%), and female youth (20.1%).[16] In this report, the age group between 13-15 years is considered "youth" while above 15 years is "adult". Although more men than women smoke,[6] the increasing prevalence of tobacco use among young people, and especially young women, raises serious concerns in light of the emerging epidemic of NCDs in SA. Lower levels of education and socio-economic status, as well as alcohol and drug abuse are common characteristics among tobacco users.[17] The prevalence of smoking according to race is highest in the Coloured population (49%), followed by whites (37%), Indians (28%), and blacks (22.7%).[18] Approximately 6% of tobacco users use SLT, and by far the majority of these users are black women.[12] A study conducted in a South African primary health care setting revealed that 14.9% of participants smoke cigarettes, while 12.1% use SLT.[19]

The government's tobacco control policy has had a significant impact on the South African smoking history, reducing the prevalence of smoking from 32.0% in 1993, to 16.4% in 2012.[5] However, SANHANES-1 reveals that SA has a serious problem regarding environmental tobacco smoke (ETS). Although only 16.4% of adults were current smokers at the time of the survey, 29.9% of adults reported exposure to ETS, as ascertained by blood cotinine levels greater than 10ng/ml.[5]

2.3 Tobacco use and health impact

The health impact of tobacco use in all its forms is well documented in the literature. While the products of combustion are responsible for health risks in smoking, tobacco-related health problems are also attributable to the carcinogens contained in SLT preparations.[20] The health hazards of SLT can involve the whole oral cavity. It start as inflammation of buccal mucosae with leucoplakia, tooth and periodontal lesions, as well as cheek and gum cancers.[21-22] The damage can extend to the nose, larynx, oesophagus, and stomach causing cancers of the above organs.[22] The SLT does not spare systemic involvement, such as the cardiovascular system, since it elevates blood pressure and pulse rate.[23]

In terms of the respiratory effects of smoking, the structure and function of the airways are affected as a result of the acute and chronic inflammatory effects of the different constituents of the smoke. The consequences are loss of cilia, mucus gland hypertrophy, and increased number of macrophages, increased permeability, and parenchymal destruction. Early respiratory changes include bronchiolitis, mucus cell metaplasia, mural oedema, smooth muscle hypertrophy, peribronchiolar fibrosis, and narrowing of the airways. Emphysema and COPD are developed in later stages, in people who have smoked for more than 15 years.[24-26] Smoking also affects a person's local immune system, which can explain smokers' susceptibility to contracting infectious diseases, such as pulmonary tuberculosis (PTB), pneumonia.[27-29] Asthma increases in frequency or is exacerbated by smoke, due to all the changes taking place in the airways and the increase of nonspecific bronchial responsiveness with a synergistic atopy-smoking action.[30-31] An increased risk of sensitisation to some allergens, such as the house dust mite, but not to cat or grass allergens, have been demonstrated in some studies.[32]

For cardiovascular effects, vessels' structure and functions are affected by smoking, leading to increased vascular spasm and atherosclerosis, which are responsible for many cardiovascular episodes in the body.[33] Several processes occur for these changes to happen, such as an increase in low density lipoprotein cholesterol, while high density lipoprotein cholesterol decreases due to high levels of circulant catecholamines and free fatty acids in smokers, inhibition of prostacyclin synthesis, increased platelet aggregation, and the stimulation of smooth muscle proliferation with injured endothelium.[34-35] Patients with peripheral vascular disease are mostly smokers (more than 90%).[36] Lower limb gangrene and amputation are complications of peripheral vascular disease. Erectile dysfunction is one the peripheral vascular complications of smoking, the risk of which increases by 50-80% in smokers as compared to non-smokers.[37-38] Acute and chronic myocardial changes, and cerebral and peripheral disease are common cardiovascular hazards related to smoking.[39]

Lung cancer is 20 times more common in smokers than in non-smokers; the risk of fatal myocardial infarction is increased fourfold in young male smokers compared with non-smokers, and the risk of stroke is elevated to three times more in smokers than in non-smokers.[40] Smoking is also accountable for 71% of all lung cancer mortalities, as well as 42% of chronic respiratory diseases, and 10% of cardiovascular diseases (CVDs). In addition, smoking has been identified as a major risk factor for communicable diseases like TB and lower respiratory tract infections.[41]

Several types of cancers are caused by or related to cigarette smoking, such as lung cancer (80-90%), larynx cancer (85%), pharynx cancer (75%), oral cavity cancer (65%), oesophagus cancer (65%), and bladder cancer (40-60%), but lung cancer is the leading cause of death in this category.[42]

Tobacco use does not only affect a person's physical health but also their mental health. Toxic chemicals contained in cigarettes can damage the brain, leading to deficits in learning and memory.[43] Nicotine reaches the brain within about 10 seconds when a person smokes. The smoker will experience improved concentration and mood, decreased anger and stress, relaxed muscles, and reduced appetite. These benefits are short-lived, and then lead the person to smoke more (increased cravings and developed dependency).[44] Although smokers think smoking will improve their

mental health, there is a strong association between smoking and poor mental health.[45]

Women's health is also affected by smoking. The risks range from spontaneous miscarriage, placenta abrutio, placenta praevia, premature rupture of membranes, and foetal intrauterine growth retardation.[46-50]

Morbidity and mortality related to tobacco use not only results from direct consumption of tobacco products, but also from exposure to second-hand smoke.[51] According to the World Health Organization (WHO), exposure to second-hand smoke accounts for approximately 10% of the annual 6 million tobacco-attributable mortalities worldwide, and it is also a significant factor in morbidity, asthma exacerbation, and school absenteeism among children.[9]

ETS can be as dangerous as active smoking, considering the amount of toxic chemicals found in the side stream line, such as benzopyrene (three times more), carbon monoxide (five times more), and ammonia (50 times more).[52] "There is no risk-free level of second-hand smoke exposure". The health impact of second-hand smoke is significant, starting from acute, noxious effects such as eye, nose, and throat irritation, to chronic, systemic effects such as several types of cancer, CVD, and respiratory disease, especially asthma and allergic responsiveness in children.[53]

2.4 Factors influencing tobacco use cessation

2.4.1 Tobacco use cessation

Quitting tobacco use improves the functioning of affected body systems such as the cardiovascular, respiratory, and gastrointestinal systems, and reduces the severity and progression of chronic diseases.[54] Understanding the addictive effect of nicotine on tobacco users is important when addressing cessation during clinical encounters, and to increase the uptake of tobacco cessation services. The "5 A's" framework is an evidence-based approach to help health workers to identify smokers, motivate them to quit, and to support them through successful quitting using counselling, pharmacotherapy, and follow-ups.[55] The "5As" are as follows: ask, assess, advise, assist and arrange.[55] On the other hand, tobacco users who are not contemplating cessation could be supported using the "5Rs" framework – Explore health risks, make the risks relevant, explore rewards of cessation, road blocks and engage in the process

repetively.[55] Many randomised, controlled trials provide the evidence for the efficacy of behavioural support and several medications for smoking cessation.[56-61] Smokers who use prescribed medication with behavioural intervention are 2.58 times more likely to have a good outcome compared to those without any assistance.[62] Brief individual cessation counselling is still valuable for its efficacy.[56] Pharmacotherapy (bupropion or varenicline) is the first line therapy, although nicotine gum, transdermal nicotine, and nasal sprays improve abstinence.[63]Combined therapies seem to be efficacious. Pharmacotherapy combined with counselling or cognitive behavioural treatment increase the success rate.[64] Self-help alone remains an approach but has poor cessation outcomes.[65] The role of the healthcare worker (HCW) is still important in screening and offering effective treatment, but combined approaches are strongly advised.[66]

Most smokers will need help in giving up their habits, but only about 4% to 7% of smokers are likely to do so unassisted during any given attempt.[67] With use of medicines, about 25% of smokers are able to abstain from tobacco use for more than six months.[64] With the new guidelines, nicotine replacement therapy (NRT) can be used by smokers while they are still smoking in order to reduce the frequency as opposes to completely quitting.[68-69] The use of NRT beyond the recommended duration (7 to 12 weeks) can be advised, as long as the smoker desires to quit and needs help in doing so. The use of NRT can be prolonged to promote recovery of abstinence, even after smoking cessation.[70] Highly dependent smokers can benefit from higher doses or from combining more than one type of NRT to effectively succeed.[71]

2.4.2 Motivation to quit and cessation

Several studies have shown that most tobacco users are contemplating quitting.[11] However, only an estimated quarter 24% will make the effort, and of those, only about 10% will actually succeed.[12] The above quitting rate does not differ with the current trend (only 14.1% of those who ever attempted succeeded to quit).[72] These findings show nicotine's addictive power and further insist that tobacco users need to be highly motivated if they are to succeed in their attempts to quit. Several factors have been reported as motivations for cessation attempts.

The motivating factors that enhance cessation are as follows:[11]

- socio-demographic factors;
- environmental and personal factors; and
- behavioural factors.

2.4.2.1 Socio-demographic factors

Using the Korea National Health and Nutrition Examination Survey (KNHANES), Kim compared successful quitters with current smokers who failed to quit, and found that certain socio-demographic characteristics, such as being of an older age, being female, being married, having a higher education, and smoking a higher number of cigarettes per day are predictors of successful quitting.[73] Huong et al. used the Global Adult Tobacco Survey (GATS) to study patterns of smoking cessation and its associated factors in Vietnam. Age, living area, and knowledge of health problems related to smoking were identified as factors associated with attempts to quit.[74]

A study conducted in SA by Ayo-Yusuf, using data from the 1998 South African Demographic and Health Survey (SADHS), yielded results similar to those observed in Korea and Vietnam. The researcher found that successful cessation was associated with the following factors: being female; being 55 years old or above; having a tertiary education; believing smoking is harmful; having a past history of alcohol dependence; living in smoke-free homes; or smoking more than 20 cigarettes per day.[72]

2.4.2.2 Environmental and personal factors

Considering the high prevalence of tobacco use among mental health patients (MHPs), a qualitative study was conducted in Scotland by Kerr et al. In this study 27 MHPs and 54 health and social care professionals (HSCPs) living in urban and rural areas with different socio-economic statuses were interviewed regarding factors that influence smoking cessation.[75] The findings were assessed through the lens of social cognitive theory (SCT). This theory stipulates that personal factors, such as the level of motivation and self-efficacy, and environmental factors, such as other people's behaviour and social norms, influence a person's behaviour.[76] The study indicated that improvement of physical health and increased disposable income were found to

be facilitators in both groups (among MHPs and HSCPs).[75] Given its qualitative nature, the study's findings cannot be generalised. The absence of black participants and other ethnic minorities also make transferability to the South African context difficult.

2.4.2.3 Behavioural Factors

In a study conducted in Nottingham (UK), Uppal et al. found no difference in terms of the studied outcomes between the low and high motivation groups.[77]The following factors were found to be likely to increase motivations to stop smoking: desire to quit; financial constraints; presence of detrimental health issues; starting a family; and social disapproval. According to the findings, the desire to quit leads to the willpower to do it (termed as "self-efficacy"), and is a fundamental factor required to elicit behaviour change. The impact of tobacco on health and the economy was also found to be a motivating factor to quitting,[21,78] as both groups in this study indicated that a price increase would likely discourage people from buying tobacco.

A study conducted by Benson et al. looked at the relationship between smokers' attendance patterns and their motivation for quitting.[78] This study used the self-determination theory, which includes three types of motivations: demotivation; intrinsic motivation; and extrinsic motivation. Extrinsic motivation is seen as motivation to achieve a set goal, whereas intrinsic motivation is perceived as engaging in something for the pleasure of doing so. However, intrinsic motivation to attend group therapy sessions does not imply a desire to quit, and such people still require further support to create a change of behaviour.[79]

2.4.3 Barriers

The factors that prevent quitting are as follows:[79]

- personal factors; and
- factors influencing health behaviour

Given the proven benefits of quitting tobacco use, it is important to understand factors that compromise the success rate of tobacco cessation.

2.4.3.1 Personal factors

Barriers reported by MHPs in the study done by Kerr et al. were as follows[75]: social norms; the impact of their mental health problem(s); low levels of motivation; the use of tobacco as self-medication; poor self-efficacy; pleasure/enjoyment related to smoking; and a lack of professional support. On the other hand, the HSCPs regarded the following factors as barriers to smoking cessation: a lack of motivation/self-efficacy; social networks/norms; prioritisation of mental health over physical health; and the reluctance to access main stream smoking cessation programmes. People with mental health problems had low levels of motivation and poor self-efficacy, and were more influenced by social norms, to the extent that they found it difficult to quit because they were more desirous of fitting into society. They also found that tobacco calmed them down, and relieved their stress, in contrast to the HSCPs for whom this was not an issue.[75] The HSCPs were more concerned about their patients' psychiatric conditions, rather than their physical conditions, and were aware that their patients were reluctant to attend the smoking cessation programme.

2.4.3.2 Factors influencing health behaviour

Bryant's study explored barriers and facilitators to quitting.[80] The results of this study were similar to those found in Kerr's study[75], confirming individual barrier levels to quitting smoking, such as poor self-efficacy and smoking for stress relief, with the exception of weight gain. The above factors were considered to be pre-disposing factors. Bryant's study stated that the high cost of NRT as well as limited use of available cessation support and the limited provision of cessation support were identified as other barriers. A lack of knowledge about smoking cessation services and negative views towards NRT compromised quitting.[80] Smoking and social norms, as well as preferences for cessation support were perceived as reinforcing factors. Bryant et al. suggested that social and community organisations might play a role in increasing knowledge and providing cessation support to disadvantaged Australian smokers. A number of limitations regarding recruitment and sampling were noted in this study. The sampling included only disadvantaged persons who had access to community social services, and only services focussed on smoking cessation were used.

Results from a randomised, cross-sectional, household survey conducted in six low-income neighbourhoods in Connecticut, USA, were used to identify the motivations and barriers to smoking cessation among people who smoked tobacco daily, as well as the socio-demographic differences in their identification of motivations and barriers.[81] A questionnaire about various health issues, including chronic disease, exercise, diet, and alcohol and tobacco consumption were used in randomly selected households. A total of 1205 people participated in the survey, but an analysis was done on only 350 cases due to certain exclusion criteria. Seven hundred and fourteen of those excluded were non-smokers; 48 were non-daily smokers; there were 10 incomplete questionnaires; and 83 participants were excluded due to their ethnic groups. The study showed that the participants' socio-demographic differences influenced their barriers and motivations, e.g. black women were interested in a free quit line or quit website, Latinos were more likely to be afraid of weight gain, and older participants were worried about how much the smoking cessation products would cost them. The two most common barriers identified were "too difficult to quit" and "lack of desire to quit". Even though the research setting was a community facility, as opposed to an OPD, this study was very relevant to this new study, considering its corresponding objectives and study population.

Various studies[73,77,82] spoke about different health behaviours that were considered as barriers to quit tobacco use. These factors were alcohol consumption, hand-rolled cigarettes and/or marijuana use, friend or relative smoker, absence of health problems; and smoking as enjoyment. People also felt that the desire to quit was based more on what they ought to do, rather than what they wanted to do.[77]

Although China is the largest producer and consumer of tobacco, studies there did not find motivations and barriers different from those in the rest of the world except for the sharing and gifting custom, which is related to the Chinese culture and tradition.[83] In China, especially in rural areas, offering a cigarette is a gesture of friendship and respect, and one that builds relationships in business.

Emotional traits such as anger and anxiety need to be considered while dealing with smoking cessation. These traits play an important role in smoking behaviour. Many articles have highlighted a correlation between emotional dysregulation and smoking motives.[84-86] In order to decrease the likelihood of relapse among smokers, there is a

need to deal with emotional problems before or concurrent to any smoking cessation programme.

2.5 Conclusion

Tobacco use is a leading factor for premature death globally and in SA.[6] Data on factors influencing tobacco use cessation is critical in informing a comprehensive approach to improve the success rate of cessation attempts. However, most studies conducted on this topic were carried out in developed countries, and in contexts different to those in SA.[77,78,81] There is a void in the knowledge regarding factors influencing tobacco use cessation in SA, especially among patients attending primary healthcare services. This study aimed to fill this literature gap by determining the factors that influence tobacco use cessation attempts among current tobacco users at the DYDH in Krugersdorp in Gauteng province in SA.

CHAPTER 3: METHODS

3.1 Aim

To determine the factors that influence quit-attempts among current tobacco users attending the Outpatient Department (OPD) of Dr Yusuf Dadoo Hospital (DYDH), Krugersdorp, Gauteng Province.

3.2 Objectives

a) To describe participants' characteristics (socio-demographic and clinical);
b) To describe participants' tobacco use patterns (types of tobacco products, quantity, and frequency of use);
c) To determine the proportion of tobacco users who have attempted to quit (the proportion who have tried but have failed, and those who have never tried);
d) To identify participants' motivations to quit and the barriers to attempting to quit; and
e) To determine factors (participant and tobacco use characteristics) that are significantly associated with attempts at ceasing tobacco use.

3.3 Study design

This research study was a cross-sectional study with descriptive and analytical components. Being an observational study, it was appropriate to utilise a cross-sectional design to determine the factors significantly associated with tobacco use cessation attempts at the time in question.[87]

3.4 Study site

This study was conducted at the OPD of DYDH, which is a district hospital situated in Krugersdorp, a town in the West Rand district of Gauteng province. DYDH has 245 beds and caters for patients referred from 44 fixed primary care clinics, eight mobile clinics, four satellite clinics, and three maternity obstetric units. During the study period, the OPD in this hospital was run by four medical doctors, two clinical associates, and 10 nurses.

3.5 Study period

The study took place between May and August 2016.3.6 Study population

3.6 Study population

The study population comprised patients attending the OPD during normal consultation times (Monday to Friday between 07:30 and 16:00). According to the district health information system (2014), about 23,892 patient-visits were recorded at the OPD in 2014, excluding emergency cases. Assuming each patient attended the OPD once a month, an estimated 1,991 patients were seen in the OPD in 2015.

3.7 Study sample and sampling

The sample size was calculated assuming a sampling error of 5%, a confidence interval of 95%, and tobacco use prevalence of 26%.[16,18] All patients who were tobacco users attending the OPD were eligible, and were invited to participate in the research. These participants were recruited consecutively from Monday to Friday during working hours, until the sample size was achieved. Although the sample size was 258, a total of 275 participants were sampled to compensate for potential incomplete data.

The researcher worked in the OPD at the DYDH during the study period. Patients were identified by the OPD's staff nurse who enquired about their tobacco use status, when taking their vital signs. Those who used tobacco products were directed to the researcher's consultation room, where the researcher briefed them about the study. Advertising posters inviting tobacco users to participate in the study were visible in the OPD, and health promoters also informed patients of the study during their daily health talk in the OPD reception area. Patients who were willing to participate in this research were given information leaflets explaining the purpose of the study, and health promoters advised illiterate patients of the study. Thereafter, the researcher obtained informed written consent from patients who agreed to participate in the study. Patients who declined the invitation to participate in the study were returned to their original position in the queue, and their needs of the day were attended to according to usual care by other doctors in the OPD.

3.8 Inclusion criteria

- Patients aged 18 years or above who used tobacco products;
- Patients who were able to consent to participation in the study; and
- Patients who presented at the OPD during working hours.

3.9 Exclusion criteria

- Emergencies.

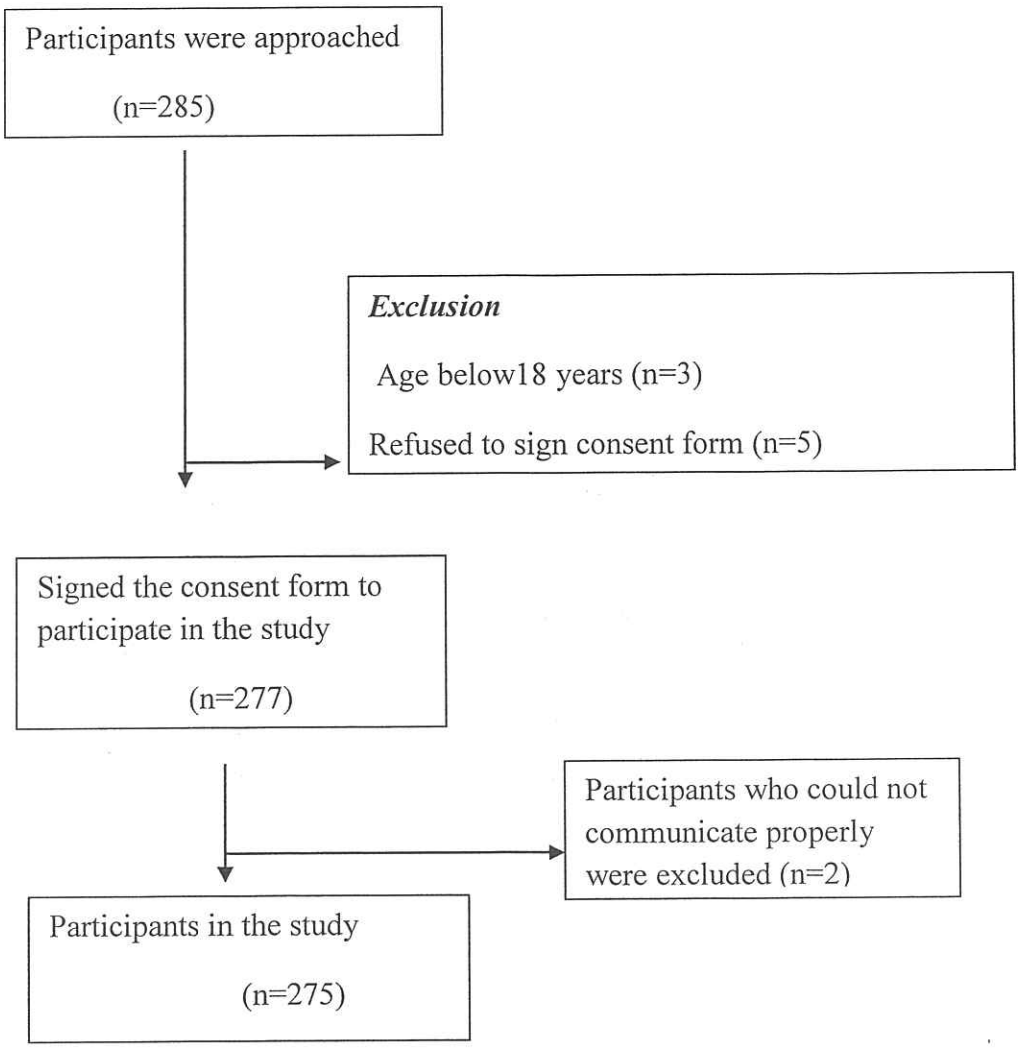


Fig. 1: Flow chart showing the process of selecting the study participants

Although the calculated sample size was 258, the researcher managed to attract 275 participants during the study.

3.10 Measurement tool /instrument

A researcher-administered questionnaire written in English was used to collect data. This questionnaire was developed based on the findings of various studies reviewed in the applicable literature, especially the GATS.[2] The first section of the questionnaire (Q1 to Q8) collected information on participants' characteristics such as age, sex, occupation, marital status, and clinical problems or diagnoses. The second

section of the questionnaire (Q9 to Q32) collected information on patterns of tobacco use and cessation attempts, motivations, and barriers.

3.11 Data collection

Patients who consented to participate in the study were first attended to by the researcher for their clinical needs, and after the consultation the researcher interviewed them and completed the questionnaire. A trained research assistant who was proficient in the prominent local languages (Sotho, Zulu, and Afrikaans) acted as interpreter for participants who did not speak or understand English. After completing the questionnaire, participants who required medication were directed to the OPD dispensary. A sticker was placed on the patient's file to avoid resampling. The researcher collected all the completed questionnaires on a daily basis and kept them in a safe and secure place. The data was transferred to a computer and was held in a password-protected file. Only the research team had access to these data.

3.12 Data analysis

Data was captured onto an MS Excel sheet and transferred to STATA-10 for coding and analysis. Descriptive statistics were used to describe participants' characteristics and their tobacco use patterns. Participants' characteristics (socio-demographic & clinical) and their tobacco use patterns were presented as frequencies and percentages, and continuous variables, such as age, were presented as means with standard deviations. The proportion of tobacco users who ever attempted to cease their use of tobacco products was determined. Group comparisons between those who had ever tried to quit and those who had never tried to quit were made with regard to socio-demographic characteristics and tobacco use patterns by using chi-square and t-tests, as applicable. Factors significantly associated with cessation attempts were determined by multiple logistic regression analyses. Statistical significance was deemed to exist if $p<0.05$.

3.13 Pilot study

The researcher conducted a pilot study in April 2016 on 10 patients in the OPD of the DYDH after the study approval was provided by the ethics committee of Witwatersrand University. The patients involved in the pilot study were excluded

from the research sample and final analysis. The aim of this pilot study was to identify logistical problems, and to determine the questionnaire's efficiency and effectiveness. From the pilot study's findings, the time to complete the questionnaire was estimated to be 10 minutes. There were no questions that needed to be modified or removed, as it appeared that the participants understood the questions posed in the questionnaire and were willing to participate without any complaint.

3.14 Ethics

Confidentiality was maintained by not collecting identifying data and by coding the questionnaires. The researcher collected all of the completed questionnaires on a daily basis and kept them in a safe and secure place.

The data held in the computer was password-protected, and only the research team had access to the collected information. Approval was sought from the Human Research Ethics Committee (HREC) of the University of the Witwatersrand (clearance number: M160208). The researcher also obtained permission from the Chief Executive Officer of the DYDH before conducting the study in the setting (See annexure 4).

Informed consent was obtained from all patients before their participation in the study. Patients who declined to participate in the research were not penalised and were treated with respect and managed according to guidelines.

3.15 Funding

The research was funded by the researcher.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the results of the study, starting with the participants' characteristics (socio-demographic & clinical) and tobacco use patterns. Thereafter, tobacco use cessation attempts and factors influencing tobacco use cessation attempts are presented. Lastly, results of comparisons between those who have ever tried to quit and those who have never tried to quite with regard to socio-demographic and clinical characteristics, tobacco use patterns, and motivations and barriers are presented.

4.2 Tobacco users' socio-demographic characteristics

Table 1: Tobacco users' socio-demographic characteristics

Characteristics	Frequencies (N=275)	Percentages (%)	Mean ± SD
Age (years)			
18-24 (youth)	23	9	46.5 ± 15.2
25-39 (young adults)	75	27	
40 - 64 (adults)	141	51	
≥ 65	36	13	
Sex			
Male	181	66	
Female	94	34	
Population Group			
African	170	62	
White	98	36	
Coloured	7	2	
Marital status			
Unmarried (single, divorced, and/or	168	61	

widowed)			
Married (married and/or cohabiting)	107	39	
Level of education			
No educational background	21	8	
Primary	54	20	
Secondary	134	49	
Matric	48	17	
Tertiary	18	6	
Employment status			
Employed	127	46	
Unemployed	148	54	
Unemployed Category	N=148		
Student	5	3	
Pensioner	56	38	
No work	87	59	

The majority of the participants were African males who were unemployed and were unmarried, with an educational status of secondary school level. The most common age group was 40-64 years, with a mean of 46.5 years (SD ± 15.2).

4.3 Tobacco users' clinical characteristics

Table 2: Tobacco users' clinical characteristics

Presence of chronic conditions	Frequencies N=275	Percentages
Participants with no chronic conditions	130	47
Participants with chronic	145	53

conditions		
Types of chronic conditions that were present in the tobacco users	N=145	
Cardiovascular diseases	80	55
Infectious diseases	24	16
Mental health disorders	19	13
Respiratory diseases	14	10
Endocrine diseases	8	6
Reason for encounter	N=275	
Acute health problems	172	63
Follow-up visit	99	36
Administrative needs	4	1

More than half of the tobacco users had chronic conditions, but 63% of them came to the OPD for acute problems. Fifty five percent of those with chronic conditions had CVD followed by infectious disease.

4.4 Pattern of tobacco use amongst the participants and cigarette users' characteristics

Table 3: Pattern of tobacco use amongst the participants and cigarette users' characteristics

	Frequencies	**Percentages**	**Mean ± SD**
Types of Tobacco Products Used	**N=275**		
Cigarettes	238	87	
Snuff	28	10	
Other ("roll your own" /bidi)	8	2	
Hookah	1	1	

Brands Used by the Cigarette Smokers	**N=246**		
Commercial	238	87	
Hand-rolled	8	3	
Duration of Smoking amongst Cigarette Smokers in Years			
< 10	52	21	23yrs±14.65
11-20	71	29	
>20	123	50	
Number of Cigarettes Smoked Per Day amongst Cigarette Smokers			
<10	150	61	
10-19	76	31	
20-29	9	4	
≥30	11	4	
Daily Cigarette Smokers amongst Cigarette Users			
No. of Daily Smokers	235	96	
No. of smokers who do not smoke daily	11	4	

Eighty seven percent (238/275) of the tobacco users were cigarette smokers. Fifty percent (123/246) of the cigarette users had smoked for longer than 20 years, but a minority of them smoked more than 20 cigarettes per day and majority of them were daily users. The mean duration of smoking amongst the cigarette users was 23 years (SD± 14.65).

4.5 Snuff and other tobacco users' characteristics

Table 4: Snuff and other tobacco users' characteristics

Brand of Snuff amongst the Snuff Users	**Frequency N=28**	**Percentage**	**Mean ± SD**
Commercial	24	85.71	
Home-made	4	14.29	
Years of Snuffing			
< 10	12	43	19.14 ± 17.59
11-20	5	18	
>20	11	39	
Snuff Use Per Day			
Less than 3 times	10	35.71	
More than 3	18	64.29	
Daily Snuff Users			
No. of daily snuff users	19	67.86	
No. of snuff users not using it daily	9	32.14	
Orifice Used for Snuffing			
Nose	24	85.71	
Mouth	4	14.29	

Table 4 shows that 10% (n= 28) tobacco users used snuff. Years of snuff use were less than 20 years amongst 61% (n=17) of the snuff-using participants. The mean duration of snuffing amongst the snuff users was 19.14 years (SD ± 17.59). Alcohol was the most commonly used substance along with tobacco, and the dual use of alcohol and tobacco was noted amongst 87% (95/109) of the users.

4.6 Tobacco users who made attempts to quit

Table 5: Tobacco users who made attempts to quit

Attempts	Frequency (n= 275)	Percentage
No. of participants who attempted to quit tobacco use	N=203	74
No. of participants who did not attempt to quit tobacco use	N=72	26

Seven four percent reported that they attempted to quit tobacco use.

Table 6: Number, time, and longest period of cessation attempts by tobacco users

Number of attempts to quit tobacco use in the past year	Frequencies N=203	Percentages	Mean ± SD	Range
None	94	43	2 ± 1	0-4
Once	24	12		
Two times	44	22		

Three times	11	5		
Four or more	30	15		
Time in months of last attempts to quit tobacco use			36 ± 61 months	3 days- 30 years
Less than 12 months	112	55		
More than 12 months	91	45		
Longest period of cessation tobacco use in months			6 ± 12 months	1 day – 96 months
Less than 6 months	58	29		
More than or equal to 6 months	145	71		

Fifty five percent (112/203) of the tobacco users had attempted to quit in the past year. The mean number of cessation attempts in the past year were 2.3 (range 0-4) attempts.

Table 7: Readiness to cease tobacco use

Ninety two percent (253/275) of participants felt that it was important to stop using tobacco, and 75% (207/275) felt that they were confident about tobacco use cessation.

Importance of Ceasing Tobacco Use	**Frequency N= 275**	**Percentage**
Not important to cease the use of tobacco	22	8
Important to cease the use of tobacco	253	92
Confidence in Successfully Ceasing the Use of Tobacco		

Not confident about quitting	68	25
Confident about quitting	207	75

4.7 Motivations and barriers to ceasing tobacco use

Table 8: Motivations to tobacco users' cessation attempts

Motivations	Frequency N=203	Percentage
Health concerns	130	64
Desire to quit	55	27
Financial constraints	34	17
Advice from friend or relative	17	8
Religious reasons	7	3
Starting a family	5	2
Work recommendations	4	2
Advice from health care worker	4	2

As indicated in Table 8, health concerns were the most common motivation for attempting to quit (64%; 130/203). Health workers' advice was among the least common motivation for attempting to quit.

Table 9: Barriers to tobacco users' cessation attempts

Barriers	Frequency N= 203	Percentage
Stress	76	37
Cravings	68	33
Feeling of addiction	55	27
Lack of will power	24	12
Alcohol	22	11
Enjoyment/Pleasure	21	10
Friend or relatives who smoke	21	10
Emotional traits, such as anger and aggression	5	2
Traditional reasons	3	1
Headache	3	1

Note: the total percentage # 100 because participants could select more than one factor.

Table 9 shows barriers to cessation attempts. Thirty seven percent (76/203) of the tobacco users reported that stress was the main barrier to attempts to quit smoking, followed by tobacco cravings.

4.8 Association between participants' characteristics (socio-demographic & clinical features) and their tobacco use pattern

4.8.1 Association between participants' socio-demographic characteristics and different types of tobacco products

Table 10: Socio-demographic characteristics of participants vs. types of tobacco products using Pearson Chi Square

Participants' characteristics		Type of Tobacco Products						P-value
		Cigarettes + Bidi N= 246		Snuff N=28		Hookah N=1		
Age (years)		**N**	**%**	**N**	**%**	**N**	**%**	**0.02**
18-24 (youth)	N=23	22	9	1	4	0	0	
25-39 (young adults)	N=75	71	29	4	14	0	0	
40-64 (adults)	N=141	126	51	15	54	0	0	
≥ 65	N=36	27	11	8	28	1	100	
Sex								
Male	N=181	179	73	1	4	1	100	0.00
Female	N=94	67	27	27	96	0	0	
Population Group								
African	N=170	142	58	28	100	0	0	0.00
White	N=98	97	39	0	0	1	100	
Coloured	N=7	7	3	0	0	0	0	
Marital Status								
Unmarried (single, divorced, and widowed)	N=168	150	61	18	64	0	0	0.51
Married (married and cohabiting)	N=107	96	39	10	36	1	100	

Level of Education								
No educational background	N=21	16	6	5	18	0	0	0.17
Primary	N=54	46	19	8	28	0	0	
Secondary	N=134	121	49	12	43	1	100	
Matric and tertiary	N=66	63	26	3	11	0	0	
Employment Status								
Employed	N=127	114	46	13	46	0	0	0.62
Student	N=5	5	2	0	0	0	0	
Pensioner	N=56	48	20	8	29	0	0	
Unemployed	N=87	79	32	7	25	1	100	

Table 10 shows that age, sex, and population are associated with different types of tobacco products. The logistic regression revealed that females smoked significantly less cigarettes/bidi (roll your own cigarettes) than males (OR: 0.03, CI: 0.01-0.12, p–0.00). The white population group was more likely to smoke cigarettes and bidi in comparison to other population groups (OR: 13, CI: 2.47-68.50, p-0.00). Multiple logistic regression showed that the white population group was significantly more likely, i.e. 36 times more likely, to use cigarettes than snuff/hookah (OR: 36, CI: 6.18-213.52, p-0.00), and females were less likely to use cigarettes in comparison to their male counterparts (OR: 0.02, CI: 0.04-0.06, p-0.00).

4.8.2 Association between snuff users and socio-demographic characteristics

Females were 36 times more likely to use snuff than their male counterparts (OR: 36.06, CI: 8.34-155.84, p-0.00). The white population group was less likely to use snuff in comparison to other population groups (OR: 0.05, CI: 0.007-0.39, p-0.00). A multiple regression analysis showed that the female sex was the only statistically significant variable (OR: 63.44, CI: 16.00-251.56, p-0.00) for snuff users.

4.8.3 Association between participants' clinical characteristics and tobacco products.

Table 11: Association between the presence of chronic conditions in participants and tobacco products using Chi Square

		Types of Tobacco Products				P-value
		Cigarettes and Bidi		Snuff and Hookah		
Presence of Chronic Condition		**N**	**%**	**N**	**%**	0.002
Participants without chronic conditions	N=130	124	50	6	21	
Participants with chronic conditions	N=145	122	50	23	79	

Smokers (cigarettes and bidi) are four times more likely to have chronic diseases in comparison to snuff users. (OR=3.90, CI-1.53-9.90, p-0.004).

4.8.4 Association between participants' characteristics (socio-demographic & clinical features) and the quantity of tobacco consumed by the participants

Table 12: Association between the participants' socio-demographic and clinical characteristics and the quantity of cigarettes and bidi they smoke

		Number of Cigarettes Smoked - less than 20 per day		Number of Cigarettes Smoked - more than 20 per day		P-value
Cigarette and Bidi Smokers	**N= 246**	**N=226**	**%**	**N=20**	**%**	
Population Group						
African	142	136	60	6	30	0.02
White	97	83	37	14	70	
Coloured	7	7	3	0	0	
Employment Status						
Employed	114	110	49	4	20	0.02
Student	5	5	2	0	0	
Pensioner	48	39	17	9	45	
Unemployed	79	72	32	7	35	
Presence of Chronic Condition						
Participants without chronic conditions	124	81	73	43	32	0.00
Participants with chronic conditions	122	106	47	16	80	

Some socio-demographic characteristics such as race, employment status or chronic diseases were associated with number of cigarettes smoked per day. African and employed participants without chronic conditions were more likely to smoke less than 20 cigarettes/bidi while white and pensioner participants with chronic conditions were more likely to smoke more than 20 cigarettes/bidi per day.

4.8.5 Association between participants' characteristics (socio-demographic & clinical) and duration of smoking years

4.8.5.1 Participants' socio-demographic characteristics vs. duration of smoking years

Table 13: Participants' socio-demographic characteristics and duration of smoking years using Chi square

		Smoking years < 20 yeas		Smoking years > 20 years		P-value
Cigarettes and Bidi Smokers	**N=246**	**N=111.**	**%**	**N=135**	**%**	
Age						
18-24	22	21	19	1	1	0.000
25-39	71	63	57	8	6	
40-64	126	25	22	101	75	
≥65	27	2	2	25	18	
Sex						
Male	179	88	79	91	67	0.037
Female	67	23	21	44	33	
Population Group						
African	142	80	72	62	46	0.000
White	97	25	23	72	53	
Coloured	7	6	5	1	1	

Marital Status						
Unmarried	150	76	68	74	55	0.029
Married	96	35	32	61	45	
Employment						
Employed	114	70	63	44	33	0.000
Student	5	5	5	0	0	
Pensioner	48	2	2	46	34	
Unemployed	79	34	31	45	33	

Unmarried and white male pensioners above the age of 40 years were more likely to have smoked for more than 20 years while unmarried and employed African males below the age of 40 years were more likely to have smoked for less than 20 years.

4.8.5.2 Association between participants' clinical characteristics and years spent smoking cigarettes and bidi using Chi square.

Table 14: Participants' clinical features and duration of smoking cigarettes and bidi using Chi Square.

	N=246	Smoking Years < 20 yeas		Smoking Years > 20 years		P-value
Cigarette and Bidi Smokers		N	%	N	%	
Chronic Condition		N=111		N=135		0.000
Participants with no chronic conditions	124	81	73	43	32	
Participants with chronic conditions	122	30	27	92	68	
Types of Chronic Diseases		N=30		N=92		0.000
Cardiovascular diseases	61	10	33	51	55	

Infectious diseases (HIV-related diseases)	14	0	0	14	15	
Mental diseases	8	1	3	7	8	
Respiratory diseases	22	13	44	9	10	
Endocrine	17	6	20	11	12	
Reasons for Encounter		**N=111**		**N=135**		0.000
Acute health problem	159	92	83	67	50	
Follow-up visit	83	17	15	66	49	
Administrative needs	4	2	2	2	1	

Participants with chronic conditions were more likely to smoke cigarettes or bidi for more than 20 years {68% (92/135) vs. 32 % (43/135)}. Cardiovascular disease was the most common type of chronic disease that affected the participants who had smoked for more than 20 years {55 % (51/92) vs. 45 % (41/135)}. Those who smoked for less than 20 years experienced acute health problems/follow-up visits in comparison to other reasons for encounter.

4.9 Association between participants' characteristics (socio-demographic & clinical) and cessation attempts

4.9.1 Socio-demographic characteristics of the participants vs. cessation attempts.

Table 15: Socio-demographic characteristics vs. cessation attempts

		Ever Attempted Cessation		Never Attempted Cessation		P-value
Population Group		**N=203**	**%**	N=72	%	
African	N=170	116	57	54	75	0.02
White	N=98	82	40	16	22	

Coloured	N=7	5	3	2	3	
Marital Status						
Unmarried (single, divorced, and widow)	N=168	115	57	53	74	0.01
Married (married and cohabiting)	N=107	88	43	19	26	
Employment Status						
Employed	N=127	89	44	38	53	0.048 (Fischer exact)
Student	N=5	4	2	1	1	
Pensioner	N=56	49	24	7	10	
Unemployed	N=87	61	30	26	36	

Population group, marital status, and employment status were associated with cessation attempts. The white population was 1.7 times more likely to attempt quitting tobacco use in comparison to other population groups (OR: 1.66, P-0.05, CI: 1.00-2.75). Married tobacco users were twice as likely to attempt quitting tobacco use in comparison to their unmarried counterparts (OR: 2.13, P-0.01, CI: 1.18-3.86). Multiple regression analysis on cessation attempts showed that marital status was the only statistically significant component (OR: 2.12, P-0.01, CI: 1.17-3.86).

4.10 Association between participants' characteristics (socio-demographic & clinical features) with motivation factors

4.10.1 Participants' socio-demographic characteristics vs. Health concerns

Table 16: Association between participants' socio-demographic characteristics and reported health concerns using logistic regression

	Odds Ratio	P-value	Confidence Interval
Age Group			
40-64 (adults)	0.34	0.03	0.13-0.91
≥ 65	0.22	0.01	0.71-0.71
Population Group			
White	0.44	0.00	0.27- 0.73
Marital Status			
Married	0.41	0.00	0.25- 0.67

Table 16 shows that there is an association between participants' age, population group, and marital status and health concerns.

A multiple logistic regression showed that in comparison to other groups, participants above 65 years old were less likely to cease tobacco use due to health concerns (OR:0.30, CI:0.90-1.00, p-0.05). Similarly, in comparison to other population groups, the white population was less likely to quit tobacco use due to health concerns (OR: 0.49, CI: 0.29-0.83, p-0.00). Compared to their unmarried counterparts, married participants were less likely to stop tobacco use (OR: 0.45, CI: 0.26-0.76 p-0.00).

4.10.2 Participants' clinical characteristics vs. health concerns

Table 17: Association between the participants' clinical features and reporting health concerns using logistic regression

	Odds Ratio	P-value	Confidence Interval
Presence of Chronic Conditions			
Chronic Condition	0.54	0.01	0.33-0.87
Types of Chronic diseases			
Endocrine diseases	3.79	0.01	1.24- 1.53
Reason for Encounter			
Acute health problem	0.36	0.00	0.22- 0.58

Table 17 indicates that participants with chronic diseases and acute health problems were less likely to quit tobacco use due to health concerns, while participants with endocrine diseases were 3.8 times more likely to quit tobacco use (OR:3.79, CI:1.24-1.53, p-0.01).

Table 18: Participants' sociodemographic characteristics vs. advice from healthcare worker

	Unmarried		Married		P-value
	N	%	N	%	0.01
Advice from health care worker	0	0	4	100	
No advice from health care worker	168	62	103	38	

Married participants were more likely to quit tobacco use due to advice from health worker when compared to unmarried participants.

Only health concerns were statistically significant with clinical characteristics of the participants.

In summary: African, unemployed, young adult and unmarried males were common characteristics of the participants. The majority of the participants were chronic patients but came to the OPD for acute problems. The majority of them used commercial cigarettes and had cardio vascular disease.

Fifty percent of the cigarette users had smoked for longer than 20 years but only a few smoked more than 20 cigarettes per day. Snuff users were few in the study (10%). Alcohol was the most commonly used substance along with tobacco, and the dual use of alcohol and tobacco was noted amongst 87% of the participants.

Three quarter of the participants attempted to quit the use of tobacco. More than half of them had attempted to quit in the past year.

Almost all the participants felt that it was important to stop using tobacco, and ¾ of them felt that they were confident about tobacco use cessation. Health concerns were the commonest motivational factor for the users to quit but Health workers' advice and recommendations from work were the least factors. Stress and tobacco cravings were the main barrier factors highlighted. White male smoked cigarette while black females was more likely to use snuff. Smokers (cigarettes and bidi) are four times more likely to have chronic diseases in comparison to snuff users. Married and unemployed white males above the age of 40 years were more likely to have smoked for more than 20 years and they had CVD. White married people were more likely to quit tobacco use, but health concern was not the motivational factor reported to do so. Married participants were more likely to quit tobacco use due to advice from health workers.

CHAPTER 5: DISCUSSION

In this chapter, the findings of the study are compared to other studies, exploring the implications for clinical practice, policy, and research.

A cross-sectional design was used in this study to establish the participants' characteristics and tobacco use patterns. No other study has been carried out in this setting. This report will be a baseline for further studies. The researcher felt that the sample size of this study was adequate, as it was calculated, and data could be collected within the study period.

5.1 Participants' socio-demographic and clinical characteristics

The age range of the tobacco users in this study was between 18-79 years, with a mean age of 46.5 ±15.2 years, which was similar to another study done in SA.[19] Both studies showed that the middle age group used tobacco products most often, with the most common age group of tobacco consumption being in the 40-64 year age group. A study done in South Asian countries[73] stated that the older age group was more likely than other age groups to use tobacco products. With prolonged life expectancy in SA, the older age group who use tobacco products will be more susceptible to NCDs if they do not quit. Hence, preventive measures should be implemented in primary healthcare settings to dissuade this age group from using tobacco products. On the other hand, it is of great concern that one third of the participants are younger than 40 years, meaning that they will be exposed to tobacco-related diseases if they do not quit soon. Therefore, HCWs should be empowered to motivate tobacco users to quit early in order to benefit from cessation.

Males as opposed to females used a wider range of tobacco products. This was similar to an Asian study[73] where the use of tobacco products was very low in women in most of the Asian countries studied. The current study also found that males predominantly used cigarettes/bidi in comparison to other tobacco products (p-0.00). The findings in this study prove once again that tobacco use is male dominant. Therefore, there is a need to target male participants using tobacco products to promote cessation among patients attending primary healthcare settings.

In SA, the Coloured population has the highest smoking prevalence[18] but this study found that blacks were the most common users of tobacco products, followed by

whites. Similar results were found in a study conducted in the Sedibeng district[19] where black people were also predominant. Both studies were conducted in a public hospital using a similar methodology. The population distribution is largely irrelevant to the study which was not population based, being determined by the context, and no conclusion can be made on the basis of this sampling. Therefore, caution should be made in generalising this finding. Future studies need to be performed on a national level with population based sampling. Although, the white population was lower in this study, they were 13 times more likely to smoke cigarettes/bidi in comparison to other racial groups (OR: 13, CI: 0.01-0.12, p-0.00).

Most of the participants were unmarried, which was similar than that of the Sedibeng district study.[19] The difference in percentage of unmarried users in both studies resulted in sample's size, it might be not significant. Both studies clearly indicate that the unmarried population requires intervention to facilitate tobacco use cessation. The above finding contradicts the Asian study where married men were the most common tobacco users.[73] This finding might be a reflection of possible cultural influences in SA and contexts different to Asia. Social support needs to be considered when dealing with unmarried participants, in order to increase cessation attempts, and ultimately successful cessation.[78]

Most of the participants' education level was below matric, which was similar to the study conducted in Sedibeng.[19] The above finding concurs with the literature review findings where participants with a lower education used more tobacco.[3, 18] Participants with a higher level of education smoked less than their counterparts, and this was a protective factor in the Asian study.[73] This finding was not revealed in this study, as it was not statistically significant (p-0.17). Education does not seem to be a contributing factor for cessation of tobacco use in SA. Although education is not significantly associated with cessation attempts, people who have a low level of education and who find themselves on a low socio-economic scale may not have sufficient resources to purchase smoking treatment aids and/or be able to cope with smoking-related conditions to facilitate cessation of smoking. Therefore, efforts should be made to target these people for tobacco use cessation.

More than half of the tobacco users in this study were unemployed. Among the unemployed, people without any form of work used tobacco products (58.8%) more

often than other categories (pensioners (37.8%) and students (3.4%)). In the Asian study, participants who ranked low on the wealth scale, used more tobacco products than their wealthier counterparts[73] which was similar to the above findings, but contradicts another study's findings, where smoking was high in wealthy groups.[88] Unemployed people might smoke more due to lack of occupation. Considering the above, there is a need to create some activities involving health education on tobacco products' side-effects and their contribution to chronic disease in order to empower them and keep them busy and away of tobacco use.

More than half of the tobacco users experienced chronic health conditions and CVD was the most common condition (55.2%) which was slightly higher than the study in Sedibeng district (50.2%).[19] Tobacco use is the leading cause of NCDs, such as cardiovascular and respiratory diseases in developed and developing countries, and infectious diseases cannot be ignored in developing countries, such as SA.[42] This study confirms the above statement as most of the chronic participants had cardiac problems. People who use SLT are prone to having more local lesions than systemic effects, while smokers are prone to suffer from NCDs.[42.] Statistical analysis conducted in this study showed that cigarette/bidi users had a quadruple chance of developing chronic diseases in comparison to other tobacco products, such as snuff (OR:3.9, CI: 1.53-9.90, p-0.00). Preventative, strategic measures should be implemented to target participants with chronic diseases, and policies that include the screening of tobacco use in management of NCDs should also be implemented. Brief motivational interview (BMI) would also be of great value.

Sixty three percent of the tobacco users presented with acute health conditions during the study period, which was a true reflection of the conditions that was evident in the OPD on a daily basis.

5.2 Tobacco use pattern

Out of the tobacco users in this study, the prevalence of current cigarette smokers was 87% (238). A study showed that cigarettes were the most common tobacco products used in most Asian countries,[73] which finding is similar to the current study. The current value of 87% was higher than the value noted in SANHANES-1.[5] which

indicates that there was an increase of tobacco products use in West Rand district. In SA, tobacco use prevalence varies according to sex and population[11].

The mean duration of smoking amongst cigarette users was 23 years (SD±14.65). Fifty percent of the cigarette/bidi users (n-123) smoked for more than 20 years of their life time, but 92% (n-226) of those who used cigarettes/bidi, smoked less than 20 cigarettes per day. Surprisingly, 60% of the cigarettes smokers (n-148) lit a cigarette within 30 minutes of being awake. Emphysema and COPD, which are also NCDs are common in clients who had smoked for longer than 15 years[25-27] but this was not the case in the current study. The number of cigarettes smoked can also be a contributing factor, and this might be the reason why the users of the current study had less COPD or emphysema (respiratory conditions). Healthcare professionals should be aware of these points (number of cigarettes smoked per day, duration of smoking years) during health education and client counselling.

The SLT products used in the current study were snuff and hookah, but in the Asian study[73] it was pan masala, gutkha, and chewing tobacco. In India[73] the prevalence of SLT amongst males was 36.7%, which was much higher than the current study, but the prevalence of 10.4% in the study being presented, was higher than in Timor Leste (2.5%).[73] A South African study showed that SLT users stood at 12%,[19] which was also higher than the SLT value of the current study. Another study showed that SLT was used by 6% of the tobacco users, and the majority of them were black females.[12] This was lower than the current study's findings, but this study concurs that females were 63 times more likely to use snuff in comparison to their male counterparts (OR: 63.44, CI:16.00-251.56, p-0.00). There is paucity of articles around culture differences using SLT.

The mean duration of snuff use was 19.14 years (SD±17.59). The majority of snuff participants used tobacco more than three times per day through the nose, and only a quarter of the snuff participants used tobacco for longer than 20 years. Hence, SLT using females should be targeted during health education programmes.

The dual use of alcohol and tobacco products was noted in 87% of those who used other substances. There is a strong relationship between alcohol consumption and tobacco use, people who smoke, drink, and vice versa.[89] Between 80%-90% of alcohol drinkers smoke cigarettes, and smokers are more likely to drink than non-

smokers.[90] The result of the current study concurs with the above findings. Policy-makers must be aware of this strong relationship between alcohol consumption and tobacco use to make appropriate decisions.

5.3 Cessation attempts by tobacco users

In this study, 74% of the current tobacco users had attempted to quit tobacco use during their lifetime. The average number of cessation attempts were 2.31 (SD±1.46) in the past year, with the range of no attempts to more than or equal to four attempts. This result correlates with studies claiming that tobacco users tried to quit more than once before they definitely quit.[91] More than half of the current tobacco users had attempted to quit in the last year with a mean cessation duration of tobacco use of 6.6 ±12.66 months, which was a good predictor for readiness to cease tobacco use.[92] Half of the tobacco users had attempted to quit more than once in the previous 12 months. Intention to quit is positively associated with the number of attempts to quit in the previous year.[91] Hence, the need for healthcare workers to identify such groups and to assist with cessation options, considering their past experiences.

Similarly, whites, as opposed to other population groups, are more likely to attempt quitting (OR: 1.66, CI: 100-2.75, p- 0.05), confirming findings by Ayo-Yusuf et al.[72] This is likely related to the higher level of education and socio-economic status in the white population, two factors that have been reported to influence tobacco use cessation.[73] Therefore, other population groups, especially blacks, need to be targeted for cessation, considering that they tend to be less educated, have a lower socio-economic status, are more nicotine dependent, and therefore less likely to quit.[18]

Married tobacco users were twice more likely to attempt ceasing tobacco use in comparison to their unmarried counterparts (p-0.01). A multiple regression analysis of cessation attempts showed that marital status was the only statistically significant component (O.R: 2.12, C-I = 1.17-3.85 p-value 0.01). Having a partner or being married avails one of social support, facilitates cessation attempts, and increases the odds of successful cessation.[92] Thus, efforts should be made by healthcare providers to recruit social support resources during cessation attempts, as this may mitigate stressors and reduce the risk of relapse.

Tobacco use remains a top driver of adverse health outcomes, including CVD.[34] Tobacco users with co-morbidity of NCDs will benefit from cessation counselling, especially since, in this study, more than half of the participants had chronic diseases, the majority of which were CVDs. Importantly, serious chronic diseases offer teachable moments[94] and these can be exploited to provide tobacco use cessation counselling.

5.4 Readiness to cease tobacco use

In order to cease tobacco use, the tobacco user has to go through different stages of the change model. The readiness to change is one of the stages that assesses the importance and confidence go cease tobacco use. Counselling is more effective and efficient if one can decide which dimensions (importance and confidence) to focus on.[95] Seventy five percent of the current tobacco users said that they were confident about quitting, which percentage was lower than that in the Sedibeng district's study (88%), and 92% of the current tobacco users said that they understood the importance of stopping tobacco, which was higher than the Vaal study (81.5%).[19] Both studies showed that tobacco users knew the importance of stopping tobacco use and they were confident (self-efficacy), but something prevented them from doing so, which could be attributed to behaviour. A study had suggested that self-help alone[65] has a poor outcome with tobacco cessation, and smokers who have access to prescribed medication and behavioural interventions are 2.58 times more likely to have a successful cessation attempt.[64] Therefore, behavioural intervention must be offered in conjunction with other interventions. Healthcare workers should screen and offer combined effective treatment to these clients.

5.5 Factors influencing attempts at cessation

5.5.1 Motivations

Studies have shown that being female, married, older than 55 years, having a tertiary education, smoking above 20 cigarettes/day, and believing that smoking is harmful were among the factors that contributed to successful tobacco cessation.[73,75]

The current study shows that white, married people in the 40+ age group who have a chronic disease were less likely to quit due to health concerns. This contradicts the

above statement. However, they would quit if they had an endocrine disease like diabetes mellitus (OR: 3.79, CI: 1.24-1.53, p-0.01).

Pensioners were more likely to quit tobacco use when advised to do so by friends and relatives (p-0.02), and participants with a primary education were more likely to quit due to religious reasons (p-0.04). Surprisingly, the white population were willing to quit if they had to start a family (OR: 23.96, CI: 1.33-430.11, p-0.03). Married participants would quit if advised to do so by a HCW (p-0.01).

The presence of detrimental health issues, the desire to quit, financial constraints, and advice from friends or relatives were ranked as high motivational factors in this study.

Health concerns were most common motivational factors in ceasing the use of tobacco products in this study. Knowledge of different health issues related to tobacco users pushed the users to really try to quit.[96]This was not evident in current study. Healthcare workers should advise tobacco users adequately regarding the effects of tobacco usage on chronic disease and provide pertinent information so that clients can quit in order to improve their quality of life.[96]

Willpower arising out of the desire to quit, also regarded as self-efficacy, is a determinant factor in the behaviour change process.[78] Participants who reported willpower were more likely to cease their tobacco use habit. This was evident in the readiness section of the questionnaire, where participants indicated that they knew about the importance of cessation and were confident that they could quit and had the desire to quit as a motivational factor, but still they used tobacco. Again, this is an opportunity to empower and support tobacco users in their endeavours to cease their use of tobacco products.

The increased price of tobacco products was positively associated with cessation attempts, as many could no longer afford to buy them or would rather save that money for essential daily needs.[73,78] Government's policies on tobacco products indirectly help tobacco users to refrain from buying them. This positive impact cannot be ignored in the effort of improving the success rate. Only pensioners stated that advice received from friends was a motivational factor.

Health workers' advice and recommendations made in the workplace were the least motivational factors in this study, and were not statistically significant (p-0.2) with

cessation attempts. HCWs do not always use the opportunities presented to them to enquire about their patients' smoking status and to offer cessation advice.[97] Knowing the impact of tobacco use on a patient's health and the benefits of quitting, should persuade HCWs to keep on encouraging their clients to try and quit their tobacco usage. Cessation attempts are increased by the advice offered by HCWs.[97] Workshops and in-service training should be given to HCWs in order to achieve cessation of tobacco use in their patients.

During educational programmes and client counselling, the Extrinsic Motivational Theory must be used to achieve a set goal (stop smoking), rather than merely doing something as an activity for pleasure (intrinsic factor). Those who use the Intrinsic Theory Method must be supported, more than those who use the Extrinsic Theory Method. Personal factors, such as the level of motivation and self-efficacy can also be used during these sessions. Further studies in this regard should be considered.

5.5.2 Barriers

A study has shown that social norms, mental health problems, low levels of motivation, poor self-efficacy, the use of tobacco as self-medication, getting enjoyment from smoking, lack of professional support, and tobacco used to reduce stress were factors used to describe reasons to prevent quitting.[75] Stress, cravings, addiction, a lack of will power, and alcohol use were the high barrier factors, and emotional traits, traditional reasons, and headaches were the lowest barrier factors in the current study. This study also showed that females were 1.7 times more likely to use tobacco products when they are stressed than their male counterparts (OR: 1.7, CI: 1.00-2.99, p-0.05), and participants who had no chronic disease used stress as a factor to warrant their tobacco use (p-0.01), but stress as a barrier factor was less likely to encourage cessation in comparison to participants without stress (OR 0.00, C-I: 0.00-0.05, p-0.00). There were few participants (37%) who reported stress as a barrier factor. The tobacco users stated the more stressed they were, the more likely they were to use tobacco products, as these products calmed them down and relaxed them. These benefits are short-lived and lead users to smoke more.[42] Smoking harms not just physical health but mental health too. Incorporating stress management strategies in this group will may increase quit attempts rate.

White pensioners who had CVD were more likely to use addiction to tobacco products as barriers to cessation, and the white population were 20 times more likely than other population groups to use emotional traits as barriers to cessation. Cravings and addiction appear when nicotine reaches the brain within seconds of using tobacco products.[42] Nicotine is extremely addictive, making it difficult for tobacco users to quit. These might be some of the reasons why current tobacco users cannot quit, which contribute to their smoking or tobacco addiction behaviour. Behavioural therapies should be implemented with these patients.

Willpower is a determinant factor in the cessation process, but a lack of desire to quit in half of the participants emerged in this study, which indicates low willpower leading to poor self-efficacy. Although quitting involves many therapies, willpower is the most crucial element to kick-start the process of change.[81]

Alcohol consumption is one of predictors of failure to quit, and smokers are likely to smoke more when drinking.[89-90] There is a strong relationship between smoking and drinking.[98-100] In this study, alcohol was reported as hindering the cessation of tobacco use, and this finding is consistent with previous studies. Participants who had infectious disease were more likely to report use of alcohol along with use of tobacco, and this was another reason that prevented cessation (p-0.01). Hence, the discontinuation of alcohol is essential to improving the cessation success rate.[101]

A quarter of participants in this study reported enjoyment/pleasure as a barrier to their attempts at quitting. This supports the study[75] that revealed that the majority of smokers smoke because they enjoy smoking, not because they consider themselves addicted.

Females used traditions and headaches as a reason for using tobacco products, due to the lack of health education on smoking. Awareness of health impact of tobacco use in its different forms especially SLT targeting females may help increase quit attempts.

The HCW's role is essential in improving tobacco use cessation rate in the West Rand district. Considering the high number of HCWs reporting a lack of smoking cessation training in the literature,[75] there is a need to empower HCWs by incorporating formal training on tobacco use and cessation in their curriculum.

5.6 Limitations and biases

This cross-sectional study only looked at the current status of the tobacco users, and a cohort study might establish further factors that would enhance the success of cessation. This study cannot be generalised to the all provinces, as it was carried out in a hospital setting of one district. Therefore, studies can be carried out in other districts to get a better representation. The participants' self-reporting in this study cannot exclude reporting bias.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study found that tobacco users in the study setting have high readiness for cessation and do try to quit. However, their success rates were very poor. Therefore, factors influencing cessation reported in this study such as motivations and barriers need urgent exploration in order to develop interventions that will increase the success rate of tobacco users during quit-attempts.

6.2 Recommendations

1. The lack of cessation advice from HCWs[76] is a significant gap that needs to be addressed. HCWs have a role to play in this fight against tobacco use by:
   a. Becoming aware of the factors influencing tobacco use cessation and seize each opportunities presented to them during clinic visits to increase the uptake of quit-attempts.
   b. Social support, counselling and pharmacotherapy should be provided to address barriers to quit-attempts such as stress, craving and addiction. This may assist in improving the rate of quit-attempts.
2. Tobacco use cessation programs should be prioritized and integrated into chronic diseases care services to ensure adequate attention, especially that most tobacco users have comorbid cardiovascular disease.

ANNEXURE 1: QUESTIONNAIRE

Title: Factors influencing cessation among current tobacco users attending the Outpatient Department of the Dr Yusuf Dadoo Hospital

Code number: .....

Note: *In this study, tobacco use includes any of the following: smoking, snuff use, chewing tobacco, and water-pipe (hookah).*

**For smokers, please complete Sections B1, B4 & C*

**For snuff users, please complete Sections B2, B4 & C*

** For users of other tobacco products, please complete sections B3, B4 & C*

SECTION A: Participants' socio-demographic characteristics

1. What was your age on your last birthday? .....
2. What is your sex? Male [ ] Female [ ]
3. To which population group do you belong?
   African [ ] White [ ] Indian [ ] Coloured [ ]
   Other [ ] Please specify .....
4. Are you employed?.....
5. What is your marital status? .....
6. What is your highest level of education? .....
7. What medical condition(s) do you have? .....

   (Use prompts like hypertension, diabetes mellitus, asthma, etc. to guide participants)

8. Why did you come to the hospital today? .....

SECTION B: ***Tobacco use pattern***

9. Which of the following tobacco products have you used in the last three months? (You may choose more than one option)

(i) Cigarettes [ ]
(ii) Snuff [ ]
(iii) Hookah/Waterpipe [ ]
(iv) Chew tobacco [ ]
(v) Other [ ]

SECTION B1: ***Questions for cigarette smokers***

10. How long have you been smoking?

11. Which of the following cigarette brands do you regularly smoke?

Commercial cigarettes [ ]
Hand-rolled cigarettes [ ]
Please specify if you use any other brand(s).....
.....
.....

12. How many cigarettes do you smoke per day?

1 to 5 [ ]
6 to 10 [ ]
11 to 20 [ ]
21 to 30 [ ]
>30 [ ].

13. Are you a daily smoker?

.....

14. How soon after waking up from sleep do you smoke your first cigarette?

< 10 min [ ] 11-30 min [ ] 31-60 min [ ] > 60 min [ ]

SECTION B2: Questions for snuff users

15. How long have you been using snuff?

.....

16. Are you a daily user?

.....

17. Which of the following snuff products do you use?

Home-made snuff [ ]

Commercially prepared snuff products [ ]

Other products [ ]

Please specify

.....

18. How many times a day do you dip snuff?

.....

19. Through which route do you use the snuff?

Through the mouth [ ]

Through the nose [ ]

In other ways [ ]

Please specify .....

SECTION B3: Questions for other tobacco products

20. If you chew tobacco, how many times do you do so per day?

.....

21. If you smoke water pipe/hookah, how often do you do so per day?

.....

22. For how long have you been using this type of tobacco?

.....

SECTION B4: Use of other substances with tobacco products

23. Do you use any other recreational drug such as alcohol, dagga, tik, heroin, cocaine, or nyaope?

If you answered "Yes", please specify…

24. Do you mix tobacco with any other substances? (Prompt: such as powder, ARVs, or Ratex)

If you answered "Yes", please specify

……..

25. Do you use tobacco for traditional or religious purposes?.....

SECTION C: Tobacco use cessation attempts

26. Have you ever tried to stop using tobacco? Yes [ ] No [ ]

27. How many times have you tried to stop in the past year (12 months)?

Once [ ] Two times [ ] Three times [ ] Four and more [ ]

28. How long ago did you last make an attempt to stop using tobacco? .....

29. After cessation, what was the longest period of time you have ever stayed without using tobacco?.....

30. On a scale of 0 to 10, where 0= not important and 10= most important, how important is stopping tobacco use for you now? 0---1---2---3---4---5---6---7---8--- 9---10

31. On a scale of 0 to 10, where 0 = not confident and 10 = most confident, how confident are you that you will successfully quit tobacco use? 0---1---2---3---4---5---6---7---8--- 9---10

32. What **motivated** you to try stopping tobacco use? (Prompt: advice from health personnel desire to quit, health concerns, financial constraints)

.....

.....

.....

33. What made it difficult for you to try to stop using tobacco **(Barriers)?**

Prompts:

Cravings, lack of willpower, enjoyment/pleasure, addiction)

.....

.....

THANK YOU FOR YOUR PARTICIPATION

ANNEXURE 2: INFORMATION DOCUMENT

Study title: Factors influencing cessation attempts among current tobacco users attending the OPD of Dr **Yusuf Dadoo Hospital**

Good day

Introduction

I am Dr Bokoro, a fourth year registrar in the Department of Family Medicine at Wits Medical School. Research is just the process to learn the answer to a question. I am conducting a study on **"Factors influencing cessation attempts among current tobacco users attending the OPD of Dr Yusuf Dadoo Hospital".** In this study we want to find out what motivates tobacco users to stop, as well as the barriers that hold them back from stopping. I am hopeful that the answers from this study can be used to help tobacco users when they want to quit.

Invitation to participate

I am therefore inviting you to take part in this study aimed at determining the factors influencing cessation attempts among current tobacco users attending the OPD of Dr Yusuf Dadoo Hospital.

What is involved in the study?

The study is prospective. This entails completing a questionnaire that requires you filling out personal information that will not identify you, as well as answering questions about your tobacco use history and reasons for trying and failing to stop using tobacco. The questionnaire will take about 20 minutes to complete.

Risks: There is no risk in participating in this study.

Benefits: There is no direct benefit for you to participate in this study.

Alternative procedures: There is no alternative procedure in this study.

Participation is voluntary and you may withdraw from this study at any time without any effect on your treatment.

Confidentiality: The review of your personal details and answers in the questionnaire will not expose you to any prejudice or harm, and this will be done with your permission, and on a voluntary basis.

The findings and recommendations of the study will be reported to the staff working in the Out-Patient Department and the authorities of the hospital, in order to improve the quitting rate. Also, it may be published in a peer-reviewed journal for academic purpose. In both cases, confidentiality of your personal details will be strictly observed and protected.

Patients who decline the invitation to participate in the study will be returned to their original position in the queue, and their needs of the day will be attended to according to usual care by other doctors in the OPD.

Patients who consent to participate in the study will be attended to by the researcher, and after the consultation the researcher will interview them and complete the questionnaire.

Contact details of researcher/HREC administrator:

If you have any further questions about the study, please contact Dr A.I. Bokoro on 011 951 6000 or the Wits Human Research Ethics Committee on 011 717 1252.

Thank you for your time.

ANNEXURE 3: CONSENT TO PARTICIPATE IN RESEARCH

You have been requested to participate in a research study.

You have been informed about the study by.....

There is no compensation involved because this is a no-cost study.

You may contact Dr Bokoro at 011 951 6000 at any time if you have questions about the research.

You may contact the Human Research Ethics Committee office at Wits University at 011 717 1252 if you have any questions about your rights as a research participant.

Your participation in this research is voluntary and you will not be penalised or lose benefits if you refuse to participate or decide to stop.

If you agree to participate, you will be given a signed copy of this document and the information sheet, which is a written summary of the research.

The research, including the above information, has been described to me through the information sheet.

I, ..., hereby give consent for my participation as per the above mentioned conditions for the purpose of the research.

Patient: .....

Witness 1: .....

Witness 2: .....

ANNEXURE 4: PERMISSION LETTER TO THE CHIEF EXECUTIVE OFFICER OF DR YUSUF DADOO HOSPITAL

Department of Health

OFFICE OF THE CHIEF EXECUTIVE OFFICER
DR. YUSUF DADOO HOSPITAL

GAUTENG PROVINCE
REPUBLIC OF SOUTH AFRICA

ENQUIRIES : P.M. Sofohlo
TELEPHONE : (011) 951-6161
FAX : (011) 953-5952
REF NO : 1/7/2/1
E mail: : SofohloP@gpg.gov.za

Date : 16.03.2016

Attention Dr. A. I. Bokoro

The Registrar
West rand District
Krugersdorp
1740

RE: PERMISSION TO CONDUCT RESEARCH AT DR. YUSUF DADOO HOSPITAL

Research Title: Factors influencing cessation among current tobacco users attending the OPD of Dr. Yusuf Dadoo Hospital

Permission is hereby given to you Dr. A. I. Bokoro to conduct research on the above mentioned topic at Dr. Yusuf Dadoo Hospital.

You are therefore expected to adhere and comply with the Ethics of research as stipulated in the research policy.

Regards

P.M. Sofohlo
CEO (Dr. Yusuf Dadoo Hospital)
Date: 2016/03/16

DR. YUSUF DADOO HOSPITAL
PRIVATE BAG X2006
2016 -03-
KRUGERSDORP 1740
CHIEF EXECUTIVE OFFICER

ANNEXURE 5: LETTER FROM HREC WITWATERSRAND UNIVERSITY

R14/49 Dr Arlette Ilali Bokoro

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M160208

NAME: (Principal Investigator)	Dr Arlette Ilali Bokoro
DEPARTMENT:	Family Medicine Dr Yusuf Dadoo Hospital
PROJECT TITLE:	Factors Influencing Cessation among Current Tobacco users Attending the Outpatient Department of Dr Yusuf Dadoo Hospital
DATE CONSIDERED:	26/02/2016
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr E. Reji and Dr O.B Omole

APPROVED BY: Professor P Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 23/03/2016

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and ONE COPY returned to the Research Office Secretary in Room 10004, 10th floor, Senate House/2nd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. I agree to submit a yearly progress report.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Open Rubric

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