

**KNOWLEDGE, ATTITUDE AND PRACTICES ON TOBACCO  
CESSATION AMONG DENTISTS IN NAIROBI**

**WAMAI JANE GACHAMBI**

**H57/70790/2007**

**E-Mail: [jgachambi@yahoo.com](mailto:jgachambi@yahoo.com)**

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## **SUPERVISORS**

- 1. Professor Olenja Joyce, PhD. MPhil, B. Ed**

School of Public Health,  
University of Nairobi.

Signature..... Date .....

- 2. M/s Kinoti Mary MSc (Human Ecology), B. Ed (Science)**

School of Public Health,  
University of Nairobi.

Signature..... Date .....

## **DIRECTOR**

- 3. Professor Mutuku A. Mwanthi, PhD, MSEH, BSc**

School of Public Health  
University of Nairobi

Signature..... Date .....

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## **DEDICATION**

This work is dedicated with love, to my immediate family; my nieces and nephews who endured a lot of late nights and helped where they could. Also, to my friends, who endeavoured to encourage and supported me throughout my academic pursuits. I shall forever remain grateful.

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## **LIST OF ABBREVIATIONS/ACRONYMS**

<b>BAT</b>		British American Tobacco
<b>CDC</b>	-	Centre for Disease Control and prevention
<b>CVD</b>	-	Cardio vascular disease
<b>FDI</b>	-	World Dental Federation
<b>GYTS</b>	-	Global Youth Tobacco Survey
<b>HIV</b>	-	Human Immunodeficiency virus
<b>I.A.R.C</b>	-	International Agency for Research on Cancer
<b>N.S. E</b>	-	Nairobi Securities Exchange
<b>NTCP</b>	-	National Tobacco Control Program
<b>TCS</b>	-	Smoking Cessation Service
<b>TCCP</b>	-	Tobacco Counselling Cessation Protocol
<b>WHO FCTC</b>	-	World Health Organization Framework Convention on Tobacco Control
<b>WHO</b>	-	World Health Organization
<b>DF</b>	-	Degree of Freedom
<b>NACADA</b>	-	National Campaign against Drug Use and Abuse
<b>CPD</b>	-	Continuous Professional Development

## **DEFINITION OF OPERATIONAL TERMS**

<b>Attitude:</b>	Learned and relatively enduring favourable or unfavourable disposition or feeling about a situation, which leads a person towards some preferred response or to act in a characteristic way.
<b>Cessation Centres:</b>	Centres where smokers and other users of tobacco in other forms can be referred to for treatment of tobacco addiction.
<b>Ex –smokers:</b>	Any person who has not smoked for the last one year.
<b>Knowledge:</b>	Expertise and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject or having the facts, information, and the ability to do something.
<b>Non-Smoker:</b>	Any person who is not currently smoking cigarettes.
<b>Practices:</b>	A person's way of operation that could be common, habitual or expected.
<b>Smoker:</b>	Any person who is currently smoking cigarettes
<b>Smoking Cessation:</b>	To discontinue cigarette smoking. It is also used to describe the process of quitting - preparing to quit, quitting, and staying a non-smoker after quitting for more than one year.
<b>Tobacco Control:</b>	A variety of supply, demand and harm-reduction strategies that aim to advance the health of a population by eradicating or reducing their utilization of tobacco products and exposure to tobacco smoke.

## **ABSTRACT**

**Background:** Tobacco consumption is the most preventable cause of morbidity and mortality in the world (WHO, 2007). Tobacco use remains a public health concern worldwide putting a strain on health resources at national and international levels. This is particularly evident in emerging economies like Kenya where importance should be given to the overwhelming load of communicable diseases. According to the Kenyan Demographic and Health Survey (2008-09), Kenya's smoking prevalence at the time of the study was estimated at 17% in men and less than 1% in women. This provides the rationale for involvement of oral health professionals in tobacco control and cessation activities to reduce the burden of tobacco use in the country.

**Objective:** The main objective of the study was to assess knowledge, attitude, and practices of dentists in Nairobi towards tobacco use cessation.

**Study design:** This was a descriptive cross-sectional study.

**Study area:** The study was carried out in Nairobi County.

**Study population:** The study population for this was all the practicing dentists in Nairobi County.

**Sampling method:** A combination of both stratified method and systematic Sampling methods were used to select the participants.

**Data collection Instruments:** Both Self-administered Questionnaire and key informant interviews were used.

**Results:** The findings indicated that 36.1% had good knowledge on smoking cessation interventions.

Majority (63.9%) of respondents had fair attitude whereas 33% had good attitude.

Close to a third (32%) of the respondents exercised high practice on delivering smoking cessation intervention while majority (57%) exercised medium practice

**Conclusion:** The study concluded that lack of knowledge on smoking cessation interventions was a barrier to some extent to majority of the dentists. This was attributed to lack of training thus low confidence in their ability. Although respondents in Nairobi knew they had a role to play in smoking cessation and reported positive attitudes about their roles and responsibilities

to help patients cease smoking, they rarely practiced smoking-cessation interventions. Most dentists were not motivated enough to provide smoking cessation intervention.

***Recommendations:*** There is need to expose both dental students and practising dentists on tobacco use cessation interventions by way of curricular review and CPD respectively. A lot of emphasis must be put during training on the need for dentists to embrace provision of smoking cessation interventions to their patients since they meet many such persons during their routine work.

# **1.0 CHAPTER ONE: INTRODUCTION**

## **1.1 Background to the Study**

Tobacco consumption is the most preventable cause of morbidity and mortality in the world (WHO, 2007). Tobacco consumption remains a public health concern worldwide putting a strain on health resources at national and international levels. This is particularly evident in developing countries where priority should be given to the overwhelming load of communicable diseases.

According to the Centres for Disease Control (2004), there is enough evidence linking tobacco use as a risk factor in many diseases, including cancers, cardiovascular disease, chronic respiratory illness, reproductive health, and periodontal disease.

A publication by the WHO regional office for Africa (AFRO, 2005) indicated an increase in tobacco related diseases in African countries. There were 1.3 billion smokers globally, a figure projected to escalate to 1.7 billion by 2025 (WHO, 2004). The developing world accounts for 84% of this smoking population (WHO, 2004). According to the Kenya Global Youth Tobacco Survey (GYTS) there has been an increase in cigarette use among the Kenyan youth from 13 % in 2001 to 18.5% in 2007(GYTS 2007, GYTS, 2001). This is despite the fact that more than three quarters of the students indicated having seen anti-smoking messages that were meant to deter them from smoking (GYTS, 2007). Nicotine, one of the chemicals found in tobacco is addictive. This could explain why approximately 70.0% of the youth had tried quitting smoking and failed (GYTS, 2001).

The magnitude of the public health problem created by tobacco use and its associated diseases heightens the significance of smoking cessation intervention (WHO, 2017). Tobacco-related illness costs the private and public health sector in Kenya 18 billion shillings per annum (Maina and Nato, 2007). Involvement of dentists as part of health workers in the implementation of smoking cessation is important (Johnson, 2004). Amount of knowledge and attitude were identified to affect the provision of smoking cessation interventions by the dentists (Saito et al, 2010, Albert et al 2005, John et al 1997).

## **1.2 Statement of the problem**

The burden of preventable diseases caused by tobacco use is well documented, causing morbidity and mortality to the extent of straining health resources at national and international levels (Ekpu VU, Brown AK. 2015). It is therefore imperative to have preventive tobacco campaigns with a multidisciplinary outlook, which includes all cadres of

health workers (WHO, 2005). The tobacco control advocacy guide written jointly by FDI /WHO (2005) gives a platform for the participation of oral health professionals in tobacco control programmes. However, despite effective interventions being available to help patients quit smoking dentists have not been fully engaged in the cessation given their standing in the health profession, the opportunities to influence behaviour change and the level of interactions with their patients (FDI /WHO 2005). Inadequate knowledge about smoking cessation and poor attitude towards smoking cessation has been documented as a hindrance to the dentists' ability to offer smoking cessation. (Saito et al, 2010, Shibly, 2010, John et al 1997)

Review of literature and informal discussions show that there has been limited study in the area of tobacco smoking cessation and dentists' intervention in Kenya (Gichuki et al 2015). There is a gap in the information available on the current knowledge, attitude and practices of Kenyan dentists and what barriers may prevent them from playing a bigger role in intervention towards smoking cessation.

### **1.3 Justification of the Study**

There is adequate evidence that tobacco cessation counselling provided by dentists and other dental personnel is effective (Gordon et al 2005, Monson and Engeswick 2005). The ill effects of tobacco are readily visible in the smoker's mouth at a relatively early stage of use and this can be employed as a motivation tool. This provides the rationale for involvement of oral health professionals in tobacco control and cessation activities. Information obtained from the study will give stakeholders and authorities' baseline data on dentists' knowledge and attitude as these have been noted to hinder or encourage them from fully participating in smoking cessation interventions (Saito et al, 2010, Shibly, 2010, John et al 1997))

The issues emerging from the study can then be addressed to enable dentists participate fully in smoking cessation.

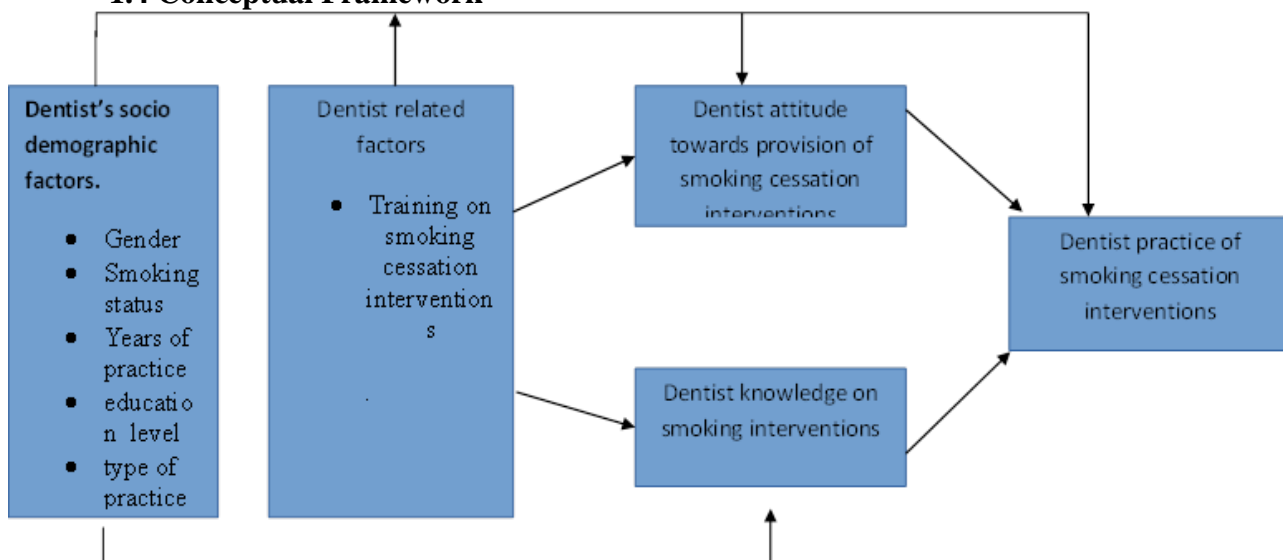
The practices currently being offered by the dentists can help in developing and implementing cessation programs guidelines at all levels of the health sector to guide dentists within the framework of a comprehensive plan in tobacco control. One of the objectives of the Kenyan Ministry of Health National Oral Health Policy (2002) is to undertake research that would identify areas where there is lack of essential data and where existing data needs to be strengthened. The policy also recommends the integration of oral health programmes into other existing programmes such as alcohol and cigarette smoking cessation. This can



only be adequately addressed if the ministry has a baseline on how much the dentist is already involved in smoking cessation in relation to knowledge and attitude.

Knowledge, attitude and practices of dentists in smoking cessation intervention and factors affecting delivery of smoking cessation advice by the dentist have been documented in other places in the world places like the United States of America and Malaysia (Albert et al, 2002, Ibrahim and Norkhafizah, 2008). The information obtained has helped to empower the dentist with the ability to provide smoking cessation intervention. This has helped to incorporate dentists in the fight against tobacco use and cessation. The factors that form barriers to the delivery of smoking cessation are also addressed, and recommendations are given on the best way to overcome these barriers.

#### 1.4 Conceptual Framework



#### 1.5 Research Objectives

The main objective of the study was to assess knowledge, attitude, and practices among dentists in Nairobi towards smoking cessation.

##### The specific objectives were:

- i. To determine the level of knowledge of dentists on smoking cessation.
- ii. To establish attitude of the dentist towards smoking cessation intervention to smokers.
- iii. To determine smoking cessation intervention practices among dentists in Nairobi.
- iv. To determine the factors affecting delivery of smoking cessation advice by dentists

#### 1.6 Limitations of the Study

The accuracy of the information provided by the respondents could not be independently verified by the investigator.



## **2.0 CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Effects of tobacco use on General Health**

Tobacco-related complications equally affect smokers and non-smokers exposed to tobacco fumes, with more than five million fatalities every year. This is more than all deaths from HIV/AIDS, malaria and tuberculosis combined (WHO, 2008). The number of deaths is expected to rise to close to 9 million by the year 2020. By 2030, 70% of tobacco-related deaths will occur in the developing world unless the menace is stopped now. In 2016 one in ten adults were expected to die of tobacco related complications (WHO, 2016). Tobacco consumption affects both the general and oral health.

The Center for Disease Control (CDC) report indicates that babies born of mothers who smoke have a higher chance of being born premature and with low birth weight. Female smokers are approximately twice as likely to have difficulties conceiving and to experience pregnancy complications like premature birth, compared to non- smoking females (CDC, 2009).

Several studies have demonstrated evidence that indicate a notable association between smoking and male sexual dysfunction, with the association increasing with the number of cigarettes smoked per day (Meldrum et al 2014 and Millett et al 2006).

In the United States, smoking contributes to 90% and 80% of lung cancer deaths in men and women respectively. According to I.A.R.C (1986) and American Cancer Society (2005), the duration of smoking and number of cigarettes smoked is directly proportional to the risk of developing lung cancer. Cancer of the larynx, mouth, oesophagus, bladder, cervix and stomach are also associated with smoking (CDC, 2009)

According to the disease control Priorities Project (2007) in East, Central and Southern Africa (ECSA) countries such as Mauritius and Seychelles, cardiovascular disease is responsible for more than one-third of the deaths and most of these deaths are related to smoking.

According to the U.S. Centres for Disease Control and Prevention Smoking destroys the oral cavity lining or leads to small ulcerations that could make HIV transmission easier. Decreased lung functions, periodontitis among other medical complications are some of the negative biological effects of smoking that may affect the progression of HIV disease.

## **2.2 Effects of tobacco use on Oral Health**

The American Cancer Society (2007) indicates that smokers have a six-fold likelihood of developing oral cancer compared to non-smokers. In the seventies, the oral cancer incidence was put at 2-3% and this was expected to have risen with the change in lifestyle (Onyango et al, 2004).

Periodontal disease is one of the common dental conditions dentists will encounter in their practices. It has been demonstrated that non-smokers are approximately three times less likely to have severe periodontitis than smokers, and smokers show half as much improvement than non-smokers do after periodontal therapy (Gautam, et al 2011).

Habitual smokers develop burn and keratotic patches on lower and upper lingual mucosa on the lips where they place the cigarette stubs for a long period as they smoke. The signs are flat or slightly elevated whitish areas with red striations. Smoking cessation has been demonstrated to be effective in the resorption of these patches (Mirbod and Ahing, 2000). Leukoplakia is a principle pre-cancerous lesion of oral mucosa (Panwar and Bitharia, 2013) and thus a high prevalence could indicate high incidences of oral cancer. A case control study conducted by Macigo et al (1995) in the Meru community showed that kiraiku (unprocessed tobacco) and cigarette smoking were strongly associated with oral leukoplakia.

Another study by Macigo et al (2006) on oral hygiene practices and risk of oral leukoplakia showed smoking with poor oral hygiene increased the relative risk of developing oral leukoplakia.

## **2.3 Global Tobacco use**

Literature indicates that the poor tend to smoke more than the rich do (WHO 2004, Efrogmson et al 2001). The money spent on tobacco would have been put to other uses by the family such as food, housing, health care provision and education to improve the status of the family. Research has shown for example that malnutrition would be less in Bangladesh if money spent on tobacco is instead used on food (Efrogmson et al, 2001). A World Bank report (1999) has also shown smoking is higher in those with low level of education and that more men than women smoke. Low smoking prevalence in women was observed in many developed nations, for example the United States, at the beginning of 20th century. The prevalence increased over time partly because of tobacco industry marketing efforts directed at women (Amos and Haglund, 2000). In most developing nations, cultural norms and

economics have tended to severely limit tobacco use by women but there has been an increase in the number of females smoking in the developing world due to globalization.

Under reporting of smoking status by women has also contributed to false low prevalence because when validated by biochemical methods the prevalence is shown to be higher ( Jago et al 2002). As use declines in the developed world, tobacco companies have directed their promotional efforts in the developing world. Currently, one of the challenges is to contain women's tobacco use in low-and middle-income nations as women's traditional barriers to their tobacco use become insignificant and their status improves (Kaufman and Nichter, 2001).

Acceptance and support of a national tobacco control program is directly related to the effect this program will have on the economy especially in developing countries. This is because the programs affect the production and consumption of tobacco and thus the live hood of people like the farmers and those employed by the tobacco industry (Asma and Pederson, 1999). According to a report on Malawi Tobacco Industry and the Environment, countries like Malawi and Zimbabwe depend highly on tobacco exports and in such countries, issues pertaining to tobacco control are given low priority (Poitras, 1999). Research has shown that putting in place restrictions on tobacco use will not lead to job losses. This is because the money smokers spend on cigarettes would be directed to other uses (goods and services) thus creating other jobs to replace those lost in tobacco industry (Abedian et al, 1998).

## **2.4 Tobacco use in Kenya**

As indicated in the Kenyan Demographic and Health Survey (2008-09), the country's smoking prevalence is estimated at 17% in men and less than 1% in women. A study done by Wangai et al (2000) in Nairobi showed a tobacco use prevalence of 66.8% in men and 31.95% in women, most of it being in form of cigarette smoking. In this study, 79.2% of the smokers were willing to stop if assisted with cessation, while 76.0% of the smokers had tried to stop smoking. The 2007 Kenya Global Youth Tobacco Survey (GYTS) indicates that around 18.6 % of all school-going children use tobacco, an increase from the GYTS 2001 figure of 13%. Cigarette use has also increased from 7.2% in 2001 to 9.8% in 2007 among the youth, who could continue smoking into old age. They are the consumers of most of the more than 5 billion sticks of cigarettes manufactured in Kenya per year (NATO, 2001). In the GYTS report, between 2001 and 2007 there has been a 6% increase in the number of youths who are using tobacco. A large number of these youths had tried to quit individually

and failed. Smokers are exposed to anti-smoking messages created to discourage non-smokers especially the youth from starting to smoke, but they rarely encounter smoking cessation messages that offer realistic quit strategies.

A report by Ogwell (2007) on domesticating the WFCTC in Kenya indicated that in a household, which has a tobacco user, 8.8% of the monthly budget is spent on tobacco. In the same report, it was found that health expenditure was higher (5.5%) in households with a tobacco user as compared to 3.2% in households with non-users. The addiction to nicotine makes the poor divert their money to tobacco use.

The Kenyan government values the tobacco companies because of proceeds generated through taxation and employment. However, the same government spends an estimated 2.5-6.2 billion of annual health care expenditure attending to tobacco-related illnesses (Maina and Nato, 2007). This is in a country still overwhelmed by the burden of communicable diseases, maternal and child health. This expenditure is not comparable to tobacco tax revenues; for example, in 2008 British American Tobacco (BAT) remitted 716 million shillings income tax to the Kenya Revenue Authority (N.S.E, 2008). Furthermore, available data indicates that in the early sixties the tobacco industry contributed a maximum of 4% of total merchandise export revenues (in dollars), which has since fallen to between 0.05% and 2% by the year 2001 (Patel et al 2007).

## **2.5 Kenya's Tobacco Industry and Market**

Kenya is the largest cigarette manufacturer in East and Central Africa (World Bank, 2001). In the continent, it ranks third after South Africa and Nigeria (World Bank, 2001). British American Tobacco (BAT) is the largest tobacco manufacturing company in Kenya. It came into the country in 1908, but BAT Kenya (BATK) was established in 1965. Two indigenous companies, Mastermind and Cut Tobacco came into the market in the late 1980s. By 2002 BATK had a 71% market share, followed by Mastermind at 22% and Cut Tobacco at 7% (Patel et al, 2007).

## **2.6 Tobacco Legislation in Kenya**

The Government established the 'Tobacco Control Act 2007' "to control the production, manufacture, sale, labelling and advertising, promotion and sponsorship of tobacco products to provide for the Tobacco Control Board, to regulate smoking in specified areas and connected purposes".

It clearly restricts smoking in public places and designates smoking zones, which must comply with very specific requirements. Among other provisions is the ban on the sale of single cigarette sticks, as cigarettes must now be sold in packets of at least 10 and should not be sold to minors. It is also expected that all packaging must incorporate larger health warnings. Interventions like labelling of packets, advertising promotion and sponsorship of tobacco products and exposure to tobacco smoke are also covered in the Act.

In this Act, the government has implemented most of the interventions recommended by the WHO FCTC. It is stipulated in the Act that it is the responsibility of the Government to provide public awareness of the harmful effect and addictive nature of tobacco consumption and exposure to tobacco smoke. Furthermore, tobacco control, education and information dissemination shall form part of health care services provided by health care providers.

Government is therefore mandated to provide for and implement training and sensitization programs on tobacco control to health care providers. This includes promoting and providing for rehabilitation and cessation programs for consumers of tobacco product.

## **2.7 Nicotine Addiction**

Nicotine, one of the chemicals found in tobacco is addictive. Thus, discontinuing tobacco use sometimes is hard rendering tobacco addiction a chronic disorder, manifested by numerous periods of relapse and remission (Fiore et al, 2000). This addictive nature of nicotine therefore implies that cigarette smoking will continue to pose a threat to the health of people of this nation despite high awareness of the risks of tobacco consumption and willingness to quit smoking.

Tobacco use involves a complex involvement of environmental, behavioural and biological aspects. This could explain why some people will start smoking or stop tobacco use and not others. Biological and behavioural research has identified a gene variant CYP2A6. This gene interferes with nicotine breakdown and the task of neurochemicals that influence the

reinforcing properties of nicotine. The variant reduces the efficiency of nicotine metabolism thus lowering the likelihood of ceasing smoking (National Cancer Institute, 1998).

The National Cancer Institute (1998) discovered that psychological and socio-cultural factors may also contribute to certain people moving into various stages of tobacco use. Some of the socio-cultural, environmental, behavioural and psychological factors that are related to cigarette use include, depression, low-income, peer pressure by users, parents and other relatives, low academic grades, recurrent school absenteeism, and low self-esteem.

The neurochemical rewards that nicotine provides the tobacco user are known as its reinforcing effects. Nicotine acts on the mesolimbic area of the brain to cause the release of various neurochemicals, for example dopamine causes the experience of pleasure; serotonin minimizes stress; norepinephrine suppresses appetite; acetylcholine stimulates cognitive arousal; vasopressin improves short-term memory; and beta-endorphin reduces anxiety and tension (Benowitz (1999). Nicotine interacts with the brain to suit the tobacco user's need, for example, if individuals are "feeling low" nicotine can perk them up; if they are tired, nicotine can wake them up; and if they are stressed, nicotine gives them a calming effect. Thus, the reinforcing effects of nicotine like mood modulation, enhanced short-term cognitive performance, and weight reduction make it hard for individuals to stop their tobacco use (Benowitz (1999).

Tobacco cessation intervention forms an integral part of any tobacco control program. Statistics from the 2001 and 2007 GYTS show that both in 2001 and 2007 surveys, approximately 70.0% of the youth had tried quitting smoking and failed, and this could be due to the high dependence nature of nicotine, thus the need for medical assistance to quit.

## **2.8 Cessation Interventions**

The WHO Framework Convention on Tobacco Control Treaty (2003) has recommended some measures to help curb the tobacco menace globally. The measures are implemented at the policy, legislative, and regulatory levels. Some of the policies include diagnosis and treatment, increasing the prices and taxes of tobacco products to make them unaffordable to many young people. Protection of non-smokers from contact with tobacco smoke, directive of the contents of tobacco products, and declaration and health warnings on the package. In addition, WHO Framework Convention on Tobacco Control Treaty recommends that governments should ensure extensive access to effective and comprehensive educational and



public awareness programs on the health risks, the addictive nature of tobacco use and the effects of contact to tobacco smoke. Article 14 of the WHO FCTC treaty states that countries should have guidelines that include diagnosis and treatment of tobacco dependence and counselling services on cessation of tobacco use in national health, education program plans and strategies, and recommends that Health workers should participate in this program.

Brief advice on smoking cessation from a health care professional has been shown to work in promoting cessation. In some of these programs, brief behavioural and pharmacological intervention has been used (West et al, 2000).

System-based initiatives should ensure that all patients attended in the health care system are screened for tobacco use, receive brief interventions to assist them quit, and get more intensive counselling services (CDC 2014).

State surveillance should be undertaken to monitor programs on tobacco-related attitudes, behaviours, and health outcomes at regular intervals. This monitoring and evaluation of achievement of a program will aid in assessing the implementation and outcomes of a program, increase efficiency and impact over time, (CDC 2014).

## **2.9 Cognitive Behaviour Therapy**

### **2.9.1 Counselling**

Behavioural interventions that can be utilized by health care providers to aid smokers in quitting include brief and/or intensive cessation interventions. Brief behavioural interventions are aimed at motivating and supporting smoking cessation among patients (Jamal et al., 2012).

In the United States, the Public Health Service Clinical Practice has guidelines for dentists as part of a comprehensive tobacco control program on tobacco use and dependence treatment (Fiore et al, 2000). The guideline advocates the use of the 5As; (a) Ask patients about tobacco use, (b) Advise them to quit, (c) Assess interest in quitting, (d) Assist those interested in quitting by setting a quit date, providing counselling and medication and (e) Arrange follow up services. According to the guideline, a dentist should ask and document patients' smoking status.

The smoker should always be advised to quit, and a quit date should be set. Smokers should be warned on smoking triggers and challenges to a quit attempt.

The dentist should provide educational materials about smoking cessation and arrange for follow-up within one week after quit date and a month later.5R to smoking cessation protocol

as they are commonly called in the same guideline are to be used with patients unwilling to quit. The dentist should give the relevance to the smoker why they should quit such as health concerns, bring to the attention of the smoker the risks of smoking, rewards of quitting for example better health and financial savings.

Roadblocks to quitting such as withdrawal symptoms should be highlighted to the smoker and the dentist should be able to give treatment options to this effect. Anything that will motivate the smoker to quit smoking should be repeated at every visit to the dentist.

Intensive behavioural cessation interventions are interventions offered by trained cessation specialists as an individual or a group counselling session and telephone counselling on smoking cessation (Fiore et al., 2008; WHO, 2003). This entails in depth on stages of change and management

## **2.10 Pharmacological interventions for smoking cessation**

Nicotine based and non-nicotine based medications enhance the odds of successful long-term abstinence (Lynch and Steibelt 2012.). The Nicotine Replacement Therapy role is to temporarily replace the nicotine from cigarettes which lowers motivation to smoke and can lead to complete abstinence. (Fiore et al 2008)

These non – nicotine based medication supports in treating tobacco addiction and reducing withdrawal symptoms (Lynch and Steibelt 2012.). To double or triple quit rates these medications have been used (Ontario Medical Association. 2008.).

Nicotine replacement products (patch, gum, inhaler, lozenge, nasal spray) are used either on their own or in combination with non-nicotine based medications namely bupropion and varenicline (Fiore et al, 2008). A combination of both counselling and medication is more effective than each intervention used separately (fiore et al 2008). Nortriptyline and clonidine have been used as second line drugs in smoking cessation though not approved by the Food and Drug Administration (FDA) of USA, (Ahluwalia et al 2002).

Other interventions like hypnosis and acupuncture have no scientifically proven effects (Tonnesen, 2009).

## **2.11 Role of a dentist in smoking cessation**

Dentists have been identified as being a major resource in advancing the WHO FCTC need to reduce tobacco use (FDI/WHO 2005). A dentist has prestige, authority and is respected by his

patient (O'shea and Corah, 1984). Therefore, dentists have a significant role to play in assisting smokers who show a willingness to quit. Dentists can easily introduce a discussion with a smoker because of the oral signs easily visible and the subsequent oral diseases that may develop.

Both Gordon et al (2005) and Monson & Engeswick (2005) showed that a few minutes of advice from a dentist to a patient could be an effective smoking cessation intervention.

A study conducted in the USA showed that adults aged 20-44 rarely visited their physicians for preventive care unless such visits were demanded by their employer. In contrast, in the United States of America, more than half of adult smokers and nearly three-fourths of all adolescents visited a dentist each year for prevention-oriented care (National Center for Health Statistics 2006). This age group is where tobacco cessation strategies may have their greatest impact (Albert et al, 2002).

Afifah and Schwarz (2008) found that if asked by their dentist, 40% of smokers would attempt to stop smoking but only 28.4% preferred a dentist for cessation guidance. The same writers noted in their study that since the launch of the National Tobacco Campaign 2006 in Australia, dentists there found no change in demand for smoking cessation. The dentists' attributed the finding to low expectations about their patients' motivation to stop smoking. In another study 57.32% of smokers expected their dentist to be involved in tobacco cessation (Kadtane SS, Bhaskar DJ et al 2014). Dentists in most cases believe that it is part of their duty to assist patients in smoking cessation. This is confirmed in studies carried out in the United States (Applegate et al, 2008), United Kingdom (Stacey et al, 2006) and Saudi Arabia (Wayne et al, 2006). Approximately 40% of smokers try to quit in response to a health care provider's advice (Kreuter et al, 2000).

A study by (Hu et al, 2006) done six years after the provision of the Public Health Service Clinical Practice guideline in the United States of America found that most dentists were unfamiliar with guidelines and often did not follow its recommended steps in smoking cessation. The United States government included the dentist as part of the team that should be involved with tobacco-use cessation counselling. This study also showed that less than 20% of dentists spent three or more minutes per patient on counselling.

Dental patients routinely have multiple visits before a treatment plan is concluded. This provides many opportunities for the dentist to initiate and follow up on cessation

interventions. Oral signs of smoking, for example staining of the teeth can be detected easily and early, even with the absence of disease and this can be used as a motivation to the smoker to stop smoking (Reibel, 2003).

### **2.12 Dentists' knowledge**

Dentists reported favourable knowledge regarding the hazardous effects of smoking on general health. In the same study, they rated stress as the most important factor in initiation of smoking (Awan et al 2014)

### **2.13 Dentists' Attitude**

In the study done by John et al (1997) among dentists in the Oxford area, only 37% believed they were able to help in smoking cessation, which is an indication of negative attitude by the dentist towards their ability to assist with smoking cessation. Contrary to the positive attitude that the dentists have, the number of dentists actually offering smoking advice to smokers as noted in various studies are few (Shibly et al, 2008, Albert, 2002). Other studies seem to agree that dentists generally believed that it was somehow their responsibility to assist patients in smoking cessation (Wyne *et al.*, 2006, Ibrahim, and Norkhafizah 2008)

### **2.14 Dentists' practices**

A study done in Hong Kong among dentists indicated that 97% reported that they would enquire into every patient's smoking Status, but only around half routinely did so (Kenneth and Chao 2014). Most (95%) of the dentists who always enquired about smoking status actually offered smoking cessation advice to their patients. In the same study government dentists and those who received training in smoking cessation advice were significantly more likely to enquire about smoking status of their patients. The dentists in this study quoted lack of training, fear of losing patients and the dentist being unlikely to succeed in the exercise as very important barriers.

### **2.15 Barriers Affecting Delivery of Smoking Cessation**

A study by Gordon et al (2005) and Monson and Engeswick (2005), showed that a few minutes of advice from a dentist to a patient can be an effective smoking cessation intervention.

However, research has shown though that dentists will ask and advice patients to stop smoking at much higher rates than they actually assist the patients once the patients decides

to quit smoking either because of patient or dentist related barriers /factors (Gorin and Heck, 2004, Watt et al, 2004).

A number of studies have shown absence of knowledge and training as a major obstacle (Saito et al, 2010, Shibly, 2010). At the Buffalo School of Dental Medicine, a Tobacco Counselling Cessation Protocol (TCCP) was made part of the dental curriculum, and dental students were trained in its use. Dental students and the patients they had counselled were after a while surveyed and asked to report on their tobacco cessation counselling practices. According to the follow-up survey, 14% of patients reduced the number of cigarettes smoked per day, and 22% quit entirely. Fifty-one percent of those who received the TCCP showed a positive attitude to quitting at the time of the intervention, 32% of those receiving the TCCP were still smoke-free at six months, but 19 percent had returned to smoking. This study concluded that if the required training is given to pre-doctoral students, they can be effective in motivating patients to stop smoking, and that the dentist must be made to look at tobacco as a dental problem (Shibly, 2010). Imparting the necessary counselling skills and knowledge on medications will build confidence and capacity in the dentist to effectively handle smoking cessation (Johnson, 2004).

In Tabouk, Saudi Arabia, a study on smoking cessation attempts and their outcome among adolescents who smoked showed that the activities in primary health carried out in smoking cessation by the dentist were inconsistent in providing advice and counselling against smoking. Different and sometimes ineffective methods like acupuncture were used, an indication for the need of a national guideline on smoking cessation intervention (Abdurrahman et al, 2008/2007).

A study by Albert et al (2005) identified lack of reimbursement, amount of time it took to counsel the patient on smoking cessation, patient resistance, concerns about effectiveness of smoking cessation and lack of educational materials and referral services as some of the major obstacles.

Fear of patients not coming to see the same dentist if counselled to give up smoking was also noted as a barrier (Albert et al, 2005). However, a study on patient perception of tobacco cessation services in dental offices showed a wide discrepancy between patients' and dental professionals' views on tobacco cessation services. Approximately 59% of patients interviewed believe dentists should routinely offer such services, while 61.5 % of oral health

professionals believed patients did not expect tobacco cessation services. The same study showed that patients who were interested in quitting felt comfortable receiving quit advice from their dentist (Campbell, 1999).

## **3.0 CHAPTER THREE: STUDY METHODOLOGY**

### **3.1 Study area**

The study was conducted in Nairobi, the capital and largest city in Kenya. In the 2009 census, the city was estimated to have a population of 3.1 million people (Kenya National Bureau of Statistics, 2009). Nairobi inhabitants are mix socio-economic, ethnic and racial backgrounds. There is a high student population at primary and secondary schools, college and university levels within the city.

This large and mixed population makes Nairobi conducive for tobacco use. Nairobi hosts most of the major hospitals in Kenya, both in public and private sectors. It has Kenya's biggest referral hospital Kenyatta National Hospital. Approximately 70% of the dentists registered with the Medical Practitioners and Dentists Board for the period ending 31<sup>st</sup>, December 2010 practice in Nairobi in both private and public sectors.

### **3.2 Study design**

This was a descriptive cross-sectional study. Data was collected from the respondents within a short period of time (Point time) and the study did not attempt to make any cause- effect relationship among the variables.

### **3.3 Variables**

#### **3.3.1 Dependent**

Level of smoking cessation interventions practiced by dentist

#### **3.3.2 Independent**

The following were the independent variables,

- i. Knowledge on tobacco cessation.
- ii. Attitude on tobacco cessation.
- iii. Gender of the dentist.
- iv. Type of practice (private/ public).
- v. Years of practicing since internship.
- vi. Specialty (maxillo- facial surgeon, paediatric dentist etc.).
- vii. Smoking status of dentists.

### **3.4 Study population**

The study population was dentists who were practicing in Nairobi, Kenya at the time of the study. General dentists and specialists in any of the oral health disciplines in either public or private practice were included in the study. Qualitative data was collected through Key Informant interviews with the Head of Oral Health department, Ministry of Medical Services and a member of Agency for the National Campaign against Drug Abuse (NACADA).

There were a total of 280 dentists and specialists practicing in Nairobi and retained in the doctors register for the period ending 31<sup>st</sup>, December 2010.

#### **3.4.1 Inclusion criteria**

To be eligible for selection, dentists must:

- i. Have minimum a Bachelor of Dental Surgery degree or its equivalent.
- ii. Be registered with the Medical Practitioners and Dentists board for the period ending 31<sup>st</sup>, December 2010.
- iii. Have been practicing in Nairobi either in public or private sector.

#### **3.4.2 Exclusion criteria**

The following were not included

- i. Dentists not willing to participate in the study.
- ii. Dentists who were no longer practicing dentistry.
- iii. Dentists practicing outside of Nairobi.

### **3.5 Sampling**

#### **3.5.1 Sample Size Determination**

The size of the sample was determined using the Fisher's formula (Varkevisser et al 1991). From Normal distribution, the population proportion was estimated to be

$$n = \frac{z^2 p (1 - p)}{d^2}$$

Where:

n - Minimum sample size.

Z - Is the table value for standard normal deviate corresponding to 95% confidence level (= 1.96).



P - Population proportion 0.45 (Prevalence of characteristic being estimated in this case, prevalence of knowledge on smoking cessation intervention rated as good to excellent (Albert et al 2005)

d – Margin error, set at  $\pm 0.05$

$$n = \frac{1.96^2 \times 0.45 \times 0.55}{0.05^2}$$

$$n = 380$$

The sample size gotten was 380 but since the population was less than 10,000, Fisher's correction formula was used.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where n is the sample size

N is the population size.

$n_0$  is calculated sample size for infinite population

Adjusted sample size

$$n. = 380 / [1 + (380/280)]$$

$$\text{Approx.} = 161$$

The actual sample size was 191 because extra questionnaires were given to cater for non-response.

### 3.5.2 Sampling Procedure

Both Stratified Sampling and Systematic sampling methods were used to select the sample. The sampling frame of 280 dentists was a list of dentists registered with the Kenya Medical Practitioners and Dentists Board (KMPDB). The names were stratified into either public or private. (244 were in private 36 were in public). The names were listed as is in the KMPDB register. Using the sample size 191 calculated, the appropriate representation in each stratum

proportionate to its size was used (150 dentists in private, which is 87% of the proportion in the sample and 41 in public, which was 13% of the proportion).

Once the size in each stratum was established systematic sampling was used. Every 2<sup>nd</sup> person was picked from the stratum list as is in the KMPDB register. The first name in each list was selected at random by balloting to determine the starting point.

### **3.6 Data collection**

A self-administered questionnaire was used. The principal researcher distributed the questionnaires with two trained Community Oral Health Officers (COHOs).

The questionnaire was distributed together with a covering letter giving the purpose of the study, as well as specific directive on how to answer the questions.

The questionnaires were later collected. Once all questionnaires were received, a database was designed first. Qualitative data was collected through Key Informant interviews with the Head of Oral Health department, Ministry of Medical Services and a member of Agency for the National Campaign against Drug Abuse (NACADA). The discussion was taped in audio format for reference. The principal investigator provided guidance using pre-prepared questions.

### **3.7 Data management and analysis**

The process of data management involved several stages. The chief investigator went through the questionnaires to check for completeness and consistency. Data was coded, entered into a SPSS software version 17.0 and then cleaned. The analysis was then done. The qualitative data from the key informant was also incorporated.

### **3.8 Scoring criteria of the responses**

There were 10 questions on knowledge with a maximum score of 10 and minimum of 0. Every correct answer was awarded one score and an assessment done as follows:

7-9 (good),

4-6 (fair,)

1-3 (poor)

Attitude was scored to Maximum of 25 and minimum of 5 using the Likert scale out of the five questions asked. A great extent was awarded 5 marks, considerable extent was awarded 4 marks, to some extent awarded 3 marks, a little extent awarded 2 marks and not at all awarded 1 mark

18> (Good)

9-17 (Fair)

0-8 (Poor)

Practices had 6 questions with a maximum of score of 30 and minimum score of 6 using the Likert scale, great extent was awarded 5 marks, considerable extent was awarded 4 marks, to some extent awarded 3 marks, a little extent awarded 2 marks and not at all awarded 1 mark

21-30 (High)

11-20 (medium)

1-10 (low)

Qualitative data during the discussion was taped in audio format. The audio format was transcribed, and coding and thematic analysis conducted. A narrative was extracted from the interview.

### **3.9 Minimization of Errors and Bias (Validity and Reliability)**

The questionnaire was pre- tested on 10 dentists practicing in the environs of Nairobi in Kiambu County who were not participating in this study. This ensured validity and reliability and all appropriate modifications were made.

### **3.10 Ethical considerations**

Ethical approval was sought from the Kenyatta National Hospital and University of Nairobi Ethics and Research Committee certificate Number P184/05/2011. Thereafter, written informed consent was obtained from the dentists participating in the study. Study participants were assured of confidentiality and anonymity.

### **3.11 Presentation of Results.**

The results of this study are presented in the next chapter in various forms, which include text, diagrams such as bar charts, tables, histograms, pie charts among others. Cross-tabulations were carried out where necessary and statistical inferences made as was necessary.

## **4.0 CHAPTER FOUR: STUDY FINDINGS**

### **4.1 Introduction**

The results presented in this chapter were derived from data obtained from 191 respondents, Head of oral health department, Ministry of medical services and Treatment and Rehabilitation program Manager at NACADA at the time of the study.

#### **4.1.1 Social Demographic Characteristics of the respondents**

This section describes the respondents' socio demographic characteristics. There were 191 respondents.

Of the 191 respondents, 117 (61.3%) were males and 74 (38.7%) females, giving a male to female ratio of 2:1. Majority (77.9%) of the respondents were general dental practitioners. There were more male respondents than female respondents. Of the 191 respondents, 150 (78.6%) were in private practice while 40(21.5 %) in public practice. Most of those in private were males 100(52.4%) while the majority in public practice were females 24 (12.6%).

Majority (48.7 %) of the respondents had been in practice for over 10 years. Those who had been in practice between 1-5 years were 30.7 %. Most of the respondents (48.6%) attended to on average 20-40 patients per week.

Majority 175 (91.7%) of the respondents were non-smokers, only 10 (5.2%) were still smokers and 6 (3.1%) had stopped smoking one year before the study. (Table 1).

**Table 1 : Socio-demographic characteristics of the Dentists**

	<b>Category</b>	<b>Frequency</b>	<b>%</b>
<b>Gender</b>	Female	74	38.7
	Male	117	61.3
	<b>Total</b>	<b>191</b>	<b>100</b>
<b>Smoking status of the dentist</b>	Smoker	10	5.2
	Non-smoker	175	91.7
	Previous smoker	6	3.1
	<b>Total</b>	<b>191</b>	<b>100</b>
<b>Year of dental school graduation (years since graduation)</b>	<1 year	4	2.1
	1-5 years	59	30.7
	6-10 years	35	18.5
	> 10 years	93	48.7
	<b>Total</b>	<b>191</b>	<b>100</b>
<b>Average number of patients seen per week</b>	<20	41	21.4
	20-40	93	48.6
	41-60	34	17.6
	>60	24	12.4
	<b>Total</b>	<b>191</b>	<b>100</b>
	<b>Type of practice</b>	Private	150
Public		41	21.4
<b>Total</b>		<b>191</b>	<b>100</b>
<b>Level of Education</b>	Specialist	42	22.1
	General dentist	149	77.9
	<b>Total</b>	<b>191</b>	<b>100</b>

### 4.1.2 Type of practice by Gender

There were 52.4% of male and 26.2% of female respondents in private practice. There were 12.6% female respondents in public and male were at 8.9% (Fig 1)

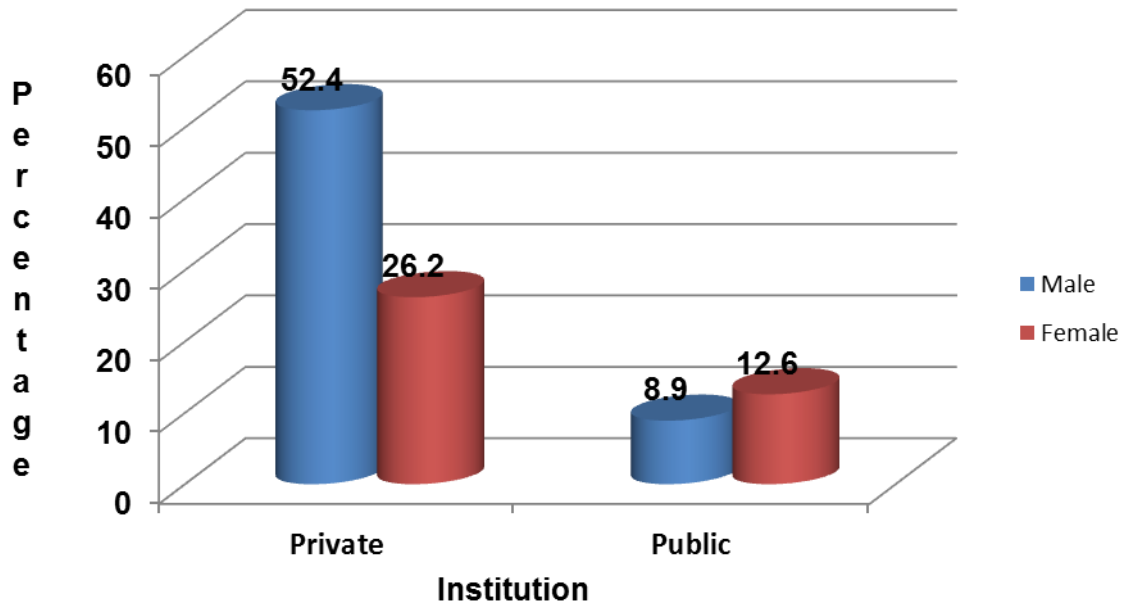
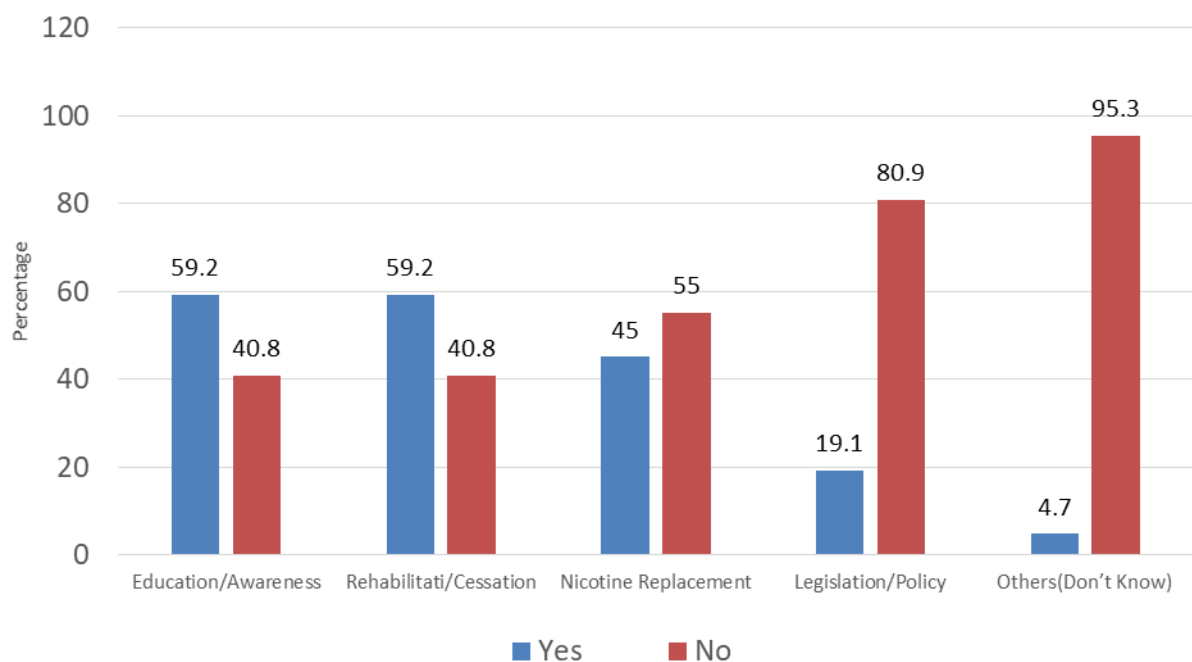


Figure 1: Type of practice by Gender

## 4.2 Knowledge on Smoking Cessation

### 4.2.1 Knowledge on Intervention that Facilitate Smoking Cessation

There were 113 (59.2%) respondents who identified education and rehabilitation/cessation centres exclusively as the main factors that would facilitate smoking cessation. Forty five percent of the respondents stated Nicotine replacement therapy as a form of intervention. The Legislation/policy was considered by 38 (19.9%) of the respondents. The least likely interventions listed were religion and smoker's toothpaste at 9 (4.7%). (Fig 2)



**Figure 2: Interventions that Facilitate Smoking Cessation**

The Chief Dental Officer at ministry of health at the time of the study was one of the key informants. When asked how effective nicotine replacement as a method of smoking cessation intervention was, he said that it could really be effective although he had not heard first-hand information on advantages or disadvantages related to it. While he had never prescribed it, in principle he agreed it was an intervention method. On the other hand, another key informant, the Treatment and Rehabilitation program Manager at NACADA at the time of the study agreed it works. He further elaborated that the most NACADA may offer was psychosocial support and the alternatives like Nicotine replacement therapy. They would also normally advise the smokers to work with the pharmacists and other health workers.

#### **4.2.2 Knowledge on factors that Cause Relapse**

According to the findings, the majority (92.7%) agreed that severity of addiction could cause relapse. Eighty-nine percent hinted that social pressure could cause relapse, 88.5% affirmed that coping with emotional stress could as well cause relapse, 72.8% were of opinion that coping with interpersonal conflict could be another cause of relapse while 71.7% agreed that smoking just one cigarette post smoking could too be a cause for relapse. (Table 2)

**Table 2: Knowledge on factors that cause Relapse**

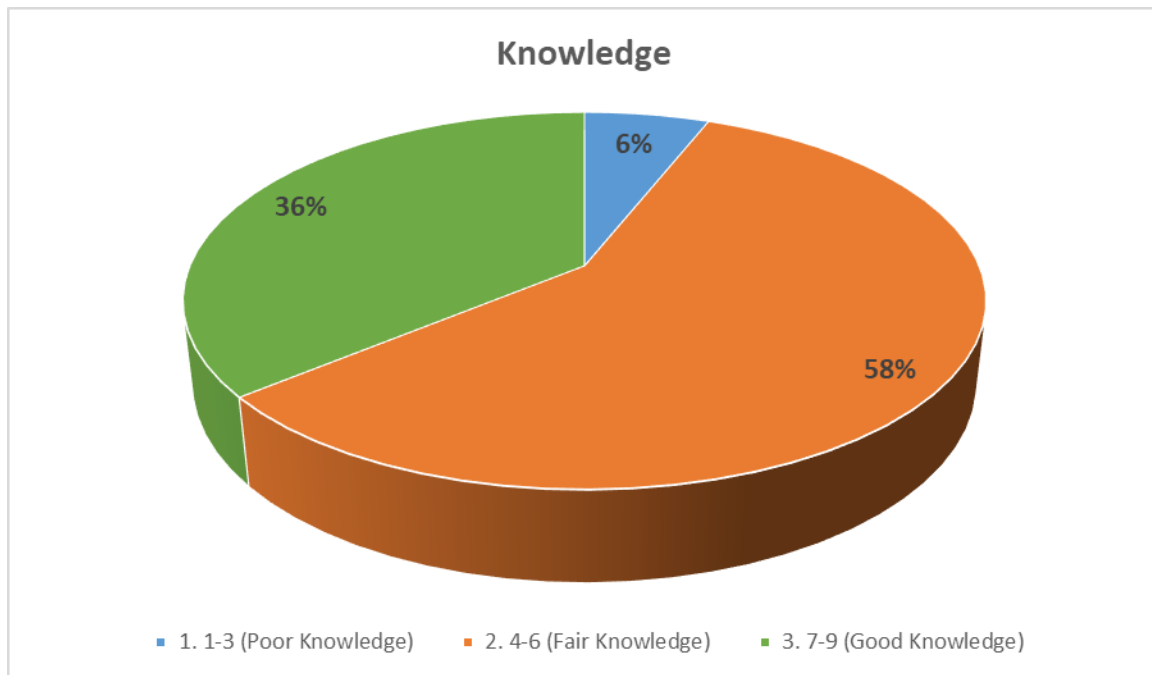
Factor	Yes		No	
	Number	%	Number	%
Severity of addiction	177	92.7	14	7.3
Social pressure	170	89.0	21	11.0
Coping with emotional stress	169	88.5	22	11.5
Coping with interpersonal conflict	139	72.8	52	27.2
Smoking just one cigarette post smoking	137	71.7	54	28.3

Findings from the two key informants at the time of the study supported these findings. Explaining causes of relapse after smoking cessation, these key informants said that nicotine was a highly addictive chemical and anything that is too highly addictive becomes very highly difficult to quit. The cravings and urges towards the nicotine itself make it easy for people to relapse. Secondly, as much as there were cessations programs the respondents indicated that there were no follow up programs. The cessation programs advised people to quit yet there were no follow up programs, which would ensure that there is no relapse. Thirdly, they had a problem with relapse because tobacco is everywhere and as people are trying to quit, they go out there and those trying to quit meet all the environmental cues leading to relapse.

#### **4.2.3 Knowledge on smoking cessation interventions**

Majority 110 (57.6%) of the respondent had fair knowledge about smoking cessation. 69 (36.1%) had good knowledge whereas only 12 (6.3%) had relatively poor knowledge about interventions and causes of relapse aspect of smoking cessation. (Fig 3)





**Figure 3: Knowledge on Smoking Cessation**

### **4.3 Attitude on Smoking Cessation**

#### **4.3.1 Respondents attitude towards Smoking Cessation Intervention**

Almost all of the respondents (98.9%) agreed that they had a responsibility to provide smoking cessation counselling, even though the opinion on the degrees of responsibility was diverse. Slightly less than half (41.8 %,) believed in the effectiveness of smoking cessation counselling provided by a dentist. Close to a third (33.5 %,) acknowledged to a considerable extent that they were confident in their ability to effectively offer smoking cessation counselling. Respondents differed in opinion on patients' expectation of smoking cessation advice from the dentist, and a number of them (28.5%) felt that patients to a certain extent expect smoking cessation advice from their dentists. A small number (10%) had great optimism in patients' ability to change their smoking habit. Similarly, a few of the respondents (13.2 %) believed that counselling provided by dentists would be very effective. (Table 3)

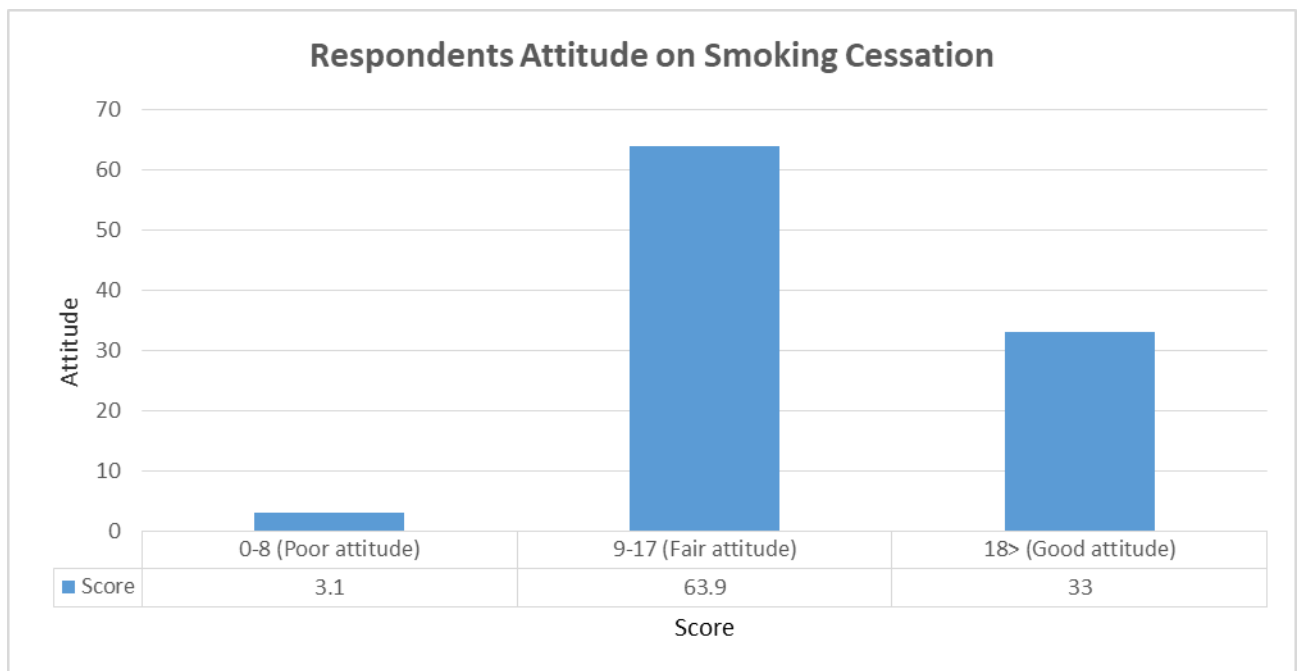
**Table 3: Aspect of Smoking Cessation Intervention in Relation to the Dentists**

	Great extent		Considerable extent		To some extent		A little bit		Not at all	
	n	%	N	%	n	%	n	%	n	%
Responsibility as a dentist to provide smoking cessation counseling	59	31.1	62	32.6	58	30	10	5.3	2	1.1
The effectiveness of smoking cessation counseling provided by a dentist	25	13.2	55	28.6	73	38.1	34	18	4	2.1
Your confident in the ability to effectively offer smoking cessation counseling	20	10.5	44	23	78	40.8	36	18.8	13	6.8
Patients expectation to be offered smoking cessation advice from dentist	14	7.4	40	21.1	61	31.6	53	27.9	23	12.1
How optimistic you are in patients' ability to change their smoking habits	19	10	33	17.4	74	38.9	56	29.5	8	4.2
<b>Aggregate</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>

Key informant’s opinion on the attitude of the dentist towards smoking cessation intervention revealed that dentists did not think of smoking cessation intervention as their business, since they thought that the exercise belongs to some other people. According to the interviewees, the dentists were normally involved in caries, periodontitis and all other practices but felt that issues of cessation of smoking belong to other cadres.

#### **4.3.2 Attitude towards delivering Smoking Cessation**

Majority 122 (63.9%) of respondents had fair attitude whereas 63 (33%) had good attitude, which showed a positive overall attitude score towards their roles and responsibilities in delivering smoking cessation interventions. Only 6 (3.1%) had poor attitude. (Fig 4)



**Figure 4: Attitude towards delivering Smoking Cessation**

## **4.4 Practices on Smoking Cessation**

### **4.4.1 Extent of Tobacco Control Practice**

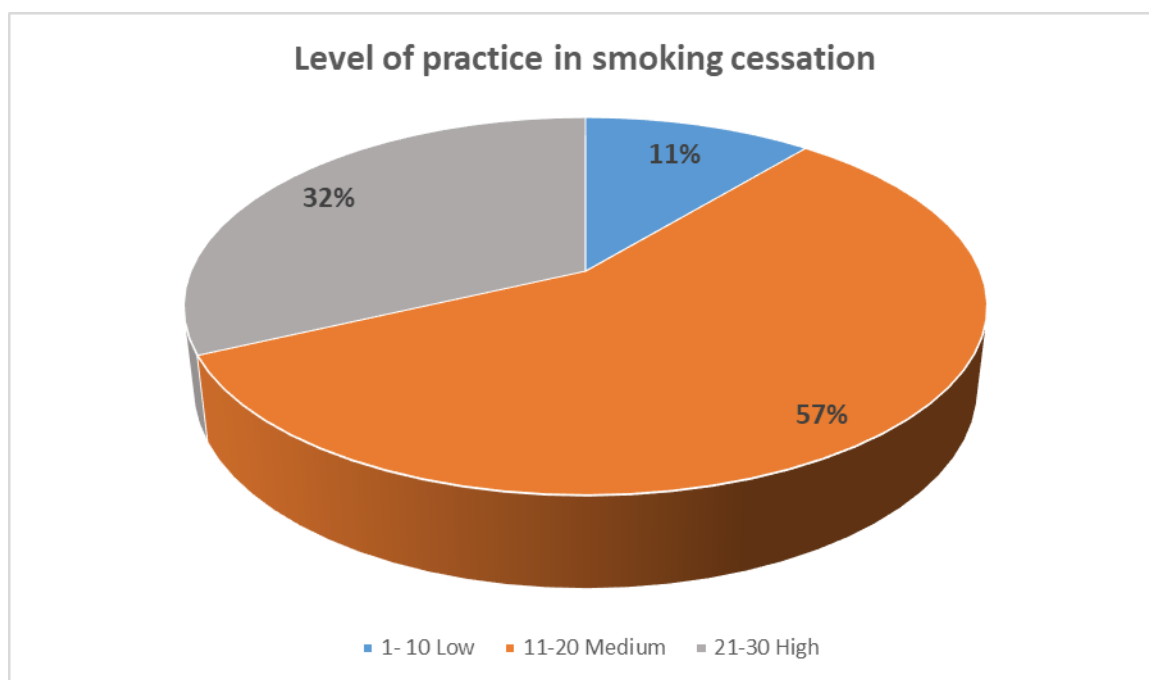
Involvement in the various aspects of smoking cessation among dentists in Nairobi presented a mixed picture. Slightly more than a third (35.4 %), of the respondents to great extent enquired about their patients' smoking status. This is a contrast because only 14.8 % of the respondents largely kept records of patients smoking status. A very (11.2%) of the respondents to a large extent offered smoking cessation counselling to the patients. Only slightly above a third (34.9%) of the respondents to a great extent explained to patients' health risk associated with smoking. A few of the respondents 17.5% always provided advice or helpful hints to motivate patients to quit smoking. A very large number of the respondents (65.1%) never provided reading materials on smoking cessation in their waiting room. (Table 4)

**Table 4: Dentists practice of smoking cessation interventions**

	Great extent		Considerable extent		To some extent		A little bit		Not at all	
	n	%	N	%	n	%	n	%	n	%
Enquire about patient’s smoking status	69	35.4	58	30.7	38	20.1	12	6.3	14	7.4
Keep a record of patients smoking status	28	14.8	27	14.3	44	23.3	27	14.3	65	33.3
Offer smoking cessation counselling to your patients	21	11.2	39	20.2	65	34	40	20.7	26	13.8
Explain to patients’ health risk associated with smoking	68	34.9	43	22.8	52	27.5	21	11.1	7	3.7
Provide advice or helpful hints to motivate patients to quit smoking	33	17.5	35	18.5	56	28.6	43	22.8	24	12.7
Provide reading materials on smoking cessation in your waiting area	11	5.8	14	7.4	13	6.9	28	14.8	125	65.1
<b>Aggregate</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>191</b>	<b>100</b>

**4.4.2 Practice in Delivering Smoking Cessation Interventions**

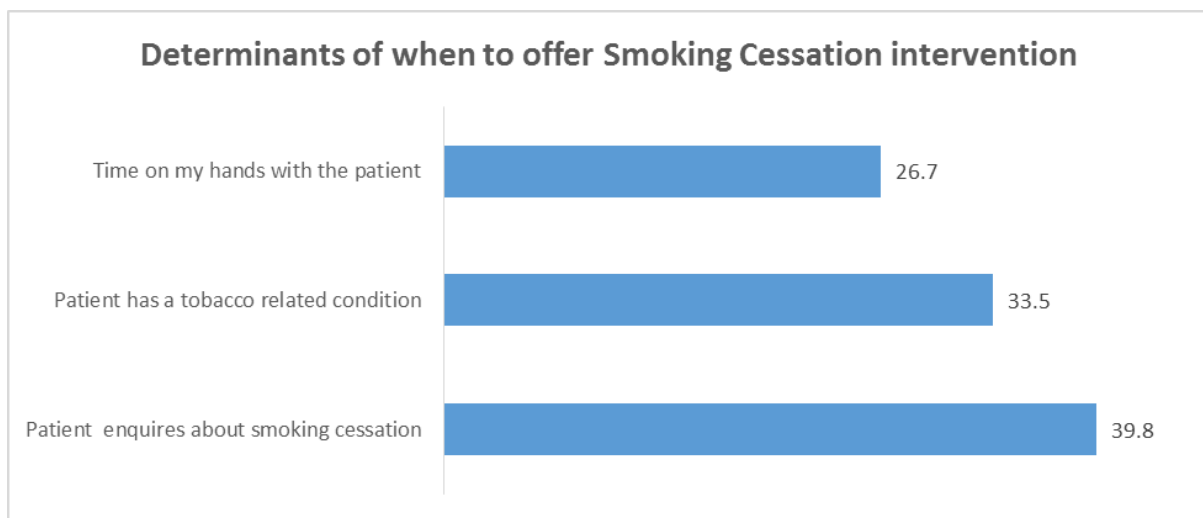
Nearly a third 61(32%) of the respondents exercised high practice on delivering smoking cessation intervention while majority 108 (57%) exercised medium practice. On the other hand, 21 (11%) of the respondents had relatively low practice in delivering smoking cessation interventions. (Fig 5)



**Figure 5: practice in delivering smoking cessation interventions**

#### 4.4.3 Determinants on when to offer Smoking Cessation Intervention

On evaluating what determines if smoking cessation intervention would be offered by those respondents that offered an intervention occasionally, the study found that; 39.8% would offer an intervention when the patient enquires about smoking cessation. Nearly a third (33.5%) pointed that they would offer intervention if on examining the patient they encountered a tobacco related condition. Occasionally 26.7% of the respondents would only offer cessation intervention if they had time on their hands with the patients. (Fig 6)



**Figure 6: Determinants on when to offer Smoking Cessation intervention**

Those who indicated that they only did it if they had time on their hands felt dealing with smoking cessation was a tedious process since patients start asking questions that end up taking their time and yet they had targets to accomplish in a day.

This was further supported by the qualitative findings from the chief dental officer

*“Like I said I don’t think they take it as their business, as their role, they think that it’s not their business and maybe they think it belongs to some other people. The dentist is normally involved in caries, periodontitis, and all that but when it comes to issues of cessation of drugs like tobacco, they feel like it belongs to other cadre or somebody else”.*

#### 4.4.4 Smoking Cessation Interventions apart from Counselling

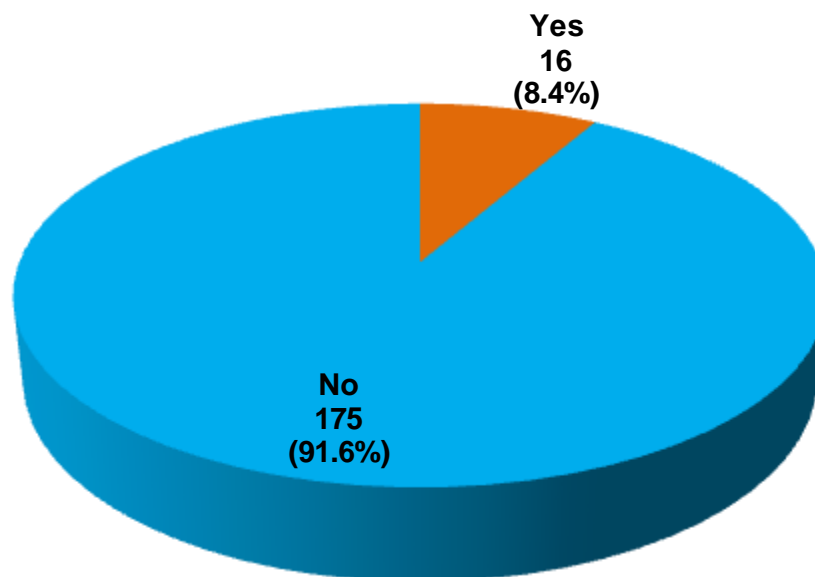
Besides counselling, respondents were asked which other smoking cessation interventions they frequently provided to help smokers quit. They said use of pharmacologic intervention

like nicotine replacement therapy and consideration of referral to a more intense or specialized program.

On the same note, key informants were asked which other smoking cessation interventions apart from counselling they thought the dentists frequently use to help smokers to quit. They mentioned; pharmacological intervention, the nicotine patches, electronic cigarettes and nicotine gums as well.

#### 4.5 Training in smoking cessation intervention

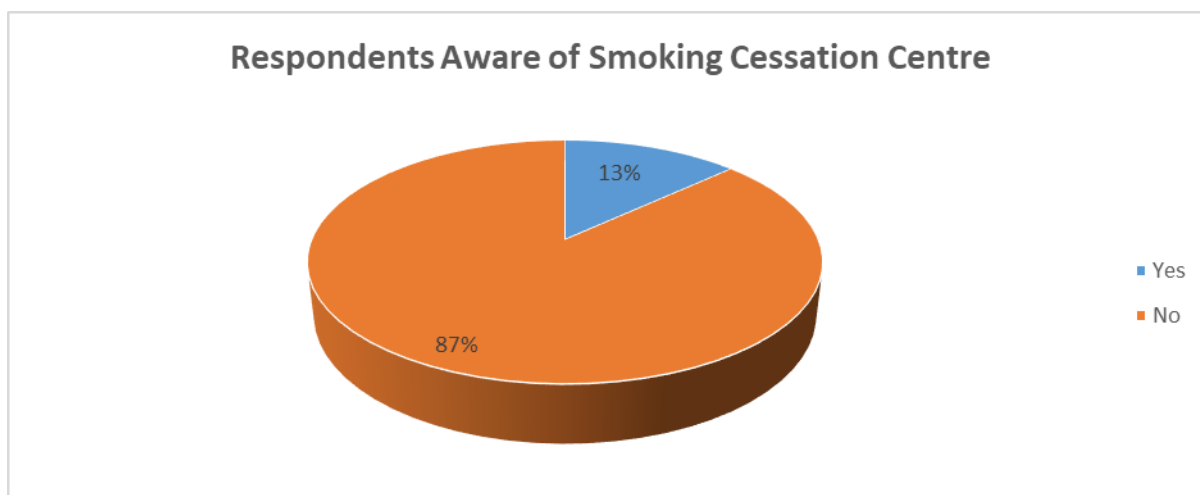
Almost all respondents (91.6%) had not had training in smoking cessation at the time of this study. (Fig 7)



**Figure 7: Respondents training on smoking cessation interventions**

#### 4.6 Knowledge on Smoking Cessation Centres

Asked if they knew of the existence of any smoking cessation centres in Nairobi, nearly all 165 (87%) of the respondents did not know specific smoking cessation centres and their locations. While only 25 (13.2%) were aware of smoking cessation Centre in Nairobi. (Fig 8).



**Figure 8: Respondents awareness on Smoking Cessation Centre based in Nairobi**

#### **4.7 Barriers to the dentist on delivery of smoking cessation interventions.**

On rating the degree to which some of the factors were barriers to the respondents' involvement in smoking cessation, 38.6% of the respondents indicated lack of training in smoking cessation as a major factor. Less than a third (21.7 %) of them indicated that to a great extent lack of knowledge. Nearly one fifth of the respondents (10.4%) indicated that lack of remuneration to a great extent acted as a barrier to offering smoking cessation. Very few respondents (9.4%) considered lack of time in their practice a major barrier. Largely only 6.1% believed. Lack of interest in smoking cessation was a barrier. Over half of the respondents (65.9%) had no fear of the patients leaving the practice if counselled to give up smoking. Almost half of the respondents (49.2%) indicated lack of interest in smoking cessation intervention was not at all a barrier. (Table 5)

**Table 5: Factors that Acted as Barriers to the Dentist on Delivering Smoking Cessation**

	Great extent		Considerable extent		To some extent		A little bit		Not at all	
	n	%	n	%	n	%	n	%	n	%
Lack of knowledge in smoking cessation	40	21.7	41	22.3	51	22.3	25	13.6	27	14.7
Lack of remuneration	19	10.4	17	9.3	38	20.9	18	9.9	90	49.5
Lack of time in my practice	17	9.4	32	17.	48	26.5	36	19.9	48	26.5
Fear patients may leave the practice if counselled to give up smoking	8	4.4	10	5.5	25	13.7	19	10.4	120	65.9
Lack of interest in smoking cessation intervention	11	6.1	24	13.3	31	17.1	26	14.4	89	49.2
Lack of training in smoking cessation	71	38.6	42	22.8	29	15.8	21	11.4	21	11.4

#### 4.8 Factors associated with Respondents' Practice on Smoking Cessation.

Analysis of the different independent variables (Knowledge, attitude, gender, smoking status, year of dental school graduation, average number of patients seen per week, type of practice, and level of education) against the study dependent variable practice was carried out.

There was no statistically significant relationship between dentists' gender and practice on smoking cessation ( $X^2= 0.382$ ,  $p=0.826$ ).

There was a statistically significant relationship between dentists' Type of practice and practice on smoking cessation ( $X^2=9.915$ ,  $p=0.042$ ). (Table 6)

**Table 6: Relationship between gender, practice type and smoking cessations interventions**

Associated Factors			Practice			Total	(Ci=95%)		
			(1-10) Low	(11-20) Medium	(21-30) High		df	X <sup>2</sup>	P-Value
Gender	Male	n	12	65	39	2	0.382	0.826	
		%	(57.1)	(60.2)	(63.9)				<b>116</b>
	Female	n	9	43	22				<b>74</b>
		%	(42.9)	(39.8)	(36.1)				<b>(38.9)</b>
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>61</b>	<b>190</b>			
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>			
Type of practice	Public	n	9	36	19	4	9.915	0.042	
		%	(42.9)	(33.3)	31.2)				<b>64</b>
	Private	n	12	72	42				<b>126</b>
		%	(57.1)	(66.7)	(68.90)				<b>(66.3)</b>
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>61</b>	<b>190</b>			
		<b>%</b>	<b>100</b>	<b>100</b>	<b>(100)</b>	<b>(100)</b>			

#### 4.9 Other factors that influenced respondents' practice on smoking cessation interventions.

Other factors that this study had explored that influenced cessation practices by dentists are summarized in table 7. These factors included smoking status of the dentist, duration of practice, number of patients seen per week, area of specialist, level of knowledge on smoking cessation interventions and attitude towards smoking cessation, (Table 7).

The test of significance could not be computed for tables 7,8 and 10 because the cells had less than 5 entries.



**Table 7: Other factors tested against Respondents Practice on Smoking Cessation**

Associated Factors			Practice			Total	
			(1-10) Low	(11-20) Medium	(21-30) High		
Smoking status of the dentist	Smoker	n	2	5	3	10	
		%	(9.5)	(4.6)	(5)	(5.3)	
	Non-smoker	n	18	102	53	173	
		%	(85.7)	(94.4)	(88.3)	(91.5)	
	Previous smoker (has not smoked for last one yr)	n	1	1	4	6	
		%	(4.8)	(0.9)	(6.7)	(3.2)	
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>60</b>	<b>189</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Year of dental school graduation (yrs since graduation)	1. < 1 yr	n	0	3	1	4	
		%	-	(2.8)	(1.7)	(2.1)	
	2. 1-5 yrs	n	7	34	17	58	
		%	(33.3)	(31.5)	(28.8)	(30.9)	
	3. 6-10 yrs	n	1	18	16	35	
		%	(4.8)	(16.7)	(27.1)	(18.6)	
	4. > 10 yrs	n	13	53	25	91	
		%	(61.9)	(49.1)	(42.4)	(48.4)	
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>59</b>	<b>188</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Average number of patients seen per week	1. < 20	n	4	21	13	38	
		%	(19)	(20)	(22.4)	(20.7)	
	2. 20-40	n	6	53	31	90	
		%	(28.6)	(50.5)	(53.4)	(48.9)	
	3. 41-60	n	5	19	9	33	
		%	(23.8)	(18.1)	(15.5)	(17.9)	
	4. > 60	n	6	12	5	23	
		%	(28.6)	(11.4)	(8.6)	(12.5)	
<b>Total</b>		<b>n</b>	<b>21</b>	<b>105</b>	<b>58</b>	<b>184</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Attitude	0-8	n	3	3	0	6	
		%	(14.3)	(2.8)	-	(3.2)	
	9-17	n	15	77	29	121	
		%	(71.4)	(71.3)	(47.5)	(63.7)	
	>18	n	3	28	32	63	
		%	(14.3)	(25.9)	(52.5)	(33.2)	
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>61</b>	<b>190</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Knowledge	Poor (1-3)	n	5	5	2	12	
		%	(23.8)	(4.6)	(3.3)	(6.3)	
	Fair (4-6)	n	11	62	37	110	
		%	(52.4)	(57.4)	(60.7)	(57.9)	
	Good (7-9)	n	5	41	22	68	
		%	(23.8)	(38)	(36.0)	(35.8)	
<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>61</b>	<b>190</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Area of Specialization	Specialist	n	3	25	14	42	
		%	(14.3)	(23.1)	(23.3)	(22.2)	
	General dentist	n	18	83	46	147	
		%	(85.7)	(76.9)	(76.7)	(77.8)	
	<b>Total</b>		<b>n</b>	<b>21</b>	<b>108</b>	<b>60</b>	<b>189</b>
			<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>

**4.10 Other factors associated with respondents' attitude on smoking cessation interventions.**

Other factors, which this study had included, those summarized below, (Table 8)

**Table 8: Summary of other factors Other factors tested against Respondents Attitude on Smoking Cessation**

Associated Factors			Attitude			Total	
			Poor	Fair	Good		
Gender	Male	n	3	69	45	<b>117</b>	
		%	(50.0)	(56.6)	(71.4)	<b>(61.3)</b>	
	Female	n	3	53	18	<b>74</b>	
		%	(50.0)	(43.4)	(28.6)	<b>(38.7)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>122</b>	<b>63</b>	<b>191</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Smoking status of the dentist	Smoker	n	0	5	5	<b>10</b>	
		%	-	(4.1)	(8.1)	<b>(5.3)</b>	
	Non-smoker	n	5	117	52	<b>174</b>	
		%	(83.3)	(95.9)	(83.9)	<b>(91.6)</b>	
	Previous smoker (has not smoked for last one yr)	n	1	0	5	<b>6</b>	
		%	(16.7)	-	(8.1)	<b>(3.2)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>122</b>	<b>62</b>	<b>190</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Year of dental school graduation (yrs since graduation)	1. < 1 yr	n	0	3	1	<b>4</b>	
		%	-	(2.5)	(1.6)	<b>(2.1)</b>	
	2. 1-5 yrs	n	2	36	20	<b>58</b>	
		%	(33.3)	(29.8)	(32.3)	<b>(30.7)</b>	
	3. 6-10 yrs	n	1	19	15	<b>35</b>	
		%	(16.7)	(15.7)	(24.2)	<b>(18.5)</b>	
	4. > 10 yrs	n	3	63	26	<b>92</b>	
		%	(50.0)	(52.1)	(41.9)	<b>(48.7)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>121</b>	<b>62</b>	<b>189</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Average number of patients seen per week	1. < 20	n	2	25	12	<b>39</b>	
		%	(33.3)	(20.8)	(20.3)	<b>(21.1)</b>	
	2. 20-40	n	1	56	33	<b>90</b>	
		%	(16.7)	(46.7)	(55.9)	<b>(48.6)</b>	
	3. 41-60	n	2	23	8	<b>33</b>	
		%	(33.3)	(19.2)	(13.6)	<b>(17.8)</b>	
	4. > 60	n	1	16	6	<b>23</b>	
		%	(16.7)	(13.3)	(10.2)	<b>(12.4)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>120</b>	<b>59</b>	<b>185</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Area of practice	Public	n	2	36	26	<b>64</b>	
		%	(33.3)	(20.5)	(27)	<b>(33.5)</b>	
	Private	n	4	86	37	<b>127</b>	
		%	(66.7)	(70.5)	(58.7)	<b>(66.5)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>122</b>	<b>63</b>	<b>191</b>	
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	
Area of Specialization	Specialist	n	0	28	14	<b>42</b>	
		%	-	(23)	(22.6)	<b>(22.1)</b>	
	General dentist	n	6	94	48	<b>148</b>	
		%	(100)	(77.0)	(77.4)	<b>(77.9)</b>	
<b>Total</b>		<b>n</b>	<b>6</b>	<b>122</b>	<b>62</b>	<b>190</b>	
		<b>%</b>	<b>(100.)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	

#### 4.11 Factors associated with Respondents' knowledge on Smoking Cessation

There was statistically no significant relationship between dentists' gender and knowledge on smoking cessation ( $X^2=5.491$ ,  $p=0.064$ ). (Table 9)

**Table 9: Analysis and Chi-Square Test on selected factors against with Respondents knowledge on Smoking Cessation**

Associated Factors			Level of Knowledge			Total	(Ci=95%)		
			(1-3) Poor	(4-6) Fair	(7-9) Good		<i>df</i>	$X^2$	P-Value
Gender	Male	F	7	75	35	<b>117</b>	2	5.491	0.064
		%	(58.3)	(68.2)	(50.7)				
	Female	F	5	35	34	<b>74</b>			
		%	(41.7)	(31.8)	(49.3)	<b>(38.7)</b>			
<b>Total</b>		<b>F</b>	<b>12</b>	<b>110</b>	<b>69</b>	<b>191</b>			
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>			

#### 4.12 Other factors associated with respondents' knowledge on smoking cessation interventions.

Other factors, which this study had included, those summarized below, (Table 10)

**Table 10: Summary of other factors Other factors tested against Respondents knowledge on Smoking Cessation**

Associated Factors		Level of Knowledge			Total	
		(1-3) Poor	(4-6) Fair	(7-9) Good		
Smoking status of the dentist	Smoker	n	1	6	3	<b>10</b>
		%	(8.3)	(5.5)	(4.3)	<b>(5.3)</b>
	Non-smoker	n	9	99	66	<b>174</b>
		%	(75.0)	(90.8)	(95.7)	<b>(91.6)</b>
	Previous smoker (has not smoked for last one yr)	n	2	4	0	<b>6</b>
		%	(16.7)	(3.7)	-	<b>(3.2)</b>
<b>Total</b>		<b>n</b>	<b>12</b>	<b>109</b>	<b>69</b>	<b>190</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>
Year of dental school graduation (yrs since graduation)	1. < 1 yr	n	0	3	1	<b>4</b>
		%	-	(2.8)	(1.4)	<b>(2.1)</b>
	2. 1-5 yrs	n	4	34	20	<b>58</b>
		%	(33.3)	(31.5)	(29)	<b>(30.7)</b>
	3. 6-10 yrs	n	1	20	14	<b>35</b>
		%	(8.3)	(18.5)	(20.3)	<b>(18.5)</b>
	4. > 10 yrs	n	7	51	34	<b>92</b>
		%	(58.3)	(47.2)	(49.3)	<b>(48.7)</b>
<b>Total</b>		<b>n</b>	<b>12</b>	<b>108</b>	<b>69</b>	<b>189</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>
Average number of patients seen per week	1. < 20	n	4	17	18	<b>39</b>
		%	(33.3)	(16)	(26.9)	<b>(21.1)</b>
	2. 20-40	n	7	53	30	<b>90</b>
		%	(58.3)	(50.0)	(44.8)	<b>(48.6)</b>
	3. 41-60	n	0	22	11	<b>33</b>
		%	-	(20.8)	(16.4)	<b>(17.8)</b>
	4. > 60	F	1	14	8	<b>23</b>
		%	(8.3)	(13.2)	(11.9)	<b>(12.4)</b>
<b>Total</b>		<b>n</b>	<b>12</b>	<b>106</b>	<b>67</b>	<b>185</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>
Area of practice	1. Public	n	1	25	18	<b>44</b>
		%	(8.3)	(22.7)	(26.1)	<b>(23)</b>
	2. Private	n	10	76	41	<b>127</b>
		%	(83.3)	(69.1)	(59.4)	<b>(66.5)</b>
	3. Both Private and public	F	1	9	10	<b>20</b>
		%	(8.3)	(8.2)	(14.5)	<b>(10.5)</b>
<b>Total</b>		<b>n</b>	<b>12</b>	<b>110</b>	<b>69</b>	<b>191</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>
Area of specialization	1. Specialist	n	2	21	19	<b>42</b>
		%	(16.7)	(19.3)	(27.5)	<b>(22.1)</b>
	2. General dentist	n	10	88	50	<b>148</b>
		%	(83.3)	(80.7)	(72.5)	<b>(77.9)</b>
<b>Total</b>		<b>n</b>	<b>12</b>	<b>109</b>	<b>69</b>	<b>190</b>
		<b>%</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>	<b>(100)</b>

## **5.0 CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Discussion**

The aim of this study was to assess the smoking cessation interventions with respect to knowledge, attitude and practices among dentists in Nairobi and factors affecting delivery of smoking cessation advice by dentists. This chapter presents a discussion of the main findings of the study on smoking cessation interventions: knowledge, attitudes and practices among dentists in Nairobi. Due to their position in the society, Dentists have a unique role in tobacco control. Dental professionals also have responsibilities to reduce the use of tobacco among their patients, but they may have not yet put their efforts in curbing the tobacco epidemic.

In the present study, both the male and female respondents had almost the same level of good knowledge at 50.7 % and 49.3% respectively. However, the males had better practice at 64.9% compared to female at 36.1% while males' good attitude was at 71.4% compared to female who stood at 28.6%. It is possible that the good attitude the male dentist had helped them give more practice in smoking interventions despite the almost equal knowledge.

The prevalence of smoking amongst the respondents in this study was low at 5.3% compared to the national smoking prevalence, which stood at 17% at the time of the study. Majority of the respondents were non-smokers. Majority (88.3%) of the non-smokers were highly involved in smoking cessation interventions. Other studies have shown that smokers did not find it necessary to offer smoking cessation interventions while they were smokers too. The high number of dentists who were non-smokers could be a positive thing. Previous studies by Abdurrahman *et al.*, (2008) and Campbell (1999). Sarna, Brown, Lillington, Wewers, et al. (2000) reported that smoking status of the dentists negatively affected tobacco control attitudes and this is reflected in the present study.

Almost a half (42.4%) of the respondents with high score in practice of smoking cessation interventions had been in Dental practice for over 10 years. In this same cohort of those who had been in practice for over 10 years 49.3% also had high score in knowledge on smoking cessation. The high score in practice in this cohort could be attributable to the good knowledge the cohort had in comparison to the other groups or the experiences gained during the many number of years in practice. The second group in score that had high number of dentists with good practice is those who graduated between 1-5 years ago. Almost a third of

them (30.9%) had good practice. This may be due to that they left school recently and are keen on keeping abreast on emerging issues related to tobacco.

In the current study, among the general dentist, 77.8% had good practice compared to the specialist (22.2%). The specialist was most likely more interested in his area of specialization as opposed to smoking cessation. The general dentist is in better position to effectively advice tobacco addicts on smoking cessation as opposed to for example paediatric dentists who rarely address tobacco related dental problems.

### **5.2 Knowledge on Smoking Cessation**

In the current study, although the respondents possessed knowledge on various interventions that facilitated smoking cessation and could identify factors that could cause relapse after one had stopped smoking, it was not adequate or adequately implemented.

The present study showed that close to 94% of the respondents had at least some level of knowledge on smoking cessation. A clear majority (75%) of the respondents with poor to fair knowledge had low practice of smoking cessation. It was indicated that 36% of respondents in this study who had high knowledge about smoking cessation also practiced more in smoking cessation interventions. This finding compares well to that of Saito *et al.*, (2010). This study found that the amount of knowledge that a dentist had affected their ability to offer smoking cessation interventions. In their studies, Saito et al (2010) and Shibly (2010) found similar results.

### **5.3 Attitudes on Smoking Cessation**

Majority (93.7%) of respondents in Nairobi agreed on their role in smoking cessation counselling. even though the opinion on the degrees of responsibility was diverse. This finding compares well to that a study done on dentists in Kelantan Malaysia by Ibrahim and Norkhafizah (2008). In this study, very few of the dentists (14.3%) with good attitude had low practice.

Although 63.4% of the respondents felt it was their responsibility to provide smoking cessation counselling, only 32% of them scored highly in providing the interventions. Similar findings were established in studies by Shibly et al, (2008), Albert (2002), Hu et al (2006), Applegate et al. (2008) and Wayne et al. (2006). The low practice despite the positive attitude could be attributed to lack of confidence in their ability to offer smoking cessation brought about by lack of knowledge and training in smoking cessation.

In response to the respondents' perception on the effectiveness of smoking cessation counselling provided by a dentist, 20.1% indicated that they did not feel that their counselling was effective. This again could explain why in contrast to the positive attitude, the dentists' engagement in smoking cessation counselling was low. The lack of self-belief in the effectiveness of their interventions could hold them back from engaging in smoking cessation. Contrary to what the dentists believed, results of studies by Gordon et al and Campbell (1999) showed otherwise.

Approximately a third (33.5 %) to a considerable extent had confidence in the ability to effectively offer smoking cessation counselling. This finding is consistent with studies done by John et al., (1997) among dentists in Oxford region and Wyne *et al.*, (2006). In Riyadh Ibrahim and Norkhafizah (2008) reported even a lower percent (15%). This lack of confidence could be related to the lack of knowledge and training and their experience with smoking cessation interventions and relapses in their patients. The outcomes were consistent with studies that recognized inadequate knowledge and counselling abilities in smoking cessation as vital barriers that demoralized dentists from helping their patients to quit (Trotter and Worcester, 2003; Aza Fazura, 2004; Hu *et al.*, 2006; Stacey *et al.*, 2006).

There were differences in views among the respondents in Nairobi on patients' expectation of smoking cessation counselling from a dentist. Only a few (12%) of them felt that their patients did not at all expect them to advice on smoking cessation. However almost twice as many dentists in a study by Ibrahim and Norkhafizah (2008) felt that their patients did not expect such advice. In contrast, in a study by Campbell (1999) approximately 59% of patients interviewed believed dentists should routinely offer such services. The same study showed that patients who were interested in quitting felt comfortable receiving quit advice from their dentist. Another study by Rikard-Bell et al. (2003) showed that not only did patients expect the dentist to discuss smoking with them but also most patients expected the dentist to be interested in the patients smoking status. The difference in opinion between the patients and the dentist could arise because of how each perceives their positions in oral health. The patients perceive the dentist to be an authority in all matters health. The dentist on the other hand would rather limit themselves to other oral diseases like caries and periodontitis. The two key informants shared this similar opinion.

#### **5.4 Practice on Smoking Cessation**

Involvement in the various aspects of smoking cessation among respondents in Nairobi gave mixed picture. To a great extent 35.4 %, enquired about their patients' smoking status, In comparison, only about a half (14.8%) of those dentists who enquired about their patient smoking status would keep record of patients smoking status thus making it difficult to follow up on smoking patient. Similar findings were established in a study by Chestnut (1995) this could have contributed to the low number (11.2%) of dentists who largely offer smoking cessation counselling to their patients, as they were unable to keep track of the smoking status of their patients for future follow up. This demonstrates that documentation of patients' smoking status presents a weak link in the provision of smoking cessation interventions by health care providers. In the response 68 dentists (34.9%) to a great extent explained to patients health risk associated with smoking.

There was more variation among dentists in advising or giving helpful hints to motivate patients to quit smoking. Guidance for health care professionals are that all smokers be advised to quit-(west et al 2000) and this present study does not reflect this. A few of the dentists (17.5%) agreed that they provided advice or helpful hints to motivate patients to quit smoking in a substantial way. A survey by the British Dental Association in 2002 found similar results. This small number of dentists involved in advising or giving helpful hints to motivate patients to quit smoking denies the dentist an opportunity to be actively involved in the reduction of tobacco use despite the negative effect it has on oral and general health. Studies have shown that nearly 40% of smokers try to stop smoking in answer to a health care provider's advice (Kreuter et al, 2000). In another study by Gordon et al (2005), Monson, and Engeswick (2005), showed that a few minutes of advice from a dentist to a patient can be an effective smoking cessation intervention.

Majority of the dentists (65.1%) indicated that they never provided reading materials on smoking cessation in their waiting area. The presence of anti-smoking posters and other anti-smoking reading material in health facilities was found to be significantly associated with better practice scores and was a perceived barrier to smoking cessation activities (Uti and Sofola, 2011, Kalyanpur, 2014). Of the barriers listed lack of time was ranked the fourth in this study. Offering reading material on smoking cessation interventions could be an opportunity for the patients to educate themselves in the waiting room. It is also an opportunity for a smoker to initiate a discussion on their smoking status with their dentists.



Limited practice on smoking cessation could be related to certain aspects of barriers/challenges, which included lack of training, remuneration, lack of time as well as interest in rendering smoking cessation. On rating the degree to which these factors were barriers to dentists, majority 71(38.6%) of the dentists indicated that lack of training on smoking cessation was to a great extent a main factor affecting delivery of smoking intervention. Secondly, 40 (21.7 %) of the dentists mentioned lack of knowledge. Nearly one fifth of the dentists 19(10.4%) cited lack of remuneration. Maybe they felt that if they offered smoking cessation services, the patients would not pay in the case of dentists in private practice whereas those in public practice felt it was never captured in their scope of work. Subsequently, lack of time 17(9.4%) by the dentists especially amongst those attending to more than 60 patients per week affected their participation in smoking cessation intervention. Some dentists just lacked interest in smoking cessation as indicated by 11(6.1%). Finally, (4.4%) of the dentists feared that patients may opt out of the clinics if the dentists introduced the aspect of smoking cessation counselling.

### **5.5 Barriers to provision of smoking cessation interventions**

Most of the respondents perceived lack of training and lack of knowledge as important barriers to their provision of smoking cessation interventions. The perspective was supported by the fact that majority (91.6%) of the respondents in this study had not been exposed to any form of training on smoking cessation interventions. These findings compare well with those of a number of studies that also showed absence of knowledge and training was a major obstacle (Saito et al, 2010, Shibly, 2010). This lack of training leads to little motivation about tobacco counselling and therefore tobacco cessation is inconsistently incorporated into their dental practices.

Training of Dentists on smoking cessation has been found to improve the level of knowledge, confidence and execution of smoking cessation interventions. A number of studies have shown absence of knowledge and training as a major obstacle (Saito et al, 2010, Shibly, 2010). A study (Shibly, 2010) in agreement concluded that if the required training is given to pre-doctoral students, they can be effective in motivating patients to stop smoking. The dentist must be made to look at tobacco as a dental problem imparting the necessary counselling skills and knowledge on medications will build confidence and capacity in the dentist to effectively handle smoking cessation (Johnson, 2004).

The third most common barrier reported was lack of remuneration where nearly one fifth of the respondents (10.4%) indicated that it acted as a barrier to offering smoking cessation.

Contrary findings in study by Albert et al (2005) identified lack of reimbursement a major obstacle. The difference in these two populations could be due to the way they perceived their role in smoking cessation. Dentists in private practice may have felt that if they offered smoking cessation services, the patients, and the patient does not pay there will be no compensation for their time. The dentists in public practice may have felt it was never captured in their scope of work.

While fear of losing patients was stated as a major obstacle to provision of smoking cessation interventions by Albert et al (2005) & Kenneth et al (2010), this study did not find it as a major obstacle. This could be due to differences in access to health care in the two populations.

## **5.6 Conclusion**

Based on the findings of this study, the following was concluded

- 1) That lack of confidence among the dentists in the provision of smoking cessation interventions was attributable to insufficient knowledge and training in smoking intervention method.
- 2) That dentists in the study population were not motivated enough to provide smoking cessation interventions to their patients.
- 3) That dentists who had been trained on smoking cessation interventions had more positive attitude.

## **5.7 Recommendations**

Based on the findings of this study, the following was recommended.

1. There is need to expose both practising dentists and dental students on smoking cessation interventions skills by way of CPDS.
2. There is need to put more emphasis during training of dentists on the need for them to embrace provision of smoking cessation interventions to their patients since they meet many such persons during their routine work.
3. There is need to review the training curricula for training dental students to include content on smoking cessation interventions.
4. Another study among other health cadres and dentists outside of Nairobi needs to be done for more representativeness and thus give for more comprehensive and informative results.

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# APPENDICES

## Appendix I: Consent Form

### Introduction

My name is Dr. Jane Wamai, a dentist and a public health student at the University of Nairobi. Am conducting a study among dentists on knowledge, attitude and practices of dentists in Nairobi towards smoking cessation and factors affecting delivery of smoking cessation intervention. To carry out this study am handing out a questionnaire with a series of questions. There is no associated risk in taking part in this study. Your name will not be indicated on the questionnaire. The report will also not reveal your name or identity. The study will assist in bridging the gap between the dentist and their role in helping control smoking in their patients and in the larger population, so your replies will be highly appreciated.

### Consent

I certify have been explained what the study entails, and I understand that all the information I give will be treated in strict confidentiality. I understand I can contact the principle investigator on 0737822337 or the secretary Kenyatta National Hospital and University of Nairobi Ethics and Research Committee TEL 0202726300 EXT 44102 P.O BOX 20723 NAIROBI in case of any questions.

Therefore, I hereby AGREE/ DON'T AGREE to participate in the study.

.....

Signature of participant

.....

Date

.....

Investigator / Research Assistant

.....

Date

## Appendix II: Structured Questionnaire

**Instructions:** kindly complete the following questionnaire using the instructions provided for each set of question. Tick appropriately.

**Confidentiality:** The responses you provide will be strictly confidential. No reference will be made to any individual(s) or organization in the report of the study.

### PART A: SOCIAL-DEMOGRAPHIC INFORMATION

1. Gender

Male             Female

2. Smoking status of the dentist

Smoker

Non smoker

Previous smoker (has not smoked for the last one year)

3. Year of dental school graduation (How many years since graduation)

<1 years

1-5 years

6-10 years

> 10 years

4. Average number of patients seen per week

<20

20-40

41-60

>60

5. Type of practice (circle where appropriate)

Public             Private

6. Level of education

specialist

general dentist

7. Have you had any training in smoking cessation intervention?

YES  NO

**PART B: KNOWLEDGE ON SMOKING CESSATION**

8. To what extent do you agree that majority of the dentist have knowledge about smoking cessation?

Strongly agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly disagree [ ]

9. Name five interventions that would facilitate smoking cessation?

- -----
- -----
- -----
- -----
- -----

10. Please tick those that you think would cause relapse after smoking cessation.

Variable	YES	NO
Social pressure		
Severity of addiction		
Coping with emotional stress		
Coping with interpersonal conflict		
Smoking just one cigarette post smoking cessation		

**PART C: ATTITUDE ON SMOKING CESSATION**

11. Please tick the extent that best describes your feelings about the different aspects of smoking cessation intervention in relations to you as dentist

Variable	Great extent (5)	Considerable extent (4)	To some extent (3)	A little bit (2)	Not at all (1)
Responsibility as a dentist to provide smoking cessation counseling					
The effectiveness of smoking cessation counseling provided by a dentist					
Your confident in the ability to effectively offer smoking cessation counseling					
patients expectation to be offered smoking cessation advice from dentist					
How optimistic you are in patients' ability to change their smoking habits					



**PART D: PRACTICES ON SMOKING CESSATION**

12. On a scale of 1 to 5 where 5 is great extent, 4 considerable extent, 3 to some extent, 2 a little bit, 1 not at all. Please rate the extent of tobacco control that you practice.

Variable	Great extent	Considerable extent	To some extent	A little bit	Not at all
Enquire about patient's smoking status					
keep a record of patients smoking status					
Offer smoking cessation counseling to your patients					
Explain to patients' health risk associated with smoking					
provide advice or helpful hints to motivate patients to quit smoking					
provide reading materials on smoking cessation in your waiting area					

13. What determines if smoking cessation will be offered for those dentists that offer an intervention occasionally?

- Patients enquires about smoking cessation
- Patient has a tobacco related condition
- Time on my hands with the patient
- Others (Specify) \_\_\_\_\_

14. Which other smoking cessation interventions apart from counseling do you frequently use to help smokers quit.

.....  
 .....

15. What suggestions can you give concerning knowledge, attitude and practices of dentists in Nairobi towards smoking cessation?

.....  
 .....

16. Are you aware of any smoking cessation center in Nairobi?

.....  
 .....

17. On a scale of 1 to 5 where 5 is great extent, 4 considerable extent, 3 to some extent, 2 a little bit, 1 not at all. Please rate the degree to which any of the following act as barriers to you

<b>Variable</b>	<b>Great extent</b>	<b>Considerable extent</b>	<b>To some extent</b>	<b>A little bit</b>	<b>Not at all</b>
lack of knowledge in smoking cessation					
Lack of remuneration					
Lack of time in my practice					
fear patients may leave the practice if counseled to give up smoking					
Lack of interest in smoking cessation intervention					
lack of training in smoking cessation					

18. In your opinion what are some of the measures that can be implemented to overcome barriers indicated in question 17 above

<b>Variable</b>	<b>Solutions to indicated barriers</b>
lack of knowledge in smoking cessation	
Lack of remuneration	
Lack of time in my practice	
fear patients may leave the practice if counselled to give up smoking	
Lack of interest in smoking cessation intervention	
lack of training in smoking cessation	

**Thank you for your time and co-operation**

### **Appendix III: Interview Guide to expert in- depth interviews**

#### **Information about confidentiality**

All the information obtained will be held in strict confidentiality. No information of any kind will be released to any other person or agency without your permission expressed in writing

Copies of written consent will be provided.

The following will be used as a guide. The discussion will be taped. The question will be asked in the order they are written to maintain flow of the discussion

1. What is the smoking prevalence in Kenya? Should it be of any concern to the dentist?
2. What do you think is the knowledge status among dentists in Nairobi and in your opinion does the amount of knowledge the dentist have influence their participation in smoking cessation interventions?
3. How effective is nicotine replacement as a method of smoking cessation intervention?
4. What do you think are the causes of relapse after smoking cessation?
5. In your opinion what is the attitude of the dentist towards smoking cessation intervention?
6. Do you think patients get smoking cessation intervention from the dentist and can you estimate the level (low, medium or high)? Do you think it's effective?
7. Which other smoking cessation interventions apart from counseling do you think dentists frequently use to help smokers quit?
8. Do you think dentists explain to patients' health risk associated with smoking?
9. How optimistic are you in patients' ability to change their smoking habits?
10. What are the factors /barriers that affect delivery of smoking cessation interventions by the dentist? Does NACADA/ MINISTRY OF HEALTH have a guideline to the dentist on effective smoking cessation intervention? Would you be willing to train if necessary?

11. What do you think are the motivation factors to dentists to enable them offer smoking cessation intervention?
12. What is your opinion on knowledge, attitude and practices of dentists in Nairobi towards smoking cessation intervention?

**Thank you for your time and co-operation**

### Appendix IV: Organization of the Study/Work Plan/Logistics

ACTIVITY	Jan 2011	March 2011	April 2011	May 2011	June 2011	may 2012	Jul 2012	Aug 2012	Sep 2012
Proposal development and approval									
Ethics committee									
Pre-testing questionnaire									
Data collection									
Data analysis									
Thesis write up and submission									

## Appendix V: Cost Estimate/Budget

Item description	Quantity	Cost per item	Total
Supervisory fee	-----	-----	130,000/=
Photocopy papers	3 reams	450/=	1350/=
Typing	-----	-----	2000/=
Transport	3 months	16,000/= per month	48,000/=
Internet services	-----	-----	3000/=
Printing	-----	-----	6000/=
Binding of thesis	-----	-----	500/=
Data analysis and interpretation	-----	-----	3000/=
Contingency	-----	-----	20,000/=
<b>TOTAL</b>	-----	-----	<b>213,850/=</b>

## Appendix VI: KNH/UON-ERC Letter of Approval



**KENYATTA NATIONAL HOSPITAL**  
Hospital Rd. along, Ngong Rd.  
P.O. Box 20723, Nairobi.  
Tel: 726300-9  
Fax: 725272  
Telegrams: MEDSUP", Nairobi.  
Email: [KNHplan@Ken.Healthnet.org](mailto:KNHplan@Ken.Healthnet.org)  
14<sup>th</sup> July 2011

Ref: KNH-ERC/ A/173

Dr. Jane Gachambi Wamai  
School of Public Health  
University of Nairobi

Dear Dr. Wamai

**Research Proposal: "Smoking cessation interventions: Knowledge, Attitudes and Practices among Dentists in Kenya" (P184/05/2011)**

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This is to inform you that the KNH/UON-Ethics & Research Committee has reviewed and **approved** your above revised research proposal. The approval periods are 14<sup>th</sup> July 2011 to 13<sup>th</sup> July 2012.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimens must also be obtained from KNH/UON-Ethics & Research Committee for each batch.

On behalf of the Committee, I wish you a fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of the data base that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

**PROF A N GUANTAI**  
**SECRETARY, KNH/UON-ERC**

c.c. The Deputy Director CS, KNH  
The Director, School of Public Health, UON  
The HOD, Records, KNH  
Supervisors: Prof. Olenja Joyce, School of Public Health, UON  
Ms. Kinoti Mary, School of Public Health, UON