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PREVALENCE, RISK FACTORS AND EPIDEMIOLOGY OF TOBACCO USE AMONG STUDENTS; AND THE IMPLEMENTATION OF TOBACCO CONTROL POLICES IN THE GAMBIA

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Abstract

Background

Tobacco consumption, and consequent morbidity and mortality, are expected to grow most markedly over the coming decades in Low and Middle Income Countries (LMICs). The WHO Framework Convention on Tobacco Control (FCTC) was developed in response to the globalisation of the tobacco epidemic and it presents a unique opportunity to reduce the global burden of tobacco. However, data on smoking in LMICs, particularly in sub-Saharan Africa as well as data on the progress of FCTC implementation are limited. The objectives of this thesis were to obtain a reliable and nationally representative estimate of prevalence of smoking, exposure to Second-Hand Smoke (SHS), smoking susceptibility and to identify the major risk factors among young people and to assess current implementation of tobacco control polices in The Gambia.

Methods

Representative samples of students in grades 7-12 in upper and senior secondary schools throughout The Gambia completed a self-administered questionnaire which included questions on tobacco use, risk factors, and demographic details; indicators of exposure to SHS and indicators of susceptibility to initiating smoking. Semi-structured one-to-one interviews were conducted with 28 members of the National Tobacco Control Committee in The Gambia to assess their awareness of the FCTC and national tobacco control policies, and to assess the achievements in and challenges to the implementation of the FCTC.

Results

The sample comprised 50 schools and 210 classes were identified for the survey. Of 10,395 eligible students, 10,289 (99%; 55% girls and 44% boys, age 12-20 years) participated. The prevalence of ever smoking was 16.7% and current smoking 4.5%. Smoking was more common among students attending private schools, of Christian or all other faiths other than Islam, living with parents, who had smoking allowed in their homes, with family members or friends who smoked. Most smokers (55.6%) wanted to stop, but only 22% received any stop smoking support. The proportion of students reporting any exposure to SHS was 97.0%. Parental education, living with parents and being sent to purchase cigarettes were associated with exposure to SHS both within and outside the home. About 35% of students were unaware of the harmful effects of exposure to SHS. Among the 9831 non-smokers, 33.9% were found to be susceptible to smoking. Smoking susceptibility was associated with socio-demographic characteristic, tobacco advertisements and having positive attitudes towards smoking. The interviews with policy makers showed that The Gambia has made modest progress in tobacco control before and since ratification of the FCTC, particularly in the areas of policy formulation. Whilst several pieces of tobacco control legislation exist, enforcement and implementation remain major challenges.

Conclusions

Interventions to reduce tobacco use and exposure to SHS in school children are urgently needed. Raising students' awareness of the

harmful effects of smoking and reducing the prevalence of adult smoking, extending tobacco advertising restrictions to include point-of-sale, are all important established evidenced-based approaches to preventing the uptake of smoking among students. Finally there are needs to step up efforts that will help to accomplish the obligations of the FCTC. To achieve this, The Gambia should develop specific public awareness interventions, establish cessation services, mobilise adequate resources for tobacco control, capacity building and strengthen surveillance and research to inform policy.

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Publications arising from this thesis

1. **Jallow, I.K.,** J. Britton, and T. Langley, Prevalence and Determinants of Susceptibility to Tobacco Smoking among Students in The Gambia. Nicotine Tob Res, 2018.: official journal of the Society for Research on Nicotine and Tobacco. 2018 Jun 20. PubMed PMID: 29931374. Epub 2018/06/23. eng.
2. **Jallow IK**, Britton J, Langley T Prevalence and factors associated with exposure to second-hand smoke (SHS) among young people: a cross-sectional study from The Gambia. BMJ Open. 2018 Mar 14;8(3):e019524. doi: 10.1136/bmjopen-2017-019524.
3. **Jallow IK**, Britton J, Langley T Prevalence and determinants of tobacco use among young people in The Gambia.. BMJ Glob Health. 2017 Dec 28;2(4):e000482. doi: 10.1136/bmjgh-2017-000482. eCollection 2017
4. **Jallow IK, Britton J, Langley T**. Exploration of policy makers` views on the implementation of the Framework Convention on Tobacco Control in The Gambia. *Nicotine & Tobacco Research*, ntz003, https://doi.org/10.1093/ntr/ntz003.

Presentations

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Poster presentation: Prevalence and determinants of susceptibility to tobacco smoking among students in The Gambia

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Oral presentation: Prevalence and determinants of tobacco use among young people in The Gambia

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Poster presentation:

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- Prevalence and determinants of tobacco use among young people in The Gambia

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Oral presentation: A comprehensive review of tobacco prevalence among young people in The Gambia: Background and early findings

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List of Abbreviations

AFRO	African Regional Office
AMRO	American Regional Office
BAT	British American Tobacco
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Disease
CRR	Central River Region
DHS	Demographic Health Survey
EFA	Education for All
EMRO	Eastern Mediterranean Regional Office
EURO	European Regional Office
FCTC	Framework Convention on Tobacco Control
GBA	Greater Banjul Areas
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GNI	Gross National Income
GPF	Gambia Police Force
GTSS	Global Tobacco Surveillance System
GYTS	Global Youth Tobacco Survey

HDI	Human Development Index
KMC	Kanifing Municipal Council
LGAs	Local Government Areas
LMICs	Low and Middle Income Countries
LRR	Lower River, Region
MDG	Millennium Development Goals
MoBSE	Ministry of Basic and Secondary Education
MoH&SW	Ministry of Health and Social Welfare
MoHERST	Ministry of Higher Education, Research, Science and Technology
MOTA	Manufacture de Tabacs de le`quest African
MRC	Medical Research Council
NBR	North Bank Region
NCDs	Non-Communicable Diseases
NGO	Non-Governmental Organisation
NRT	Nicotine Replacement Therapy
NTCC	National Tobacco Control Committee
OR	Odds ratio
PMI	Philip Morris International
PMIWA	Philip Morris West Africa

RHTs	Regional Health Team RHTs
SEARO	South-East Asia Regional Office
SES	Socioeconomic Status
SHS	Second-Hand Smoke
SSS	Senior Secondary Schools
STEP	STEP wise approach to Surveillance
UBS	Upper Basic Schools
UK	United Kingdom
UN	United Nations
URR	Upper River Region
US	United States
WCR	West Coast Region
WHO	World Health Organisation
WPRO	Western Pacific Regional Office

1 CHAPTER ONE: BACKGROUND AND THE BURDEN OF SMOKING

1.1 INTRODUCTION

The smoking epidemic is one of the world's biggest public health problems and the biggest cause of avoidable premature death and disability (1). While substantial progress is now being made in reducing the prevalence of tobacco smoking in many developed countries, tobacco companies are increasingly looking to the developing world for opportunities to develop new growth in tobacco sales. Tobacco consumption, and in due course tobacco-related mortality, are therefore expected to grow most markedly over the coming decades among low and middle-income countries (2-4). Studies in rich countries show that most smokers begin smoking before age 18 (5), and that between 33% and 50% of those who try smoking even few cigarettes become regular smokers (6). The Gambia has a very youthful population, almost half of whom are aged under 20 years. Preventing smoking experimentation and uptake among young people in The Gambia is thus a clear public health priority. However, data on smoking remain sparse and smoking tends to be under-recognised as a significant public health problem. This thesis therefore studies the epidemiology of smoking among young people and tobacco control policy responses to this public health threat. This chapter describes the smoking epidemic in both developed and developing countries, summarises the key literature on the risk of factors of smoking, reviews the state of the tobacco epidemic in The Gambia and describes current tobacco control policies.

1.1.1 The history of tobacco use

The tobacco plant Nicotina tobacum is known to have been cultivated since the times of the Mayan civilization. Tobacco was used in North America from around 6000BC; during this period, tobacco was mostly used as snuff. In 1492 tobacco was bought to Europe by Christopher Columbus and later by the Portuguese explorer Pedero Alvarez Cabral. Tobacco was introduced more widely in the mid-1500s to China, the Middle East and Africa, and then in the 1700s to Oceania (7). Tobacco products are normally made exclusively or partially from tobacco leaf, and all tobacco products contain a substantial amount of nicotine, an addictive psychoactive element. The end product can be chewed sucked, snuffed and smoked. Over the years the manner of tobacco use has changed, with snuff being the most popular product in Europe in the 18th century; cigars and pipe tobacco being predominant in the 19th century; and in the 20th century, the cigarette (8). However, other tobacco products such as pipes, bidis, shisha and snuff remain popular in some countries (7, 9).

1.1.2 The smoking epidemic model

Lopez et al has described the smoking epidemic in terms of how countries will tend to follow a pattern as the uptake of smoking emerges (10, 11). Evidence suggests that there is a three to four-decade lag between the highest peak of smoking prevalence and the successive peak of smoking related deaths. The epidemic is assumed to move through four distinct stages (see Figure1) during the course of a century:

Stage one: This stage is relatively brief and can be up to a decade or two. Smoking prevalence for both adult males and females will be moderately low (men < 15% and women below 5%); and deaths and diseases attributed to smoking are not yet evident. Most countries in sub-Saharan Africa are believed to be in this stage (11).

Stage two: During this stage, the prevalence of smoking among men rises rapidly, reaching a peak of 50%-80%. Smoking prevalence among women lags behind that of men by a decade or two, however it will be increasing rapidly as well and the proportion of ex-smokers is relatively low (11).

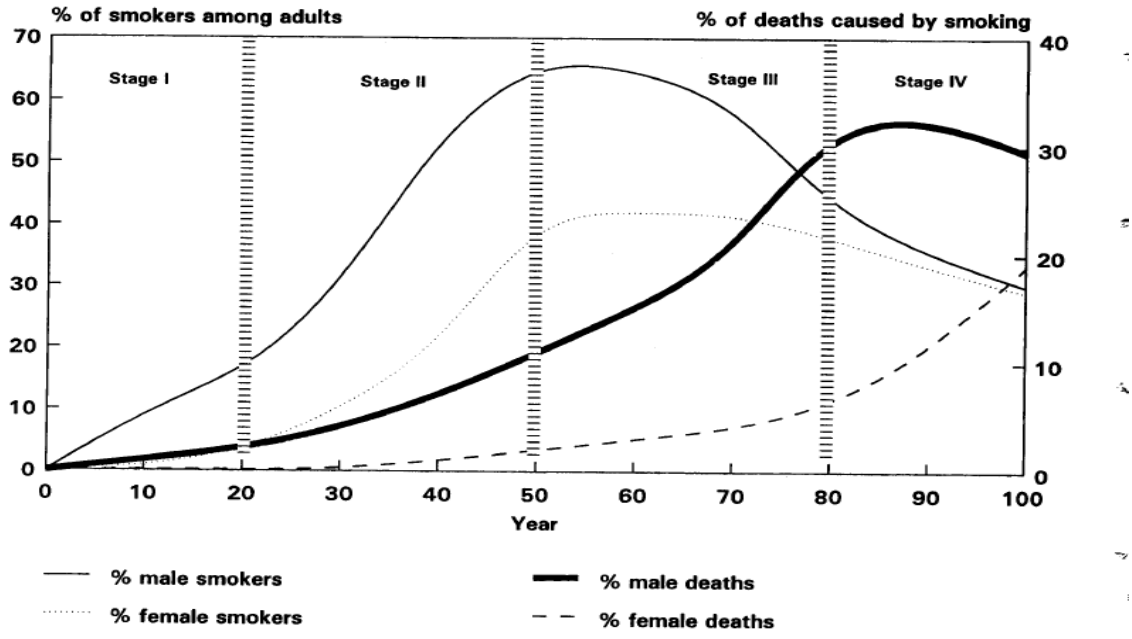
Stage 3: By this time knowledge about the health hazards of smoking has improved and action to address the impact of smoking has already started. The most important characteristic of this stage is the rapid rise in smoking attributed deaths. The end of stage 3 is characterised by an initial decline in female prevalence.

Stage four: Slowly smoking prevalence for both sexes continues to decline. Male smoking related deaths will peak during this phase. Female deaths continue to rise rapidly as the full health impact of female smoking patterns become evident. However, because women's cumulative exposure to tobacco is lower than men's, the peak number of deaths is also lower among women.

The smoking epidemic will vary significantly from one country to another, due to the exact timing, duration, and the magnitude of the epidemic. Furthermore it is feasible to prevent the progression of the epidemic, particularly in sub-Saharan African and other developing

countries currently in the first stage of the epidemic, by undertaking preventive measures now (10, 11).

Figure1.1 **: The four -stage of the smoking epidemic**



From: Lopez eta al, smoking descriptive model of the cigarette epidemic in developed countries, Tobacco control 1994; 3: 242-247.

1.1.3 Adult smoking prevalence in developed countries

The World Health Organization (WHO) estimates that the overall global rate of smoking among adults aged over 15 years has declined from 23.5% in 2007 to 20.7% in 2015, a reduction in smoking of 2.8% in eight years (12). However prevalence is not declining in all countries, and much of the decline since 2007 has been in high-income and middle-income countries, by 4.4% and 2.4% in high-income and middle-income countries respectively. However these countries also remain the groups of countries with the highest average smoking rates in 2015.

Almost three quarters of male daily smokers live in countries with a medium or high Human Development Index (HDI), whereas half of female daily smokers live in very high-HDI countries (13). In many developed countries smoking has been projected to continue to decline in both men and women. In the United Kingdom, for example, there has been a consistent decline in smoking since 1974, when 51% of men and 41% of women smoked cigarettes. The proportion of current smokers of people aged 18 and over in 2017 was 15.1% (7.4 million), with 17.0% of men (around 4 million) and 13.3% of women (3.3 million). Smoking in Britain is most common among 25-34 year olds with 19.7% and the largest decline in smoking since 2011 is found in those aged 18-24 years old, with an 8 percentage point decline since 2011 (14). In many other developed countries smoking continues to decline, however this trend is not typical to all developed countries. For instance five middle- income countries have rising prevalence rates, while about 22 countries have stable rates (13).

1.1.4 Adult smoking prevalence in developing countries

Globally there are about 1.1 billion tobacco users and about 80% of smokers are from low and middle income countries (1). It is estimated that if the current smoking trend continues there will be up to 1.7 billion users by 2025 (2, 15). About 50% of male and 9% of female smokers live in developing countries. Smoking prevalence in developing countries among men is predicted to increase by 5% in 2025 and the highest increases in smoking prevalence are predicted for men in Africa (see table 1.1) (15). The highest cigarette use among men in

Africa has been documented in countries in Eastern and Central Africa and in Madagascar. Smoking prevalence in African countries ranges from 8% to 27.3% (16).

Table 1. 1: Relative change in age-standardise prevalence of current smoking in men and women by WHO region (15).

Men	**Number of countries**	**Direction of trend 2000-10 N (%)**		**≥95% probability 2010–25 N (%)**	
Low-income or middle-income countries*		**Decrease**	**Increase**	**Decrease**	**Increase**
AFRO	40	15(44)	25(56)	1(5)	15(37)
AMRO	23	22(57)	1(1)	13(54)	0
EMRO	13	2(14)	11(73)	0	2(2)
EURO	17	16(27)	1(<1)	4(12)	0
SEARO	9	7(86)	2(14)	3(80)	0
WPRO	20	20(89)	0	1(5)	0
Subtotal	122	82(80)	40(20)	22(40)	7(5)
High-income countries					
AFRO	0	0	0	0	0
AMRO	8	7(42)	1(<1)	3(39)	0
EMRO	6	0	6(13)	0	4(5)
EURO	31	31(73)	0	15(25)	0
SEARO	0	0	0	0	0
WPRO	6	5(11)	1(<1)	3(8)	0
Subtotal	51	43(94)	8(6)	21(56)	4(2)
Total for men	173	125(83)	48(17)	43(43)	21(5)
Women					
Low-income or middle-income countries*					
AFRO	42	36(88)	6(12)	21(50)	0
AMRO	25	25(60)	0	24(60)	0
EMRO	13	7(74)	6(18)	6(74)	0
EURO	18	16(27)	2(1)	6(11)	0
SEARO	9	9(100)	0	7(87)	0
WPRO	20	20(88)	0	7(87)	0
Subtotal	127	113(96)	14(4)	73(88)	0
High-income countries					
AFRO	0	0	0	0	0
AMRO	8	8(40)	0	7(38)	0
EMRO	6	1(4)	5(3)	0	0
EURO	31	27(56)	4(16)	9(16)	0
SEARO	0	0	0	0	0
WPRO	6	6(12)	0	4(9)	0
Subtotal	51	42(88)	9(12)	20(51)	0
Total for women	178	155(95)	23(5)	93(81)	0

Source: Bilano et al 2015

***African Regional Office (AFRO), American Regional Office (AMRO), Eastern Mediterranean Regional Office (EMRO), European Regional Office (EURO), Western Pacific Regional Office (SWPRO) and South-East Asia Regional Office (EARO)

1.1.5 Prevalence of smoking and tobacco use among young people

Tobacco use among young people is widespread and growing globally. It is estimated that 25 million and 13 million teenagers aged 13-15 years old smoke cigarettes or use smokeless tobacco respectively (13). The majority of smokers begin tobacco use before they reach adulthood. Among those young people who smoke, nearly one-quarter smoked their first cigarette before they reached the age of ten. Recent trends indicate an earlier age of initiation and rising smoking prevalence rates among children and adolescents will result in the deaths of 250 million of young people if these current patterns continues, many of them in the developing countries (17). For instance in the United States (US), if current smoking rates among youth continue, 5.6 million, or around one in every 13, of today's Americans younger than 18 will die early from a smoking-related illness (18). Another major concern about smoking prevalence among young people is increasing female smoking rates in several low-to high HDI countries (13). In some of these countries, smoking among young girls is now even more common than among adult women or even adolescent boys.

Even though cigarettes are the most common type of tobacco product used by young people, use of other tobacco products is also common in many populations. For instance, smokeless tobacco was the most common type of tobacco product used by 13-15 year old students in 2011 in Nepal, with a prevalence of 19.7% and 12.9% in boys and girls respectively (19). Historically the smoking of water pipe or hookah was

more common in Asia and North Africa; however this is now becoming popular among younger adults in some countries (20, 21).The use of more novel nicotine-containing products among young people, such as e-cigarettes, has also increased in some HDI countries (13).

1.2 Smoking attributed morbidity

Studies of the health consequences of smoking have conclusively attributed a range of cancers, cardiovascular diseases and respiratory/lung diseases to tobacco use. Smoking significantly increases the risk of lung cancer (22): men who smoke are 23 times, and women 13 times more likely to develop lung cancer than non-smokers (23). Smoking also increases the risk of coronary heart disease and stroke by 2- 4 times (23). Smoking during pregnancy can also cause harm to the unborn child, being associated with stillbirth, congenital malformation, low birth weight, premature birth and perinatal mortality (24). Smoking at an early age increases the risk of lung cancer and for most smoking-related cancers, the risk rises as the individual continues to smoke(18). On average, smokers who smoke a pack or more of cigarettes each day live 10 years less than someone who never smoked (25)

1.2.1 Smoking attributed mortality

Tobacco use has been a recognized as a leading cause of premature death and as many as 50% of all long-term smokers will die during middle age, losing 20-25 years of productive life (22). Recent research suggests that approximately 7.l million people (5.1 million men and 2.0

million women) die each year from tobacco use; more than malaria, tuberculosis and HIV/AIDS combined (12, 13).

Globally the highest proportion of deaths attributed to tobacco deaths are in Europe and the America region, where tobacco has been in use for a long time and tobacco-attributed deaths are higher among men than among women (26). Although most deaths currently occur in developed countries, what is equally alarming is the fact that the epidemic has moved to the developing world, where low- and middle-income countries struggle to combat a tobacco industry seeking to pursue new markets (12). Thus tobacco related mortality is also expected to shift to developing countries over the coming years.

Total smoking attributable deaths shows large inter-regional heterogeneity especially in developing countries and are mostly age and gender specific (27). Sub-Saharan Africa appears to differ from other regions of the world in having reached only the early stages of the cigarette epidemic. Estimates suggest that deaths from smoking-attributed causes reach only 5–7% for men and 1–2% for women in developing countries (27). This is due to the relatively low prevalence of smoking and high rates of deaths from AIDS, starvation, and violence that more immediately threaten the health of citizens in Africa (28). This may suggest that the burden of tobacco use is not serious; however this could change quickly, due to weak tobacco control polices and promotions directed at young people in Africa. Global estimates of the mortality caused by smoking are important to provide the basis for

international tobacco control efforts such as the Framework Convention on Tobacco Control (FCTC) (29).

1.2.2 Health effects of smoking among young people

The short-term health consequences of smoking among young people include respiratory illness, and addiction to nicotine. The long-term health consequences of smoking among young people is reinforced by the fact that majority of the young people who smoke regularly will continue to smoke all the way through adulthood (9). The resting heart rates of young adult smokers are two to three beats per minute faster than non-smokers (30). Young smokers are three times more likely to suffer from shortness of breath and twice more likely to produce phlegm compared to teens who don't smoke Studies have shown that early signs of heart disease and stroke due to smoking can be found in adolescents who smoke (9). Teenage smokers are more likely to have seen a doctor or other health professionals for an emotional or psychological complaint (31).

1.2.3 Progressive stages of young people smoking

Young peoples' uptake of smoking has often been conceptualized as a process through a series of six stages (6, 32). The first stage is the non-smoking stage; an adolescent who has never smoked and has no intention to do so. The second is the contemplation or preparatory stage, in which the young person starts to consider smoking and starts to form positive beliefs about smoking (33). The third stage involves smoking experimentation; this is characterised by smoking one or two cigarettes occasionally. The fourth stage is characterised by regular

smoking; generally there is a gradual increase in the range of situations in which cigarettes are smoked and in the frequency of smoking. In the fifth stage, adolescents progress beyond sporadic smoking to smoking on a more regular basis. The final stage is established smoking where adolescents smoke daily or almost every day or have developed nicotine dependence or addiction. Once adolescents reach the final stage, the development of an internally regulated need for nicotine occurs which is characterised by three factors: tolerance, withdrawal symptoms upon quitting and high probability of resuming use after quitting (34).

1.3 Risk factors for smoking and tobacco use among young people

Adolescence represents a critical period of vulnerability for the onset and progression of smoking. Thus, understanding the factors associated with smoking are important in determining whether these risk factors are similar for both onset of smoking and maintenance. A number of factors are known to be associated with youth smoking initiation, continued smoking and tobacco use (34, 35). These factors can be grouped as follows; sociodemographic factors (gender, race/ethnicity and culture, socioeconomic status, developmental challenges; such as gender and race/ethnicity), environmental factors (interpersonal variables, acceptability and availability of tobacco products and perceived environmental variables), behavioural factors (influence of peer groups, academic achievements, life style and risk

behaviour) and personal factors (knowledge of the harmful effects of tobacco use, attitudes to smoking, self-esteem and personality) (35). Other factors that that have been identified to affect youth tobacco use include biological and genetic factors (36).

1.3.1 Age, gender and socioeconomic status

Age plays an important role in determining smoking risk in that adolescents who try smoking at younger ages are more likely to continue to become regular smokers and to be more nicotine dependent as adults (37, 38). Smoking initiation and prevalence among young people usually increases with age and school year (39). The difference between genders in smoking prevalence exists worldwide, but the magnitude of the difference varies across countries (40). Historically smoking prevalence has been higher among boys than girls, however over the last two decades the magnitude of the difference has become smaller and in some countries there is no difference at all. For example the 2000-2007 Global Youth Tobacco Surveys (GYTS) showed that the prevalence of cigarette smoking was significantly higher in boys in girls in Africa, the Western Pacific, Southeast Asia and the Eastern Mediterranean but not in Europe and the Americas (40). Various studies have shown associations between socioeconomic status and smoking both in adults and young people (41-44). Socioeconomic Status (SES) among young people is derived from measures such as parental education, parental occupation or income, access to resources and neighbourhood or school level SES (35). Generally, higher smoking rates have been found among low SES

adolescents (45, 46). However a fair number of studies finds no or an inverse association (38, 47, 48). These discrepant findings regarding SES and adolescent smoking may be moderated by racial, ethnic, and cultural factors. For example Goodman *et al* found in a United States (US) national longitudinal study that low SES was a risk factor for smoking among white adolescents but that high SES was a risk factor for smoking among non-white adolescents (49). In a similar study in Canada Georgiades et al, showed that low SES at family level was a risk factor for smoking but the association was limited to native-born Canadians (50). Economic factors are thought to be associated with tobacco use. Several studies have associated young people risk of smoking with access to money, adolescents with higher spending money being significantly more likely to experiment with smoking (51, 52).

1.3.2 Culture, ethnicity/race and religion

Several studies have reported pathways through which racial, religious and cultural factors have been linked to youth smoking. Furthermore, ethnic identity, racial/ethnic discrimination and the process of acculturation are among other factors that have been linked to young people smoking. In a study in the United States Landrine et al (53) reported that the amount of smoking was different among blacks, Asians, Hispanics and Whites living in the same communities. Risk factors such as perception of ethnic discrimination and victimization directed at certain ethnic groups was associated with an increased risk of smoking among adolescents (54, 55). In contrast, pride and having

cultural norms prohibiting smoking was found to be associated with lower risk of smoking (56).

1.3.3 Parent, sibling and peer smoking status

Several studies have shown that smoking by parents, siblings or other family members is a strong and significant influence on young peoples' smoking initiation and uptake (57-59). Studies have shown that the effect of individual family member smoking is strongest for smoking by the mother, but even stronger when both parents smoke, with a nearly threefold increase in risk (57). Furthermore the effects of parental smoking on smoking among youth can be seen in both boys and girls but the effects has been shown to be stronger for girls (60). Young peoples' perceptions of their friends' and peers' smoking behaviour are associated with adolescents' own smoking (61, 62). This is mostly influence through social learning whereby adolescents learn about tobacco use by observing peers who use tobacco and are reinforced for using tobacco by perceiving apparent advantages, such as gaining acceptance by peers or establishing a particular social identity (63). Other mechanisms of influence include direct pressure to smoke and offers of cigarettes or other tobacco products (35).

1.3.4 Social and physical environment

The social and physical environment involves influences outside the individual's immediate family and friends or peer groups that may make tobacco use more or less tolerated or enjoyable. Generally these are distal factors that affects a person`s perception about the acceptability of tobacco use, belief about social image of tobacco use and the

availability of tobacco and places of use(63). The social environment describes the norms within a society about whether, when and for whom smoking is acceptable. This sets the stage for adolescents to begin using tobacco. Furthermore, acceptance of smoking as a normal behaviour can also influence smoking in the social environment (35). The physical environment involves features of public and private spaces that make smoking more or less tolerated. Another important aspect of the physical environment is the relative accessibility of tobacco products (35). Strict enforcement of policies that ban retail sales of cigarettes to minors, sales of cigarettes using vending machines, and other means by which youth can gain access to tobacco in the commercial setting can limit their opportunities to obtain these products (64, 65).

1.3.5 School environment

Young people spend approximately one-third of their time in the school environment. The school setting is frequently used to educate youth about the risks of tobacco use and to implement anti-tobacco policies. The school environment can either promote or protect against youth smoking behaviour, for example through the level of tolerance of smoking activity among students or teachers within school premises. Studies comparing schools with high versus low smoking rates have found that attending a school with a relatively high smoking prevalence increases susceptibility to smoking among non-smoking students (66, 67). School smoking restrictions or anti- tobacco policies can significantly curb youth smoking behaviour, both on and off school premises, when strictly enforced (68). In addition to school

characteristics, factors within the school vicinity such as the density of tobacco outlets in proximity to schools pose as a possible risk factor for youth smoking. Henriksen et al colleagues (69) found that the prevalence of smoking was 3.2 % higher among students in schools with highest density of tobacco retail outlets within the school surroundings compared to students in schools without tobacco retail outlets.

1.3.6 Educational and academic achievement

Low academic achievement is known to be associated with smoking among children and adolescents. Among middle and high school students several studies have found that students who smoked have lower grades than those who did not smoke (70-72). This association appeared to be bidirectional in some studies, with poor grades preceding the onset of smoking and smoking preceding poor grades (72). Connectedness with school such as commitment to school, good relationships with teachers, and a feeling of belonging in school has been consistently associated with a reduced risk of smoking (73, 74). Young people who experience difficulties at school may also feel less connected to their school compared to their high-achieving peers, putting them at greater risk for smoking.

1.3.7 Genetics and neurobiological influence on smoking behaviour

Heritability for tobacco use is more strongly associated with regular use and dependence than with the early stages of tobacco use, suggesting that addiction to tobacco may have a relatively strong genetic

component. In most, but not all, twin studies on the aetiology of smoking behaviour, genes have been found to be associated with the risk of cigarette use, particularly among women (75, 76). However, the expression of genetic risk for smoking is moderated by a group of factors such as peer smoking, parental monitoring, and larger social environmental factors (e.g school-level norms, the prevalence of smoking among popular youths) (75, 77). Cognitive-level factors may also be associated with tobacco use. More research is needed, but some evidence suggests that some youth become dependent on nicotine shortly after trying tobacco while others do not (35). Additionally, although available studies show mixed results, some evidence indicates that smoking during pregnancy may increase the likelihood that offspring's will become regular smokers. However, all of these neurobiological factors are moderated by other environmental factors.

1.4 Exposure to Second-Hand Smoke (SHS)

Second-hand smoke is one of the most dangerous widespread exposures in indoor environments. Second-hand smoke usually comes from cigarettes, but smoking other tobacco products (such as waterpipes) is common in some populations. In 2016, an estimated one-fifth of males and one-third of females globally were exposed to second-hand smoke. In 2004, 40% of children, 33% male and 35% female non-smokers were exposed to indoors second hand tobacco smoke worldwide (78). Exposure to second-hand smoke is associated with numerous adverse health effects, even among children and unborn

babies, and causes substantial mortality and morbidity globally. It is estimated that 884, 000 global deaths are as the result of non-smokers being exposed to second-hand smoke (13, 26). including 165,000 deaths among children, of which about 60% occur in Africa and South-East Asia (79). Approximately 80% of passive smoking deaths occur in low and middle-income countries and the vast majority of these countries are in the African region (80). The years of life lost due to ill-health, disability, or early death because of second-hand smoke were 6.4 million for lower respiratory infections, 2.5 million for Chronic Obstructive Pulmonary Disease (COPD), and more than 200,000 for middle ear infection (13). Exposure to second hand-smoking increases the risk of lung cancer, heart disease and lead to the development of severe symptoms of shortness of breath, coughing, nausea, headache, exacerbation of bronchitis and asthma (23). The prevalence of exposure to second-hand smoke in sub-Saharan Africa is low simply due to relatively low smoking prevalence. However, with current trends, many of these countries are likely to see a substantial increase in smoking, and consequently, second-hand smoke prevalence. Within countries, some groups demonstrate higher exposure levels and related burden, such as those of lower socioeconomic groups and non-smoking women. In many populations, homes are the main place of exposure to second-hand smoke for women and children. The WHO Framework Convention on Tobacco Control (WHO FCTC) has established that 100% smoke-free environments are the only proven way to adequately

protect people from the harmful effects of second-hand tobacco smoke (26).

1.5 Smokeless tobacco use

Smokeless tobacco products are consumed without combustion or pyrolysis at the time of use, but despite the lack of smoke, use of these products contributes significantly to the global tobacco problem (81). The prevalence of use of smokeless tobacco is very high in South Asia and is also relatively high in many other countries. There is a great diversity of smokeless tobacco products and patterns of use across the globe (82). Oral use is by far the most common behaviour, while nasal use is rare. There are many different forms of the product which comes under different names depending on where they are found. In South-East Asia one-third of tobacco is consumed in smokeless form; wrapped in a betel leaf with area nut, slaked lime and catechu. Other products (e.g. gutkha, khaini) contain slaked lime, areca nut, flavourings, and aromatic substances (9). A number of products based on powdered tobacco (e.g. snus) are also consumed in Nordic countries and North America. The most commonly used smokeless products in other parts of the world include Chimó (Venezuela), Nass (Uzbekistan, Kyrgyzstan), Tambook (Sudan, Chad), and Snuff (Nigeria, Ghana, South Africa) (81) .

There is conclusive evidence that certain smokeless tobacco products increased risk of oral cancer, specifically betel quid with tobacco, tobacco with lime, and other tobacco mixtures in South Asia, and smokeless tobacco in the United States (82, 83) . Evidence for

associations between smokeless tobacco use and other cancers is inconclusive (82). Smokeless tobacco use is typically higher among women in the African region than in men, but generally higher among men in Europe. For example, in Sweden the prevalence of smokeless tobacco use among men is 19%, and 4.9% in women. In Africa, studies from South Africa and Mauritania indicate high prevalence among women of 4.9%, 2.4% and 26.1%, 10.9 among women and men respectively (84).

1.6 Effective tobacco control polices and strategies

As outline above the global burden of tobacco use is significant and therefore actions are needed to control the tobacco epidemic. According to the WHO, tobacco control involves a range of demand, supply and harm reduction strategies that aim to improve the health of a population by reducing and eliminating consumption of tobacco products and exposure to tobacco smoke (85). Therefore tobacco control aims predominantly at the following (86):

1. Influencing the behaviour of current and future tobacco users by motivating current users to quit and preventing young people from initiating smoking
2. Limiting the influence of the tobacco industry on the behaviour of current and potential tobacco users
3. Reducing the harm arising from the use of tobacco products

1.6.1 The Framework Convention on Tobacco Control

At an international level the WHO Framework Convention on Tobacco Control (FCTC) was adopted at the 56th WHO assembly meeting and

subsequently entered in to force in 2005 and became a legally binding treaty. The FCTC consists of 38 Articles divided in eleven parts outlining core principles for effective tobacco control (Table 1.2). The Convention describes the principles for developing tobacco control guidelines at national level that will help control the tobacco epidemic(85). It aims to tackle some of the causes of the tobacco epidemic, such as advertising, promotion and sponsorship, illicit trade and cross border effects. As of 2015, 43 of the 47 countries in the African Region have ratified the WHO FCTC (38 ratification and 5 accessions) (87). There are large variations in the overall implementation of the WHO FCTC guidelines in Africa, ranging from 9% in Sierra Leone to 78% in Kenya (88).

Table 1. 2: Brief summary and overview of the FCTC articles

Article	Description	Specific articles	
1-2	Use of terms and relationship between the convention and parties; and legal instruments	Article 1	Use of terms
		Article 2	Relationship between this Convention and other agreements and legal instruments
3-5	objectives, guiding principles and general obligations engendered by the treaty;	Article 3	Objective
		Article 4	Guiding principles
		Article 5	General obligations
6-14	Measures relating to the reduction of demand for tobacco	Article 6	Price and tax measures to reduce the demand for tobacco
		Article 7	Non-price measures to reduce the demand for tobacco
		Article 8	Protection from exposure to tobacco smoke
		Article 9	Regulation of the contents of tobacco products
		Article 10	Regulation of tobacco product disclosures
		Article 11	Packaging and labelling of tobacco products
		Article 12	Education, communication, training and public awareness
		Article 13	Tobacco advertising, promotion and sponsorship
		Article 14	Demand reduction measures concerning tobacco dependence and cessation
15-17	Measures relating to the reduction of the supply of tobacco	Article 15	Illicit trade in tobacco products
		Article 16	Sales to and by minors
		Article 17	Provision of support for economically viable alternative activities
18	Protection of the environment	Article 18	Protection of the environment and the health of persons
19	Questions related to liability	Article 19	Liability
20-22	Scientific and technical cooperation and communication of information	Article 20	Research, surveillance and exchange of information
		Article 21	Reporting and exchange of information
		Article 22	Cooperation in the scientific, technical, and legal fields and provision of related expertise
23-26	Institutional arrangements and financial resources	Article 23	Conference of the Parties
		Article 24	Secretariat
		Article 25	Relations between the Conference of the Parties and intergovernmental organizations
		Article 26	Financial resources
27	Settlement of disputes	Article 27	Settlement of disputes
28-29	Development of the convention	Article 28	Amendments to this Convention
		Article 29	Adoption and amendment of annexes to this Convention
30-38	Final provisions	Article 30	Reservations
		Article 31	Withdrawal
		Article 32	Right to vote
		Article 33	Protocol
		Article 34	Signature
		Article 35	Ratification, acceptance, approval, formal confirmation or accession
		Article 36	Entry into force
		Article 37	Depositary
		Article 38	Authentic texts

In addition to the FCTC the WHO has produced **MPOWER**, a measure intended to aid the implementation of the FCTC. It encompasses the following areas of tobacco control: **M**onitoring the epidemic and prevention policies, **P**rotect people from exposure to second-hand smoke, **O**ffer help to quit, **W**arn about the dangers of tobacco use, **E**nforce bans on tobacco advertisements, sponsorship and promotion, and **R**aise taxes on tobacco products (88, 89). Each of these polices is described in more detail in the following sections.

1.6.2 Monitoring tobacco use and prevention polices

National and international monitoring of tobacco use is essential for the effective fight against the tobacco epidemic. Comprehensive monitoring informs policy makers and governments how the epidemic is affecting their countries, helps to allocate tobacco control resources and ensures that tobacco control policies are working. Good and effective monitoring systems should track several indicators including prevalence of tobacco use, impact of policy interventions and tobacco industry marketing promotion and lobbying (89). However effective monitoring still remains a major challenge particularly for LMICs. In high-income countries only 5% (three countries) have weak tobacco use monitoring systems. In contrast 15% (16 countries) in middle-income countries and more than half (16 countries) in low-income countries have weak tobacco use monitoring or no national surveys at all (12).

1.6.3 Protecting people from tobacco smoke

There is no safe level of exposure to second-hand smoke and only 100% smoke-free environments can therefore provide adequate protection (12). Comprehensive smoking bans in indoor public areas and work places also have an effect on smoking prevalence (89). For example in high income countries, smoke-free laws in workplaces and public places have been shown to reduce tobacco use by 3-4% and in smoke-free workplaces smokers were twice as likely to quit compare to smokers who work in places where smoking is allowed (89, 90). In addition there is significant evidence that smoke-free laws can lead to improvement in the health of the general population. Patrick et al found that in regions where comprehensive smoke-free laws were introduce there were significant reduction in the cardiovascular health burden of the general population (91). Globally as of 2016 comprehensive smoke-free legislation was in place for 20% of the global population (in 55 countries). Despite the progress made in smoke-free policy adoption, the populations of three-quarters of all countries, including 88% of low-income countries, are vulnerable to the dangers of second-hand smoke due to weak or absent smoke-free laws (92). Currently only seven countries in the African region have comprehensive smoke-free legislation covering all types of public places or at least 90% of the population covered by complete sub-national smoke-free legislations (12).

1.6.4 Offering help to quit tobacco use

Most smokers want to quit, especially if they are aware of the health consequences cause by tobacco use, and the majority of users regret ever having started smoking (93, 94). However due the extremely addictive nature of tobacco products it is difficult for most users to quit without some form of assistance. About 90-95% of daily smokers who try to quit without some form of aid or help will relapse (95). It is a country's health-care system's (including government, private clinical services and NGOs) responsibility to provide treatment for tobacco dependency. Tobacco dependence treatment includes several methods such as pharmacotherapy, telephone help lines known as quit lines, and counselling. Cessation services are most effective if they are integrated as a component of a comprehensive national tobacco control programme (12) and WHO recommends offering cessation services as part of primary health care. Cessation treatment is one of the most under-used MPOWER measures in terms of countries achieving best practice level with less than one third of high-income countries, one in 10 middle-income countries and only one low-income country offering complete or full cessation support (12).

1.6.5 Warning about the dangers of tobacco use

Despite the overwhelming evidence about the dangers of smoking tobacco, a relatively large number of smokers worldwide are not fully aware of the risk to their health and to the health of other people exposed to their smoke (41). Many people start smoking during adolescence or young adulthood and people in these age groups are

generally less concerned about the health risks associated with smoking; and are more likely to engage in risky behaviours (96, 97). Effective health warning labels about the harms of tobacco use help to raise awareness of the health risks associated with tobacco use and increases the likelihood that smokers will reduce use or even quit smoking (98). Pictorial warnings in particular are also an important source of information for young smokers and also for populations or countries with high illiteracy rates. Furthermore health warnings help to communicate the dangers of smoking and exposure to second-hand smoke to non-smokers (99). Well-designed anti-tobacco mass media campaigns have also been shown to be effective in increasing public awareness of the harmful effects of tobacco use, reducing tobacco use, increasing calls to quit lines and quit attempts, strengthening support for smoke-free polices and reducing exposure to second-hand smoke in many high-income countries (100-103).

1.6.6 Enforce bans on tobacco advertising, promotion and sponsorship

Annually the tobacco companies spend billions of dollars worldwide on advertising, promotion and sponsorship (104), marketing tobacco products to potential users (particularly to young people in low-and middle-income countries) many of whom then become long-term users (105, 106). Thus a key component of tobacco control is to ban all forms of tobacco product marketing which has a significant ability to hinder the industry ability to promote its product. However to be as effective as possible these bans need to be comprehensive (including direct

advertisement, indirect advertisement, promotion and sponsorship) and well-enforced. Comprehensive bans on advertisements, promotion and sponsorship are highly effective in reducing smoking prevalence. However, banning tobacco advertising, promotion and sponsorship of tobacco products remains an under-adopted measure, with only 15% of the world`s population (these covers 51 countries; 12 high-income, 26 middle-income and 13 low-income) covered by a comprehensive ban (12).

1.6.7 Raise taxes on tobacco products

Raising the price of tobacco products through tax is one of the most effective ways to reduce smoking or decrease consumption and helps to encourage users to quit. Higher taxes are particularly effective in preventing young people from starting smoking and reducing tobacco use among lower income groups (107, 108). An increase in the retail price of cigarettes by 10% will reduce consumption by 4% in high-income countries and about 5% in low-and middle-income countries, while prevalence typically falls by about half of the percentage decline in consumption (108). One of the goals of tobacco taxation is to make tobacco products increasingly less affordable, thus governments need to increase tax periodically to ensure that prices rise faster than consumers' purchasing power. Furthermore to maximise the impact of tobacco taxation, increased tax revenues resulting from tobacco tax can be used to finance tobacco control activities and programmes (109). Globally tobacco taxes have remained very low despite strong evidence of the impact of tobacco tax in reducing smoking. Tobacco tax is also

one of the least-achieved MPOWER in terms of population protected by this measure. In 2016 only 10% of the world's population live in countries with sufficiently high taxes. In low and middle income countries only 8% (11 countries) levy taxes on tobacco products best-practice (12). Tax increases create an incentive for smuggling and tax fraud, but where there is good enforcement tax does not increase smuggling. Therefore tobacco tax polices needs to be complemented by adequate law enforcement.

1.7 Factors and challenges affecting implementation of tobacco control

It is highly likely that the tobacco industry will attempt to undermine tobacco control measures and try to resist implementation of effective tobacco control polices (110), thus the WHO has identified some strategies the industry use to resist implementation of tobacco control polices such as using media to influence public opinion, lobbying and funding research to undermine existing evidence on health effect. Analysis of the implementation of the MPOWER package has indicated that opportunities exist for many African countries to improve compliance with WHO recommended best practices for monitoring and curbing the tobacco epidemic (111). There have been cases documented in developing countries in which tobacco companies have made attempts to undermine tobacco control polices, for example in Malawi (112), Philippines and Indonesia (113).

1.8 Profile of the country and smoking in The Gambia

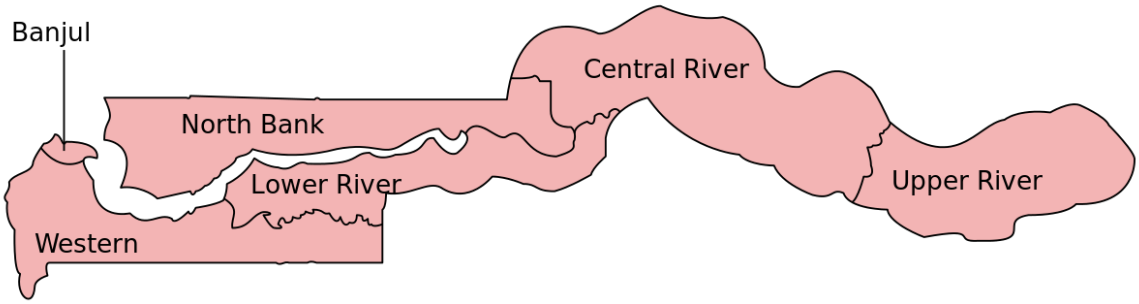
1.8.1 Introduction

This section introduces The Gambia, in particular its demography, culture education and health systems. The section also outlines what is known about the burden of tobacco use, the state of tobacco control and the research gaps in The Gambia. Finally the section provides the rationale for this thesis and the aims and objectives of the research.

1.8.2 Geography

The Gambia is located midway on the bulge of the West African coast and is the smallest mainland country in Africa, bordered in the North, South and East by the Republic of Senegal and the West by the Atlantic Ocean. It stretches over 400 kilometres inland from west to east on either side of the River Gambia, varying in width from about 50 km near the mouth of the river to about 24 km upstream. The river Gambia, which runs the entire length of the country from the Futa Jallon highlands in the Republic of Guinea to the Atlantic Ocean, divides the country's land area of 10,689 square kilometres almost equally into two halves: the South Bank and the North Bank as shown in figure 1.2 (114). The Gambian climate is typically Sahelian, with a long dry season from November to May and a short rainy season between June and October. Agriculture, which is the backbone of The Gambian economy, is mostly rain dependent. As a result, agricultural activities are subject to wide seasonal fluctuations and production levels are vulnerable to variations in rainfall.

Figure 1.2: Map of The Gambia showing all the regions



1.8.3 History

For over two centuries The Gambia was under British colonial rule. The Gambia gained full independence in 1963, dominion status on February 18, 1965 and became a sovereign republic in 1970. The first government served from independence until July 1994 when the country came under military rule following a coup d'état. Democratic civilian rule was restored after two years in September 1996. Since then, presidential and parliamentary elections have been held every five years. The country is divided into seven administrative areas (two municipalities and five regions): Banjul municipality (the seat of the government) and Kanifing Municipality Council (KMC); and West Coast Region (WCR), Lower River, Region (LRR) North Bank Region (NBR), Central River Region (CRR) and Upper River Region (URR). The municipalities are headed by mayors and the regions by governors. The regions are administered by chiefs and councils in the provincial regions are headed by elected chairpersons. Districts and municipalities are divided into wards headed by elected councillors. For the purposes of surveys and censuses, the country is divided into eight Local

Government Areas (LGAs): Banjul, Kanifing, Brikama, Mansakonko, Kerewan, Kuntaur, Janjabureh, and Basse (115).

1.8.4 Demography

According to the 2013 population and housing census the population of The Gambia is 1.9 million, with an annual growth rate of 3.3%. There has been a population density rise from 127 persons per square kilometre in 2003 to 176 in 2013, making The Gambia one of the most densely populated countries in Africa. Brikama LGA has the largest share of the total population with 37.2% of the population residing in this LGA. About 57% of the total population reside in urban areas, and women constitute 51% of the population. The total fertility rate is 5.9 births per woman; this high fertility level has resulted in a very youthful population structure with 46% of the country's population below the age of 15. Average life expectancy at birth is 64 years (62.5 years for males and 65 years for females) (115).

1.8.5 Economic Structure

The Gambia is among the least developed and poorest countries, ranked 173 out of 188 countries in the HDI of 2015 with a per capita Gross National Income (GNI) of about $US 1,541. Around 60% of the population live below the poverty line with a marked variation between urban and rural populations (116). The World Bank estimates the 2016 Gross Domestic Product (GDP) in The Gambia at $962 million. The Gambia has a market-based economy characterised by traditional subsistence agriculture and a significant tourism industry. The services sector continues to be the leading contributor to GDP. Agriculture

accounted for roughly 22% of GDP in 2012 and 2013, and this sector employs about 70% of the labour force (117). Out of the population 7 years and over 45.3% are economically active and the majority are engaged in agricultural activities (56.3% of females and 33.3% of males). Apart from agricultural activities a significant number of people are engaged in service, shop and market sales and trade-related work. However, the proportion of non-Gambians engaged in these sectors is significantly higher compared to Gambians (118).

1.8.6 Religion, ethnicity and languages

In practice, there are only two main religions in The Gambia, Islam and Christianity. Muslims make up about 95% of The Gambian population and 3 or 4% of Christians (119).The Gambia is culturally, ethnically and linguistically diverse. There are about ten indigenous, 'local languages spoken", none are exclusive to The Gambia as each can also be found in Senegal and in other geographically close countries. In government publications and policy documents five (Mandinka, Fula, Wolof, Jola and Serahule) of the local languages are often cited as the main local languages (119). These five languages correspond with the five largest ethnic groups in The Gambia. Even though each local language in The Gambia corresponds to an ethnic group, there is no one-to-one relation language ethnicity. While individuals belong to only one ethnic group, they often speak several languages, and not necessarily the language of their ethnic group.

1.8.7 Health services

The Ministry of Health and Social Welfare (MoH&SW) is responsible for overall policy formulation, planning, organization and coordination of the health sector at national, regional, district and community levels. The country is divided into seven health regions each with a Regional Health Team (RHTs), headed by a regional health director. Health care services are delivered through a network of primary, secondary and tertiary health facilities. At the primary level there are 634 primary health care posts. The secondary level has 7 major health centres, 43 minor health centres and 42 Community Clinics. The Tertiary level has 5 General Hospitals, 1 Teaching Hospital and 1 specialized hospital (120). There are also private for profit and private non-profit (NGOs) health service providers, which supplement the government-run facilities. In general the formal private health care sector is small in The Gambia and mainly located in the Greater Banjul Area (GBA). The public health sector covers 90% of the health facilities and the provision of healthcare is dominated by the government facilities, with a minimum fee (subsidized) charged for accessing treatment under the basic care package (121). The government budgetary allocation to the health sector is still below the 15% target of the WHO Abuja Declaration(122). Out of pocket expenditures account for 40% of the overall expenditure on health (122). The Gambia has an infant mortality rate of 34/1000 live births and maternal mortality rate of 433/100,000. Malaria, pneumonia, skin infection, diarrhoeal diseases and acute respiratory infections are the leading cause of morbidity and mortality in The Gambia (122). Like

many developing countries, The Gambia is also experiencing the burden of Non-Communicable Diseases (NCDs) such as diabetes, hypertension, coronary heart disease, chronic respiratory infection and mental disorders. In 2008 NCDs were estimated to account for 34% of all deaths in The Gambia (122). With infectious diseases still a major public health burden, the increase in prevalence of non-communicable diseases poses a challenge for the allocation of scare resources and is exerting immense pressure on an already over-stretched health budget (122).

1.8.8 Education

The formal system of education in The Gambia consists of 3-6-3-3; which is three years of early childhood development, six years of primary lower basic (grades 1-6), three years of upper basic (grades 7-9) and three years of senior secondary school education (grades 10 - 12). Officially children start school at the age of 7, lower basic (ages 7-12), upper basic (13-15) and senior secondary (ages 16-18). After the completion of upper basic education at the age of 16 they are ready to enter Senior Secondary Schools (SSS) or other vocational training provisions depending on their performance in the terminal examination offered at grade 9. Parallel to the public education system are the madrassa (Islamic schooling), which is the Arabic alternative to English-based schooling and offers a full curriculum. Arabic is used as the language of instruction, with support from the local languages. English lessons are also offered. The Gambia school enrolment is high, surpassing the sub-Saharan average of 69 per cent (119), but regional

disparities exist. Since 2010, significant progress has been made in expanding access to lower basic education (age group 7-12years). Enrolment grew at an average annual growth rate of 5.2% between 2009/10 and 2014/15 the Gross Enrolment Ratio (GER) increased from 88.3% in 2010 to 100 in 2015 (123). Madrassa enrolment contributed about 15% of the age group to the enrolment ratios in 2009/10 and 19% in 2014/15 academic years. Major challenges remain however, especially in improving quality, relevance and retention. Efforts have been intensified to accelerate results to realize the Education for All (EFA) targets and Millennium Development Goals (MDG) by 2015 through improving school infrastructure. Gender parity in primary school enrolment was reached in 2007 and has been sustained since. The ratio of boys to girls attending primary school is 103 girls for every 100 boys; however the completion rate is about 74 girls for every 100 boys. At national level, 44.7% of the population have received no formal education, Primary, lower basic and upper secondary accounts for 23.3%, 11.7% and 13.9% respectively and only 2.2% had tertiary education (64).

1.9 Smoking and tobacco use in The Gambia

Previous adult smoking research conducted in The Gambia includes a study conducted by Walraven et.al in 1997 on asthma, smoking and chronic cough, which reported a current smoking prevalence of 34% in urban and 42% in rural men and 1.5% and 6.0% for women respectively (124). This study was not representative of the general population as it was conducted only in two regions; Banjul (urban) and Frarafenni

(rural).The first national data on smoking prevalence in adults in The Gambia became available in in 2010, when the WHO STEP wise approach to Surveillance (STEPS) survey was carried out. This was a national population-based survey of adults aged 25-64. The overall percentage of current smokers was 15.6%, though this was predominantly due to a male smoking prevalence of 31.3%, with female smoking being rare, at only 1.0% (125, 126). In 2013 the first Demographic Health Survey (DHS) was conducted in a nationally representative sample of women (15-49years) and men (15-59years). Participants were asked a number of questions to ascertain the prevalence of tobacco use. About 26% percent of men age 15-59 reported that they used tobacco products and less than 1% of women aged 15-49 smoked cigarettes or used any other types of tobacco (114). Both of these national surveys included few questions on tobacco use and excluded age groups that are vital in understanding the tobacco epidemic. For example the DHS survey excluded women aged over 49 and men aged over 59 and the STEPS survey only included adults between 25 -64 years.

The first available data on youth tobacco use in The Gambia was by Maassen et al in 2004, which in a school-based survey of children aged 14–18 years reported a prevalence of smoking at least once a week of 11.3%. In 2008 the GYTS of 2345 students from region one education area (Banjul and Kanifing municipality) found an overall prevalence of current cigarette smoking of 10.8% of students in The Gambia aged 13-15 years old,(male: 12.7% and females: 8.6%), while

smokeless tobacco was currently used by 21.9% (boys 20.1% and 23.3% girls) (125). 45% of students stated that people smoked in their presence at home and 59% were exposed to other people's smoke outside their homes(125). Some of the predicting factors of youth smoking found from these two studies were free cigarette offers by representatives of tobacco companies, lower self-efficacy expectations regarding emotional situations, smoking behaviour of the respondent's best friend and family members, the mother having a job, and the absence of other family members living in the house (125, 127). However the Maassen study was conducted with a very small sample size of only 282 students, and the GYTS was also conducted only in one region. This limits the generalisability of these results and the true prevalence of youth smoking in The Gambia is therefore unknown; and the limited available data are very old. Overall there is little published research work on smoking prevalence in The Gambia. The Gambia Demographic and Health Survey is the only nationally representative study, which contained few tobacco questions. Like in in many developing countries there is lack of basic epidemiological data (knowledge, attitudes and beliefs tax, policies etc.) on smoking and tobacco use in The Gambia. In the light of the limitations of the existing data, it is important to study smoking in The Gambia firstly, to better understand the true situation and finally to make recommendations for tobacco control policies in The Gambia. Therefor this thesis makes a contribution to this by documenting the true burden of the tobacco

epidemic among young people and identifying the barriers to implementation of tobacco control polices in The Gambia.

1.10 The tobacco industry

Historically British American Tobacco (BAT) has held a monopoly over cigarette sales in many African countries; particularly in countries that were former British colonies (128). BAT has an overall market share of about 15% in the continent and over 90% share in 11 sub-Saharan African countries (129). Philip Morris International (PMI) has had manufacturing sites and affiliates in Senegal and South Africa for more than 20 years, where it manages its operation in West and Central Africa. In 2003 Philip Morris West Africa (PMWA) was established and its headquarters in Dakar, Senegal and in 2009 PMWA opened a new factory in Senegal (130). Manufacture de Tabacs de le`quest African (MOTA) is part of the Imperial Tobacco group which also has a factory in Senegal and several other factories throughout Africa. Until 2005 the BAT, which now imports from Nigeria and Benin, was producing at the MOTA site, (131). There is currently no tobacco manufacturing company in The Gambia, and all tobacco products used in The Gambia are therefore imported into the country, mainly from Senegal (39%) and South Africa (22%) (132) . However The Gambia is anecdotally believed to be at a relatively higher risk and prime target of the tobacco industry, due to the strong presence of many tobacco companies in Senegal which geographically surrounds The Gambia in the North, South and East; and shares a lot of similar cultural practices.

1.11 Tobacco control in The Gambia

The Gambia ratified the FCTC on 18 September 2007 and it entered into force on 17 December 2007. The Gambia enacted the Prohibition of Smoking (Public Places) Act, 1998 (133) and the Tobacco Products (Ban on Advertisements) Act, 2003(134) before it became a party to the Convention. The Prohibition of Smoking (Public Places) Act 1998 prohibits smoking in indoor places, government workplaces and in all public transport but does not fully meet the obligations of the Convention because it does not comprehensively ban smoking in all indoor public and work places (135). While the tobacco advertising ban largely meets the obligations under the Convention, point of sale display and cross-border advertising are still not banned under this Act. In 2012 a national tobacco control policy and Action Plan, 2013-2018 (136) was developed and it outlined the strategic direction that will be pursed in the control of tobacco in The Gambia. The policy framework also takes in to consideration the constitution of The Gambia 1997 and the national health policy. Tobacco control activity has also included the formation of a National Tobacco Control Committee (NTCC) or a national multi–sectoral taskforce committee in July 2012. The Committee comprises key policy makers comprising partners/stakeholders from government ministries, civil society organisations and NGOs, and has responsibility for formulating tobacco control policies, making recommendations for tobacco control and coordinating the implementation of the FCTC in The Gambia. One policy which has been implemented with some success in recent years

is the tobacco tax increases. Before this increase the average price per pack of cigarette was $0.80 in 2012 compared to the sub-Saharan African regional average price of US$ 1.24, which was also below the global average price of US$ 2.15. In 2013 a three-year tobacco tax increase policy was developed, which was implemented in 2014–2016 (132). Increasingly tobacco taxation is one of the most effective demand side reduction measures, particularly for the poor and the youth (88). Although tobacco taxation has increased over the years tobacco products are still affordable and accessible to most Gambians (135). In 2016 a Tobacco Control Act 2016 (137) and a National Clinical Guideline for cessation services were also developed. The Tobacco Control Act 2016 outlined the strategic direction that will be pursed in the control of tobacco in The Gambia and facilitated the implementation of key recommendations of the Prohibition of Smoking (Public Places) Act and Ban on Advertisement Act. A detailed timeline of tobacco control policy formulation, and implementation is presented in table 1.3. Despite the progress in policy formulation progress on implementation has been slow, (135) compliance with smoke-free policy is low, tobacco products remain highly affordable and easily accessible to young people as well as adults, services to support quitting are rudimentary and enforcement of smoking legislations are still weak (135). Chapter six of this thesis seeks to identify the some of the barriers and challenges to implementing existing tobacco control polices.

Table 1.3: Details of the essential points of legislation and policy documents

Time points	Legislation and policy documents	Details
1998	Prohibition of Smoking (Public Places) Act	Comprehensively bans smoking in in any enclosed public place, workplace, hospital, public vehicle, or Government premises
2003	Ban on Tobacco Advertisements Act	Ban on advertisement or promotion of a tobacco product in any form
2007	FCTC	Ratification of the FCTC and entry into force
2009	Health Warning directives	Heath warnings that describe the harmful effect of tobacco use must occupy 30% of the principal display areas on both sides and include a **Sold in The Gambia** label
2012	Needs Assessment	Convention Secretariat Needs Assessment for implementation of the WHO FCTC in The Gambia
2012	National Tobacco Control Committee	Formation of a multi-sectorial working group, which comprises partners/stakeholders from government ministries, civil society organisations and NGOs, and has responsibility for formulating tobacco control policies and making recommendations for tobacco control
2013	Tax increase policy	Three year tobacco tax policy was developed, which was implemented 2014–2016
2013	National Tobacco Control Policy and Action Plan	Outlines the strategic direction that will be pursed in the control of tobacco in The Gambia between 2013-2018
2016	Tobacco Control Act 2016	Aims to control the demand and supply of tobacco related products, implement the WHO FCTC
2016	National Clinical Guideline for cessation services	Launching of a three-year national tobacco cessation clinical guideline
2016	Illicit Trade Protocol	Accession to the Protocol on Illicit Trade in Tobacco Products

1.12 Rationale for this thesis

Although there has been considerable progress in tobacco control, the tobacco epidemic remains a global public health problem particularly in developing countries. There is large variation in smoking prevalence and implementation of effective control polices across countries and regions. The tobacco industry is targeting developing countries; however data on smoking prevalence and health consequences, and effective control strategies are very limited compared to developed countries. The smoking epidemic is a global problem that needs urgent action particularly in developing countries, where resources are scarce and the epidemic is not seen as a major public health priority. The Gambia is a country where evidence is urgently needed. Even though about 50% of The Gambian populace is aged 20 or below, little is known about youth smoking in The Gambia, and the available data are limited to the GYTS survey, which was conducted with a small sample size and only in one region. Implementation and enforcement of tobacco control polices is slow, and to make progress it is important to understand what the barriers and challenges are.

As described above, the burden of tobacco use in many LMICs is high and increasing, and levels of tobacco control policy implementation insufficient in many countries and The Gambia is one of these countries. Therefore, this PhD aims to investigate smoking among young people in The Gambia, and to explore factors influencing the implementation of FCTC policies in the country. Thus, the first part of this PhD is to conduct a nationally representative school-based survey

among young people, to provide detail evidence in three main arears: i) prevalence of tobacco use, risk factors and understand sociodemographic characteristics, knowledge and attitudes of tobacco users; source of cigarettes and price paid; determinants of smoking uptake and quitting; awareness of and compliance with smoke-free policy; or on quitting support or methods used. ii) Determine the prevalence of exposure to second-hand smoke, exposure to second-hand smoke at home and outside the home and associated risk factors. iii) Prevalence of smoking susceptibility and associated risk factors, awareness of tobacco advertisement and promotion; and attitudes beliefs and perceived benefits of smoking. The last part of this PhD involves interviews with all the members of the national multi–sectoral taskforce committee, to identify policy makers' knowledge about tobacco control polices, and their views on opportunities and barriers to implementing tobacco control in The Gambia.

1.13 Aims and objectives

The overall aim of thePhD is to describe the tobacco epidemic among young people and assess implementation of tobacco policies in The Gambia.

1.13.1 Objectives

- To estimate the current prevalence of tobacco use among youths in The Gambia
- To identify risk factors for smoking and current smoking behavior
- To understand current students' knowledge and attitudes about smoking and tobacco use

- To estimate the prevalence of exposure to SHS and identify associated risk factors among students
- To measure the prevalence of susceptibility to smoking and identify the associated risk factors
- To assess the extent of implementation of tobacco policies in The Gambia
- Access policy makers' awareness of the FCTC and national tobacco control polices
- Identify barriers and opportunities of implementing tobacco control polices

1.14 Outline of thesis chapters

The thesis consists of seven chapters. Chapter two describes in detail the survey methodology used in this thesis; ethical approval, data collection, data management and analysis. Chapter three describes smoking prevalence, smoking risk factors and describes current smoking behaviours. Chapter four gives estimates of the prevalence of exposure to SHS both at home and outside the home and identifies the major risk factors to exposure to SHS, knowledge of the harmful effects of smoking, support for smoke-free laws and school-level smoking policies. Chapter five reports the prevalence of smoking susceptibility, risk factors for susceptibility to smoking, attitudes, beliefs and perceived benefits of smoking. Chapter six reports the findings of a qualitative study undertaken to assess policy makers' awareness of the FCTC and national tobacco control policies, and assess the achievements in and challenges to the implementation of the FCTC. The concluding chapter

summarises the key findings of the thesis in relation to the study objectives and makes recommendations for implementation of tobacco control polices and future research.

It is hoped that this detailed picture will serve to inform, drive policy to reduce smoking and prevent the adverse health consequences of tobacco use in The Gambia. Finally it is also expected that results from this study can be used to prevent The Gambia and other developing countries at a similar stage of the epidemic from becoming a part of the global tobacco epidemic.

2 CHAPTER TWO: CROSS-SECTIONAL SURVEY METHODS

This chapter describes in detail the methods used to collect and analyse data about smoking uptake, exposure to SHS and susceptibility to smoking among young people in The Gambia. The data collection methodology was informed by the GYTS, and this chapter therefore starts with an overview of this survey, the methods adapted from the GYTS for the current survey and the rationale for choosing this approach to collect data. The chapter then discusses the process of negotiating access to schools, ethical approval, participant selection, data collection and management and statistical analysis used. Specific methodological details for individual analyses and their findings are described in chapter three, four and five.

2.1 Overview of the GYTS

The GYTS was launched in 1999 as part of The Global Tobacco Surveillance System (GTSS), which is a set of globally standardized surveys to monitor tobacco use and key tobacco control policies (138). The GYTS is a global standardised tool used for systematically monitoring youth tobacco use (smoking and smokeless) and has been actively used in more than 188 countries/sites (139). GYTS is supposed to be a nationally representative school-based survey of students in grades associated with 13 to 15 years of age and is designed to produce cross-sectional estimates for each country. It uses a standardised methodology that includes a two-stage sample design. The survey uses a standard core questionnaire with a set of optional questions that permits adaptation to meet the needs of the country on

tobacco use and key tobacco control indicators. It is repeated every 4-5 years generating data that are comparable within and across countries. While the GYTS limits the survey to 13-15 year olds, the methodology is generally robust, and several aspects (sampling design and selections) have therefore been adopted for the current survey. To improve the generalisability and representativeness of the GYTS we included a wider age range for this survey. GYTS assists countries to enhance their capacity to design, implement, and evaluate tobacco control interventions. It is an important tool to assist countries in supporting WHO MPOWER, a package of six evidence-based demand reduction measures contained in the WHO's Framework Convention on Tobacco Control (139).

2.2 Pretesting

To enhance the validity of the study instrument the questionnaire was piloted in a sample of 30 students in one of the selected schools. Pretesting revealed that some of the study questions were not easy for students to understand and did not seem to measure what we intended to measure and such questions were reworded. For example the question "Have you ever used any tobacco products" was rephrased to "have you ever tried smoking any tobacco products even one or two puffs". Also as a result of feedback from participants reporting shisha use, we added brief questions on ever use of shisha to the final questionnaire. All other issues and potential problems that arose during the pretesting such as time of visits, random selection of

classes and questionnaire administration were discussed and addressed.

2.3 Study population and design

The current study was a cross-sectional survey carried out in all six Regional Education Directorates in The Gambia using the GYTS questionnaire. The Gambia has a 6-3-3 education system, comprising 6 years of lower basic (grades 1-6), 3 years of upper basic (grades 7-9) and 3 years of senior secondary (grades 10-12). The current study adapted the GYTS methodology, which focuses on adolescence of ages 13-15 and corresponding grades. In The Gambia this corresponds to Upper Basic and Senior Secondary schools covering grades 7 -12. Children enter Grade 1 at age 7. Annual progression through the grades is not automatic, and some students repeat grades. This study was carried out in Upper Basic Schools (UBS) and Senior Secondary Schools (SSS).

2.4 Recruitment of study participants

2.4.1 Stage one: selection of schools

Since our study covers both UBS and SSS we had students who were below and above the age range of the GYTS. Using the GYTS classification would mean excluding a large number of our sample in the study, therefore all students within grades 7-12 were eligible to participate regardless of age. Representative samples of students in these grades were generated by two-stage cluster sampling which is described in section below.

In the first stage, a list of all UBS and SSS with enrolment size was provided by the Ministry of Basic and Secondary Education (MoBSE). The list included all private, public and madrassa (Arabic/religious) schools. All UBS and SSS schools (Grade 7-12) of the six regional education directorates in The Gambia were considered for the survey. Schools were then selected using systematic sampling with probability proportional to their enrolment size. Prior to sampling, schools in the list were sorted in descending order of size. Table 2.1 provides the number of UBS and SSS and the enrolment size by regional education for 2015.

Table 2.1: Number of Schools and enrolment size

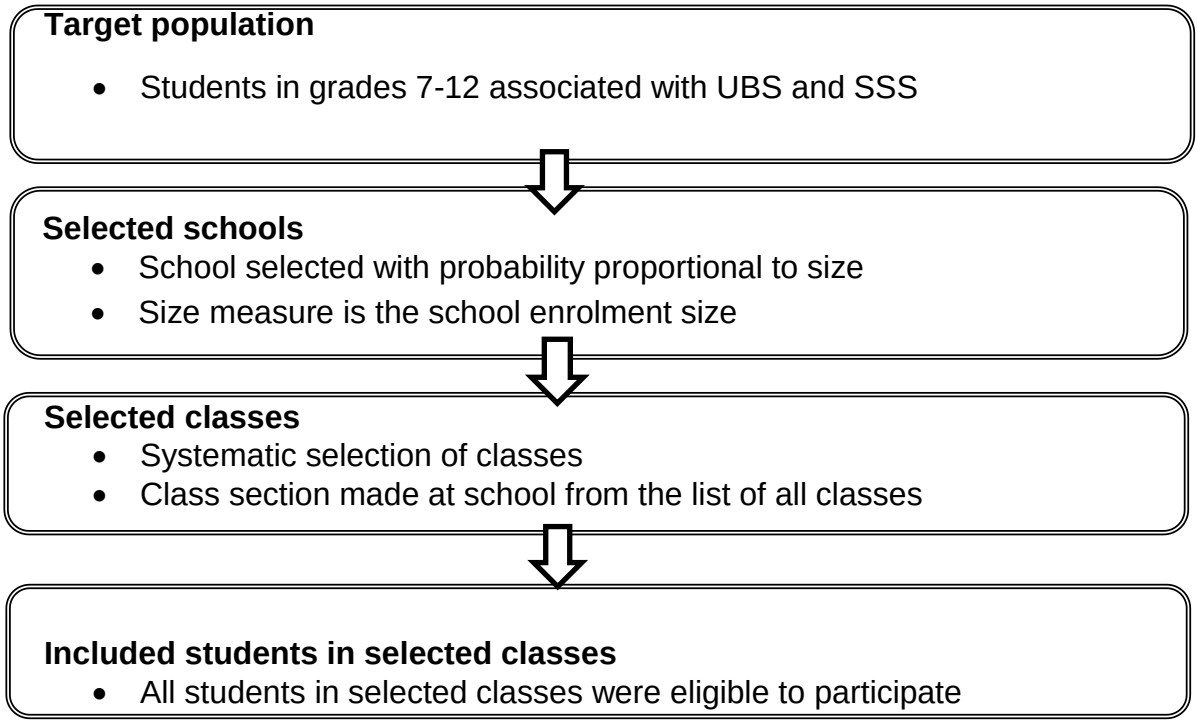
Regional Education	**No. of UBS**	**No. of SSE**	**Total schools**	**Enrolment UBS**	**Enrolment SSS**	**Total Enrolment**
Region 1 Banjul and KMC	75	46	121	27844	20393	48237
Region 2 WCR	117	53	170	36564	18225	54789
Region 3 NBR	48	20	68	8944	4678	13622
Region 4 LRR	26	7	33	3986	1663	5649
Region 5 CRR	40	10	50	6744	4668	11412
Region 6 URR	55	9	64	6094	1689	7783
Total	**361**	**145**	**506**	**90176**	**51316**	**141492**

2.4.2 Stage two: Selection of classes

In the second stage, a list of all the classes within a selected school was obtained and used for sampling. Each participating school had a sampling frame list consisting of classes in the school and a systematic

selection interval of classes was also developed to ensure that the overall selection probabilities are the same for all students in the target school. The selection interval was based on the school level information (number of classes in each grade) and total number of classes. Classes were then randomly selected from the total number of classes in the sampling frame list and all the students from within the selected classes were eligible to participate in the survey. The selection process was carried out by the field coordinator in all schools. Figure 2.1 outlines the overview of the study population and participant's selection used in the study.

Figure 2.1: Overview of study population and participant selection



2.5 Sample size calculation

The GYTS sample size recommendation required countries to have sample sizes larger than 1,500 if the countries wish to produce estimates at the +/- 5% precision level for important population subgroups (e.g., defined by gender, region, etc.) when the number of students in the country's target population is at least 30,000. The number of students completing the questionnaire in most GYTS surveys ranges between 1,500 and 10,000 based on sample design requirements. In practice the GYTS recommends 25 schools and 1,500 students to be sampled to compensate for school and student attrition caused by ineligibility, nonresponse and refusal during the survey, with the assumed school response rate and student response rate both at 80% (140). We estimated that a minimum sample size of 4885 was needed to estimate a youth smoking prevalence of 15% with 1% precision (Epi info 7).Thus the current study aimed to target about 10,000 students to participate.

2.6 Ethical approval

Ethical approval for the survey was granted by The Gambia Government/Medical Research Council (MRC) Joint Ethics Committee in The Gambia (see appendix four), and the Research Ethics Committee of the Faculty of Medicine and Health Sciences, University of Nottingham, UK (see appendix five). After obtaining ethical approval a formal communication was made with the Ministry of Health & Social Welfare to inform them about the study and seek support. In addition letters of collaboration (see appendix five). and support were sought

from the MOSH&W which were sent to the Ministry of Basis and Secondary Education which is responsible for all Upper Basic and Senior Secondary Schools throughout the country. Letters seeking consent and cooperation were sent to all six regional educational directorates for information and collaborative assistance who in turn informed all the heads of schools selected in their respective regions. Written informed consent for the survey was obtained by signature of all heads of schools. Before the start of data collection begins in the selected classrooms, the purpose and requirements of the study was explained to all students and verbal consent was obtained. Copies of the ethical approvals and collaborative letters are attached in appendices 3, 4 and 5.

2.7 Training of field workers

Field workers with health backgrounds were recruited from within the Ministry of Health. The criteria for the recruitment of field worker were: previous experience in survey data collection, ability to speak several local languages, and to be able to explain accurately the purpose of the study in accordance with the study protocol. The fieldworkers were initially selected through recommendation from the Ministry of Health and then by subsequent interviews. The field workers included five data collectors and two data entry clerks. After the interviews were conducted successful applicants attended three days of training with the PhD student. The main purpose of the training was to give fieldworkers an outline of the aims and objectives of the study, to go through the questionnaire in order to ensure that the questionnaire would be

completed accurately, to go through the protocol for sample selection within the schools and to ensure that data would be imputed correctly.

2.8 Data collection tool

Participating students completed a self-administered questionnaire based on the GYTS supplemented by questions on local issues relevant to smoking among young people in The Gambia (see appendix one). The questionnaire included data on a range of variables including demographic details, tobacco-use indicators, family member smoking; number of friends smoking; brand of tobacco usually smoked and price paid; usual place of purchase; use of other smoked or smokeless tobacco; and desire and support to quit smoking. The coding of these variables for analysis is explained in detail in the next sections. The questionnaire also included a series of questions covering smoking susceptibility, exposure to second-hand smoke, support for smoking regulations, banning public smoking, exposure to tobacco advertisements and promotion, anti-smoking media messages, beliefs about the danger of smoking and perceived benefits of smoking. The PhD student visited all selected schools before the survey work began to determine the total number of classes in each selected school and randomly select classes that were to participate in the survey. On the day of the survey fieldworkers visits the selected school and classrooms. Data collection was carried out between June and December 2016.

2.9 School policy questionnaire

As a supplement to GYTS, the seven-question School Policy questionnaire was developed to collect information about school policies related to tobacco use among staff and students. This self-administered questionnaire was completed by one of the school administrators in each of the selected schools. The questions cover existing polices or rules that schools have to specifically prohibit students and staffs from smoking in school premises.

2.10 Data entry and management

Two data entry clerks were trained to take part in the study. At the end of each school visit all completed questionnaires were cross-checked to ensure that each question had been answered correctly for consistency, completeness and adherence to general protocol guidelines. In cases where the questionnaire was not completed correctly a second attempt was made to capture data for these students. All data were coded and entered into a Microsoft access database. Entered data were double-checked and cross-checked during the entry process using simple data editing tools. Data cleaning was carried out at the end of the study, before the data was exported for analysis.

2.11 Outcome and exposure variables

2.11.1 Outcome variables

The main outcome variables were smoking status, self-reported exposure to second-hand smoke and smoking susceptibility. Ever smoking was defined as any smoking of cigarettes, cigars or pipes at

any point in time in the past; and current smoking as used in the previous 30 days preceding the survey. Exposure to SHS was defined as being exposed to SHS on at least one day in the previous 7 days in any public place and in the home or in the previous 30 days at school; and, susceptibility to smoking was measured using two standard GYTS questions. Further details on these outcome measures are described in chapters 3, 4 and 5.

2.11.2 Exposure variables

The main exposure variables assessed against the outcome variables were: 1) age, in years, categorised into three age groups (12-14, 15-17 and 18-20), 2) gender (boys and girls), 3) school type (UBS and SSS), 4) school locality (urban or rural), 5) religion (Muslim, Christianity, and other) and 6) school funding (public, private and grant-aided). In computing parents' educational qualification, the original categories were re-categorised in to six groups (no education, primary, secondary, tertiary, Quranic/Arabic and don't know) to include junior and senior secondary schools into one category and colleges and university into one category referred to as tertiary, living with parents (yes or no), home smoking rules (yes, no and partial/sometimes), family members smoking (none, mother, father, sibling and others), friends smoking (none, one, two, three or more and not sure) and sent to buy cigarettes (yes or no).

2.11.3 Other variables

Other exposure variables assessed against the main outcome variables also included parents' employment status (father only, mother only,

both, neither and don't know). Daily spending money was re-categorised from the original 8 categories in to 4. School grade/class in to UBS and SSS schools by combining year 7-9 and 10-12 respectively. A range of other questions were asked such as shopping places frequently visited, noticing cigarette displays, brands of cigarettes seen, smokeless tobacco use; and knowledge and perception of the cost of cigarette.

2.12 Data analysis

Data re-coding and analysis was carried out using Stata SE version 15 (Statacorp, College Station, Texas, USA). Proportions and 95% Confidence Intervals (CI) were obtained as estimates of prevalence; univariate logistic regression was first carried out to look for associations between the outcome variables (current smoking, exposure to second- hand smoking and susceptibility to smoking) and the exposure variables. The various exposure variables that were statistically significant were then included in a multivariate model to see which exposure variables affected the model and to what extent adjusting for *a priori* confounders comprising age, gender and rural/urban area of school, and multivariate analyses were used to ascertain the predicting factors of current smoking, ever shisha smoking, exposure to second-hand smoking and susceptibility to smoking. Further details of the analysis of each outcome variable are provided in chapters three (tobacco use), four (second-hand smoke exposure) and five (susceptibility).

3 CHAPTER THREE: PREVALENCE AND DETERMINANTS OF TOBACCO USE AMONG YOUNG PEOPLE IN THE GAMBIA

3.1 INTRODUCTION

As described in chapter one smoking is expected to rise in many developing countries and for many years it has been the largest avoidable cause of morbidity and mortality. Given the scale of this problem and the tobacco companies marketing strategies directly targeting young people; accurate measurement and monitoring of smoking prevalence trends in developing countries should be a high priority. The aim of this chapter is to measure smoking prevalence in a representative sample of secondary school students and to ascertain major risk factors for smoking among young people in The Gambia. Prevalence of tobacco smoking is measured as current and ever smoking status cigarette, using questions derived from the GYTS. Current and ever use of tobacco products other than cigarettes which includes shisha, hand-rolled cigarettes, pipes, cigar and smokeless tobacco products was also measured. The major risk factors considered were sociodemographic characteristics; gender, age, religion, school type, school locality, school funding, living with parents, home smoking rules, family and friends smoking, number of friends smoking.

3.2 METHODS

3.2.1 Data collection

Data were collected using the methods described in Chapter two. Questions on smoking characteristics of current smokers such as age

of initiation, type of product smoked, brands smoked, usual place of purchase, price paid, quit attempts and support received to quit smoking were added for this study.

3.2.2 Smoking status and type products used

Apart from asking about current and ever cigarette smoking, specific questions on ever and current use of hand-rolled cigarettes, pipes cigars and shisha questions were asked. For cigarette smoking questions on: 1) age and reasons of initiation, 2) number of days and number of cigarettes smoked during the past 30days, 3) access or getting cigarettes, 4) usual place of purchase, 5) price paid, and 6) number of cigarettes purchase at a time were asked. Questions were asked about awareness and use of smokeless tobacco including questions on: 1) age at time of first use, 2) access, 3) frequency and amount use, 4) desire and support to stop using smokeless tobacco.

3.2.3 Smoking cessation

Questions on quit attempts and support received to quit smoking were asked. Current smokers` quit attempts were ascertained by asking: 1) whether they want to stop smoking, 2) had they tried to stop in the past 12 months and 3) how many times was quit attempts made during the last 12 months. In addition the reason for quit attempts were and how difficult was the quit attempts and if they had received any support and advice to quit were asked. If they were also aware of any medication such as patches and gums to help them quit smoking.

3.2.4 Statistical analysis

Proportions and 95% confidence intervals were obtained as estimates of prevalence of current and ever smoking, and ever shisha smoking. Univariate logistic regression was first carried out to look for associations between the outcome variable (current smoking and ever shisha smoking) and the exposure variables. The various exposure variables that were statistically significant were then included in a multivariate model. We then adjusted associations for *a priori* confounders comprising age, gender and rural/urban area of school, and used stepwise (forward) multivariate analyses to ascertain the predictors of current smoking and ever shisha smoking.

3.3 RESULTS

3.3.1 Characteristics of the study sample

Our sample comprised 50 schools, of which 33 were Upper Basic and 17 Senior Secondary; 13 were private (including 2 madrassa schools), 27 public and 10 grant-aided. The head teachers of all sampled schools agreed to participate in the study (Table 3.1). Our second-stage sample identified 210 classes for the survey, which according to school registers included 10395 students. A total of 10289 students (99%) in these classes completed the survey.

Table 3.1: Number of schools selected by regional education

Regional Education	Number of UBS	Number of SSS	Number of Schools
Region 1 Banjul and KMC)	6	5	11
Region 2 WCR	12	6	18
Region 3 NBR	4	3	7
Region 4 LRR	2	2	4
Region 5 CRR	5	1	6
Region 6 URR	3	1	4
Total	**33**	**17**	**50**

3.3.2 Characteristics of study participants

The main characteristics of the study participants are described in Table 4. There were more female (55.6%) than male (44.4%) participants; 63.9% were aged between 14 and 17 years and 93.1% were of Muslim faith. Over half (56.2%) of the students were attending UBS and 74.6% were in private school. Most participants lived with their parents (80.2%) in homes where smoking was not allowed (70.9%), and had no family members (71.6%) or friends (66.5%) who smoked. The majority (54.1%) reported having less than D15 (approximately $0.40) daily spending money (Table 3.2).

Table 3.2: Sociodemographic characteristics of study participants

Characteristics	Categories	(n=10289)	(%)
Gender	Boys	4567	44.3
	Girls	5722	55.6
Age(years)	12 - 13	960	9.3
	14 - 15	2776	26.9
	16 – 17	3812	37.0
	18 – 19	2221	21.5
	20	525	5.1
Class	Grade 7	1507	14.6
	Grade 8	2041	19.8
	Grade 9	2215	21.5
	Grade 10	1509	14.6
	Grade 11	1592	15.4
	Grade 12	1425	13.8
School Type	UBS	5785	56.2
	SSS	4504	43.7
School ownership	Public	7678	74.6
	Grant-aided	1052	10.5
	Private	1559	15.1
Religion	Muslim	9564	93.1
	Christian	602	5.8
	Other	103	1.0
Daily school money	Don`t have spending money	1435	13.9
	Less than D15	4131	40.2
	D16 -35	3205	31.2
	More than D35	1497	14.5
Living with parents	Yes	8250	80.2
	No	2029	19.7
Parents working	Father/stepfather/male guardian	3343	32.5
	only	1507	14.6
	Mother/stepmother/female	4300	41.8
	guardian only	737	7.1
	Both	387	3.7
	Neither		
	Don`t Know		
Home smoking allowed	No	7295	70.9
	Sometimes	1085	10.5
	Yes	1906	18.5
Family members who smoke	None	7364	71.6
	Mother	274	2.6
	Father	1199	11.6
	Brother/Sister	718	6.9
	Others	729	7.0
Number of friends who smoke	None	6790	66.0
	One	673	6.5
	Two	356	3.4
	Three or more	762	7.4
	Not sure	1699	16.5

3.3.3 Prevalence of smoking and type of tobacco products used

One in six participants (16.7%) had ever smoked tobacco, comprising around one in four (25.7%) boys and one in ten (9.4%) girls and 7.9% of boys and 1.5% of girls had done so in the last 30 days (Table 5). Manufactured cigarettes were the most widely used of these products (9.8% ever use; hand rolled-cigarettes 2.7%, cigars 2.3% and pipes 2.1%). After manufactured cigarettes, however, shisha was the next most widely used product, and with ever use reported by 11.4% and 5.4% respectively of boys and of girls, was relatively widely used by girls. Ever use of smokeless tobacco was reported by 2.7% and current use by 1.2% of participants (Table 3.3).

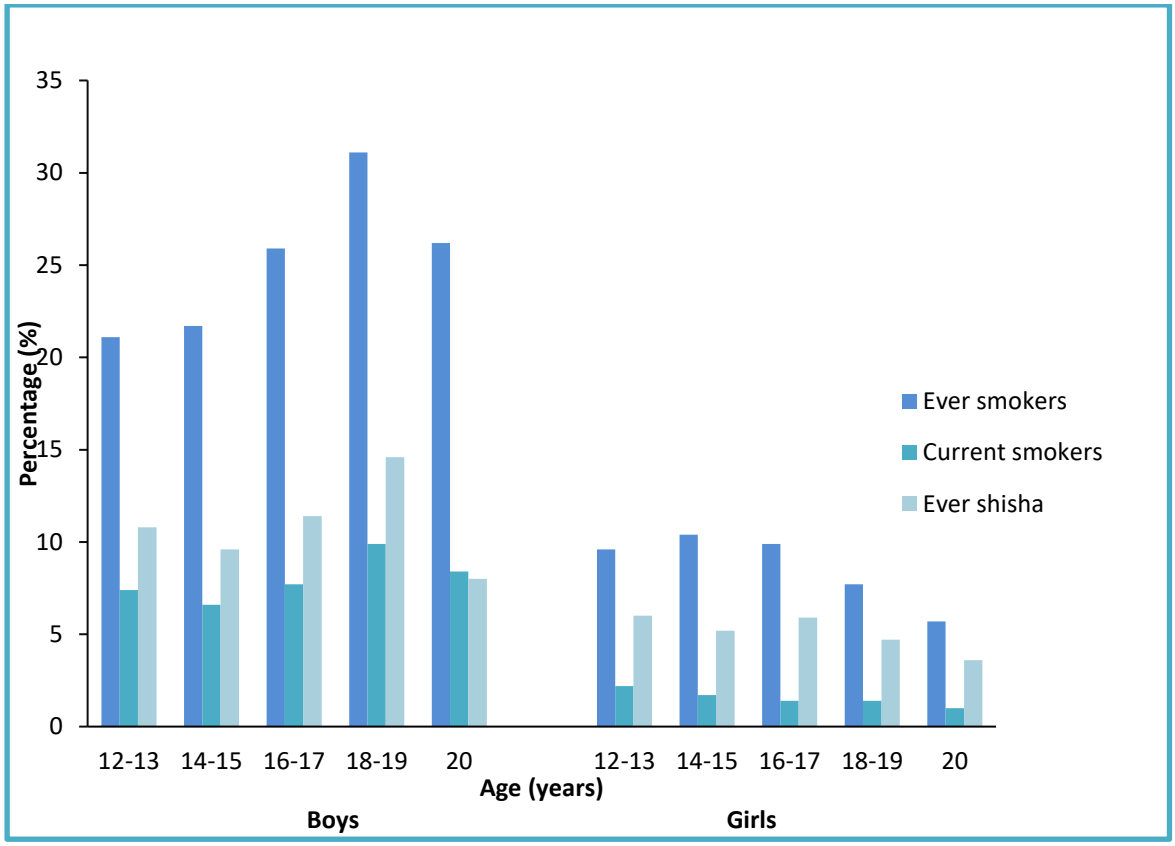
Table 3.3: Prevalence of smoking and type of tobacco products used

Characteristics	**Total n= 10,289**	**%**	**95% CI**	**Boys n=4567 N (%)**	**Girls n=5722 N (%)**
Smoking status					
Never smokers	8568	83.2	82.50-83.91	3389 (74.2)	5179 (90.5)
Ever smokers	1719	16.7	16.01-17.44	1177 (25.7)	542 (9.4)
Ex-smokers	1264	12.2	11.6-12.93	813 (17.8)	451 (7.8)
Current smokers	455	4.4	4.04-4.83	364 (7.9)	91 (1.5)
Tobacco products used by ever smokers					
Cigarettes	1009	9.8	9.24-10.39	824 (18.0)	183 (3.1)
Hand-rolled cigarettes	279	2.7	2.41-3.04	225 (4.9)	54 (0.9)
Pipes	221	2.1	1.88-2.44	168 (3.6)	53 (0.9)
Cigar	239	2.3	2.04-2.63	185 (4.1)	54 (0.9)
Shisha	834	8.1	7.59-8.65	523 (11.4)	311 (5.4)
Smokeless tobacco					
Never users	9991	97.2	96.9-97.5	4350(95.4)	5641 (98.6)
Ever users	284	2.76	2.24-3.0	204 (3.7)	80 (1.3)
Current users	129	1.25	1.05-1.28	95 (2.1)	34 (0.5)

3.3.4 Ever and current smoking, and ever use of shisha, by age

The proportion of participants that had ever smoked increased with age from 14.7% in the 12-13 age groups to 19.8% in the 20 year-olds. Current smoking was most common in the 18-19 (5.5%) and 20 year (5.7%) age groups, and lowest in the 14-15 age groups (3.6%; figure 1). However, these figures differed between genders, in that both ever and current smoking was most common in the older boys, but tended to be more common in younger girls (Figure 3.1). Ever use of shisha was relatively common in younger age groups in both sexes, but particularly less common in girls (Figure 3.1).

Figure 3.1: Ever current and ever shisha smokers by age groups



3.3.5 Characteristics of current smokers

Detailed characteristics of current smokers are outlined in Table 3.4. Around a quarter of current smokers started smoking before the age of 12, and two thirds before age 16. The most common reasons given for starting smoking were stress relief (21.9%) and peer pressure (20.0%). About 20% of current smokers were influenced to initiate smoking because they had friends and family members who were smokers, while a relatively higher number was influence by the taste and feeling of cigarette (34.8%). Most smokers obtained cigarettes by purchase from shops, and less than half reported any difficulty doing so. Age was not a common barrier to purchase. Over half reported a regular cigarette brand (the most popular being *Bond Street*), and a third spent more than D40 ($0.9) on cigarettes per day. Of the 4.4% current smokers, 13.2% had smoked in all 30 days preceding the survey, and over half had smoked two or more cigarettes per day on the days that they smoked. One in four had also used smokeless tobacco in the past 30 days.

Table 3.4: Smoking characteristics of current smokers

Characteristics*	Categories	Total n=455 n (%)
Age of initiation of smoking	7 years old or younger	34 (8.0)
	8 - 9 years	20 (4.7)
	10 - 11 years	42 (9.9)
	12 - 13 years	77 (18.2)
	14 - 15 years	109 (25.8)
	16 years or older	140 (33.1)
The reason for initiation of smoking cigarettes	Peer pressure	83 (20.0)
	Loneliness	73 (17.5)
	Family influence	63 (15.1)
	Curiosity	69 (16.6)
	Stress relief	91 (21.9)
	Others	36 (8.6)
Factors that most influence participant to smoke	Friends and family smoking	83 (19.9)
	The taste and feeling of it	144 (34.8)
	To relief stress	97 (23.2)
	All of the above	37 (8.8)
	Don`t know	56 (13.4)
Source of cigarettes	Corner shop	161(39.1)
	Street vendor	51 (12.4)
	From someone else	76 (18.4)
	Other ways	123 (29.9)
Refuses to sell cigarette because of participant's age	Did not try to buy during the past 30 days	128 (31.0)
	Yes	83 (20.1)
	No	210 (48.7)
Brands of cigarettes used	No usual brand	181 (43.9)
	Piccadilly	30 (7.2)
	Monte Carlo	37 (8.9)
	Bond Street	103 (25.0)
	Business Royal	37 (8.9)
	Benson & Hedges	7 (1.7)
	Marlboro	6 (1.4)
	Others	11 (2.6)

* Some missing values

** In addition to cigarette could respond to any

Table 3.4 continue: Smoking characteristics of current smokers

Characteristics*	Categories	Total n=455 n (%)
How easy or difficult would it be to get cigarettes	Very difficult	86 (20.8)
	Fairly difficult	45 (10.9)
	Fairly easy	52(12.5)
	Very easy	163 (39.4)
	I don't know	67 (16.2)
Amount spent on cigarettes/day	D10 or less	161 (38.8)
	D11- D20	68 (16.3)
	D21-D40	52 (12.5)
	D41-D60	109 (26.2)
	D61-D80	5 (1.2)
	More than D80	20 (4.8)
Number of days smoked during the past 30days	1 - 2 days	147 (35.2)
	3 - 5 days	93 (22.3)
	6 – 9 days	53 (12.7)
	10 - 19 days	52 (12.4)
	20 – 29 days	17 (4.0)
	All 30 days	55 (13.1)
Number of cigarettes smoked during the past 30days	Less than one cigarette /day	58 (13.9)
	1 cigarette day	138 (33.1)
	2 – 5 cigarettes /day	132 (31.7)
	6 – 10 cigarettes /day	45 (10.8)
	11 – 20 cigarettes /day	21 (5.0)
	More than 20 cigarettes/day	22 (5.2)
Type of tobacco used**	Cigarettes	412 (90.5)
	Hand-rolled cigarettes	212 (46.5)
	Pipes	158 (34.7)
	Cigars	175 (38.4)
	Smokeless tobacco	113 (24.8)
Where participant mostly smokes	At school	27 (6.5)
	At home	82 (19.8)
	At a friend's house	149 (36.0)
	At a street corner	64 (15.5)
	Others	91 (22.0)
Who the participant smokes with most of the time	Alone	67 (16.5)
	With friends	249 (61.3)
	With brothers/sisters	19 (4.6)
	Others	71 (17.4)

* Some missing values
** In addition to cigarette could respond to any

3.3.6 Quit attempts and smoking cessation

Table 3.5 highlights quits attempts made and cessation services offered. More than half (55.6%) of current smokers reported wanting to stop smoking and having tried to quit in the last 12 months (54.5%), but only a quarter had received advice or help to quit or used Nicotine Replacement Therapy (NRT) to help them stop smoking.

Table 3.5: Quit attempts and NRT support among current smokers

Characteristics*	**Categories**	**Total n=455* n (%)**
Want to stop smoking	Yes No I don't know	228 (55.6) 71 (17.3) 111 (27.0)
Quit attempts in the last 12 months	Yes No I don't know	224(54.5) 89(21.6) 98(23.8)
Received advice to quit	No Yes	99(24.1) 311(75.8)
Received NRT	Yes No	94 (22.9) 316 (77.0)

*Some missing data

3.3.7 Risk factors associated with current smoking

The associations between current smoking (cigarettes, cigars and pipes) and sociodemographic characteristics are outlined in Table 3.6. After adjustment for age, gender and urban or rural location, current smoking was less common among girls (OR 0.24, 95% CI 0.19-0.31) and more common among students attending private schools (OR 1.69, 95% CI 1.29-2.22), of Christian (OR 1.56, 95% CI 1.09-2.24) or other faiths (OR 3.17, 95% CI 1.73-5.82) compared to Muslims, living with parents (OR 1.39, 95% CI 1.06-1.81), had smoking allowed in their homes (OR 1.67, 95% CI 1.30-2.13), with family members who smoked or had one or more friends who smoked.

Table 3.6: Factors associated with current smoking

Characteristic	n = 10289	Current Smokers n=455 (%)	Unadjusted OR (95% CI	Adjusted OR (95% CI)	P value*
Age group					**0.0003**
12 -14	2256	89 (3.9)	1	1	
15-17	5284	213 (4.0)	1.02 (0.79-1.31)	1.02 (0.79-1.31)	
18-20	2746	153 (5.5)	1.42 (1.09-1.87)	1.43 (1.09-1.87)	
Gender					**<0.001**
Boys	4567	364 (7.9)	1	1	
Girls	5722	91 (1.5)	0.18 (0.14-0.23)	0.24 (0.19-0.31)	
School locality					0.182
Rural	2453	118 (4.8)	1	1	
Urban	7833	337 (4.3)	0.88 (0.71-1.10)	0.84 (0.66-1.08)	
School type					0.257
SSS	5785	205 (3.5)	1	1	
UBS	4504	250 (5.5)	0.94 (0.78-1.14)	1.14 (0.90-1.46)	
School funding					**<0.001**
Public	7678	320 (4.1)	1	1	
Grand –aided	1052	37 (3.5)	0.83 (0.59-1.18)	0.91 (0.62-1.32)	
Private	1559	98 (6.2)	1.54 (1.22-1.94)	1.69 (1.29-2.22)	
Religion					**<0.001**
Muslim	9564	398 (4.1)	1	1	
Christian	602	41 (6.8)	1.68 (1.20-2.34)	1.56 (1.09-2.24)	
Other	103	15 (14.5)	3.92 (2.24-6.84)	3.17 (1.73-5.82)	
Living with parents					**0.014**
No	2029	76 (3.7)	1	1	
Yes	8250	377 (4.5)	1.23 (0.95-1.58)	1.39 (1.06-1.81)	
Home smoking					**<0.001**
No	7295	249 (3.4)	1	1	
Sometimes	1085	75 (6.9)	2.10 (1.60-2.74)	1.82 (1.36-2.43)	
Yes	1906	131 (6.8)	2.08 (1.67-2.59)	1.67 (1.30-2.13)	
Family smoking					**<0.001**
None	7364	236 (3.2)	1	1	
Mother	274	30 (10.9)	3.71 (2.48-5.54)	2.58 (1.64-4.09)	
Father	1199	89 (7.4)	2.42 (1.88-3.11)	1.52 (1.15-2.01)	
Sibling	718	66 (9.1)	3.05 (2.29-4.06)	1.68 (1.23-2.29)	
Others	729	34 (4.6)	1.47 (1.02-2.13)	0.97 (0.65-1.43)	
Friends who smoke					**<0.001**
None	6790	147 (2.1)	1	1	
One	673	52 (7.7)	3.78 (2.72-5.24)	2.48 (1.75-3.50)	
Two	356	46 (12.9)	6.70 (4.72-9.51)	4.10 (2.82-5.96)	
Three or more	762	144 (18.8)	10.52 (8.2413.43)	5.92 (4.54-7.72)	
Not sure	1699	66 (3.8)	1.82 (1.35-2.45)	1.58 (1.16-2.14)	

3.3.8 Factors associated with ever shisha smoking

The associations between ever shisha smoking and sociodemographic characteristics are outlined in Table 3.7. After adjustment for age, gender and urban or rural location, ever use of shisha was more common in older age groups, and the gender difference less marked than for smoking (OR for girls 0.52, 95% CI 0.44 to 0.61). In other respects, risk factors for shisha use were similar to those for current smokers. Ever use of shisha was significantly more common among students attending private schools (OR 4.49, 95% CI 3.66-5.25), of Christian (OR 1.12, 95% CI 0.84-1.49) or other faiths (OR 2.86, 95% CI 1.68-4.87) compared to Muslims, living with parents (OR 1.39, 95% CI 1.12-1.69), had smoking allowed in their homes (OR1.23, 95% CI 1.00-1.50) or partially allowed (OR 1.34, 95% CI 1.06-1.69), with family members who smoked or had one or more friends who smoked.

Table 3. 7: Factors associated with ever shisha smoking

Characteristic	n = 10289	Ever Shisha users n=834 (%)	Unadjusted OR (95% CI	Adjusted OR (95% CI)	P value*
Age group					**0.031**
12 -14	2256	149 (6.6)	1	1	
15-17	5284	440 (8.3)	1.28 (1.05-1.55)	1.25 (1.02-1.53)	
18-20	2746	245 (8.9)	1.38 (1.12-1.71)	1.21 (0.96-1.520	
Gender					**<0.001**
Boys	4567	523 (11.4)	1	1	
Girls	5722	311 (5.4)	0.44 (0.38- 0.51)	0.52 (0.44- 0.61)	
School locality					0.331
Rural	2453	138 (5.6)	1	1	
Urban	7833	696 (8.8)	1.63 (1.35-1.97)	1.11 (0.89-1.37)	
School type					0.100
SSS	5785	417 (7.2)	1	1	
UBS	4504	417 (9.2)	0.76 (0.66-0.87)	0.85 (0.71-1.02)	
School funding					**<0.001**
Public	7678	449 (5.8)	1	1	
Grand –aided	1052	60 (5.7)	0.97 (0.73-1.28)	0.94 (0.70-1.26)	
Private	1559	325 (20.8)	4.24 (3.63-4.95)	4.39 (3.66-5.25)	
Religion					**<0.001**
Muslim	9564	742 (7.7)	1	1	
Christian	602	66 (10.9)	1.46 (1.12-1.91)	1.12 (0.84-1.49)	
Other	103	20 (19.4)	2.86 (1.74-4.69)	2.86 (1.68-4.87)	
Living with parents					**0.002**
No	2029	127(6.2)	1	1	
Yes	8250	706 (8.5)	1.40 (1.15-1.70)	1.38 (1.12-1.69)	
Home smoking					**0.016**
No	7295	551 (7.0)	1	1	
Sometimes	1085	110 (10.1)	1.38 (1.11-1.71)	1.34 (1.06-1.69)	
Yes	1906	173 (9.0)	1.22 (1.02-1.46)	1.23 (1.00-1.50)	
Family smoking					**<0.001**
None	7364	513 (6.9)	1	1	
Mother	274	38 (13.8)	2.14 (1.50-3.06)	2.14 (1.45-3.16)	
Father	1199	124 (10.3)	1.53 (1.25-1.89)	1.34 (1.04-1.65)	
Sibling	718	87 (12.1)	1.84 (1.44-2.34)	1.42 (1.09-1.85)	
Others	729	72 (9.8)	1.46 (1.12-1.89)	1.16 (0.87-1.53)	
Friends who smoke					**<0.001**
None					
One	6790	368 (5.4)	1	1	
Two	673	72 (10.6)	2.08 (1.60-2.72)	1.77 (1.33-2.36)	
Three or more	356	52 (14.6)	2.98 (2.18-4.07)	2.47 (1.77-3.44)	
Not sure	762	177 (23.2)	5.27 (4.32-6.43)	3.55 (2.84-4.43)	
	1699	164 (9.6)	1.86 (1.53-2.25)	1.54 (1.26-1.88)	

3.4 DISCUSSION

3.4.1 Summary of findings

This is the first study to provide detailed data on smoking and other forms of tobacco use in a nationally representative sample of adolescent school students in The Gambia. We found that around one in four boys and one in ten girls had ever tried smoking, but that smoking within the past 30 days was relatively uncommon, especially in girls. Young people in our sample were more likely to smoke if family or friends smoked and if smoking was allowed in the home, and generally found it easy to access cigarettes. Smoking was more common among privately educated students, and among those who were not Muslim. Most smokers wanted to quit. As a result of anecdotal reports during the piloting of our study we also uncovered significant experimentation with shisha smoking, for which the gender gap in prevalence was much less marked than for cigarette, cigar or pipe smoking. Smoking was also most common in the older boys, but tended to be higher in younger girls than older girls.

3.4.2 Strengths and Limitations

Our study has some limitations. First for logistical reasons we used a self- administered questionnaire; students may have under-reported or over-reported their answers. For instance, most teenagers may not admit to smoking in the presence of their teachers and female smokers may not admit to smoking, because they feel smoking is socially disapproved for girls. To minimize these influences students completed the survey in private without the presence of their teachers. However it

is still possible that such pressures have resulted in a degree of underestimation of true prevalence in those groups. Nevertheless, several studies have reported high reliability of the results on self-administered teenage smoking questionnaires (141, 142). Secondly, the survey was limited to students. It may not represent the smoking prevalence of all youths aged 12-20 years in The Gambia. However based on data from the Ministry of Education the gross enrolment rates are relatively high with 68.12% and 41.2% for UBS and SSS respectively (143). We also had, relatively higher proportion of girls in our sample than boys. Which was slightly more marked than the national male: female enrolment ratio of 48:51(144); we recognise that boys may have been underrepresented as a result of taking employment or migrating out of the country. Despite some limitations, our study has a number of strengths. The participation rate among those sampled was extremely high and the sample is highly representative of the total population in this age-group. 45% of the population are aged 15 or below and about 31% are aged between 16 and 19 (13). Furthermore, 100% of invited schools participated; UBS and SSS schools were sample from schools throughout the country. Moreover, results from this study are likely to reflect the situation in other sub-Saharan African countries at a similar stage of the tobacco epidemic. Furthermore, the findings from this study indicate the need to assess patterns of shisha smoking in other parts of sub-Saharan Africa.

3.4.3 Comparison with previous findings

Previous studies of smoking among students in The Gambia are limited, the most recent and widely quoted being the 2008 GYTS survey. This study estimated a slightly higher overall prevalence of smoking than in ours, but this could well reflect the restricted local sampling frame used in GYTS (125). The low prevalence of conventional smoking among girls is consistent with earlier studies in The Gambia (124, 125, 127) and in other LMICs in Africa and elsewhere (142, 145-147). This can be attributed to the fact that in many African social cultures, smoking is generally more acceptable in males than in females (148, 149). Our findings on shisha use were surprising however. Shisha smoking is known to be more common in Arab populations, and studies have shown dramatic increases in shisha smoking particularly among young people in the Middle East (21, 150). To our knowledge this is the first study to report shisha smoking in The Gambia, and in conjunction with findings elsewhere (151-153) indicate that shisha use may evolve into a significant health problem in such countries, particularly since a large proportion of shisha smokers do not consider shisha to be a tobacco product. Over 70% of ever shisha users in our study reported themselves to be never smokers of tobacco. Our finding that current and ever shisha smokers were more likely to have parents and friends who smoke, have smoking allowed in their homes and to be attending a private school is consistent with previous studies. Private school attendance is a marker of relative wealth, making tobacco more affordable, and smoking among the relatively

advantaged is a typical pattern of the early stages of uptake of smoking in many developing countries (154). Our finding that Muslims were particularly unlikely to smoke is also consistent with evidence from Ghana (146), and with wider evidence on smoking and spirituality (155-157). The Gambia is a highly religious country with predominantly Muslims (95%) and Christians (4 %), thus cultural factors may have a strong influence on smoking prevalence. Furthermore understanding cultural factors is essential in understanding the pattern of tobacco use among young people. In addition cultural differences have been showed to be associated with tobacco smoking and suicidal ideation among 12-15 years old school age children (158). Even though the majority of students in our study reported starting smoking at the age of 16 years, a significant number started smoking as early as 7 years. Similar results have been found in other West African countries too (159). This early age of initiation in the region suggests the importance of adopting policies targeting students as early as possible.

In addition to the well-documented health harms caused by smoking, smokers also face a significant financial burden. Our results show that smoking imposes a significant economic cost on young smokers, with over 30% spending more than D40 ($0.9) on smoking per day. Given the fact that about 50% of Gambians lived below the poverty line of $1.25/day in 2010 (160), smoking is likely to exacerbate poverty at both individual and national level (161, 162). Our finding that access to tobacco products was easy for our respondents, regardless of age, is common in African countries: in Cote d'Ivoire and South Africa, 68.9%

and 68.7% respectively of students who smoke cigarettes were not refused the sale of cigarettes because of their age (163). Despite relatively advanced tobacco control legislation in The Gambia, with the 1998 Prohibition of Public Smoking Act, the 2003 Tobacco Product Advertisement Bill and the ratification of the WHO Framework Convention on Tobacco Control in 2007, enacted legislation on age restriction of tobacco products purchase was not available until 2016. Although most smokers wanted to stop smoking, there are no comprehensive cessation programmes available in the public health service system in The Gambia. This lack of stop smoking support services is a common problem in many LMICs and has been reported previously (164, 165). Developing cessation programmes that are integrated into national health and education systems in accordance with the Article 14 of the WHO FCTC (29) can potentially help reduce current smoking levels.

3.5 CONCLUSION

Our findings thus demonstrate data consistent with the early stages of epidemic smoking in The Gambia, and raise concerns that shisha smoking may be more important, particularly among girls, than might previously have been recognised. Urgent action in the form of tobacco control measures, including regular monitoring of uptake of all forms of tobacco smoking and the development of gender- and age-specific interventions, are required to reduce current levels and minimise uptake in the future. Further work is required to determine whether this is a

problem local to The Gambia, or reflects a wider pattern of tobacco use in sub-Saharan Africa.

4 CHAPTER FOUR: PREVALENCE AND FACTORS ASSOCIATED WITH EXPOSURE TO SECOND-HAND SMOKE (SHS) AMONG YOUNG PEOPLE IN THE GAMBIA

4.1 BACKGROUND

The WHO Framework Convention on Tobacco Control states that 100% smoke-free environments are the only proven way to adequately protect people from the harmful effects of second-hand tobacco smoke (26). Given the increasing prevalence of smoking in many low income countries, preventing exposure to SHS is an urgent public health priority in these countries, particularly in sub-Saharan Africa. Since 1999, The Gambia has been implementing the Prohibition of Smoking (Public Places) Act 1998, which prohibits tobacco smoking in public places, workplaces, hospitals, public vehicles and in government properties or premises (133). However, the extent to which this has protected people against SHS is unclear: data on the prevalence of exposure to second-hand tobacco smoke are limited and data on the determinants of exposure to SHS among adolescents is not available. The aim of this chapter is to obtain a reliable and nationally representative estimate of the prevalence of exposure to SHS, and to identify the major risk factors among young people in The Gambia. Prevalence of exposure to SHS is measured as any exposure to tobacco smoke at home and outside the home including school premises.

4.2 STUDY METHODS

4.2.1 Data Collection and study variables

The data were collected using the survey outlined in Chapter two. Questions that were relevant to this study were around the frequency and level of exposure to SHS, support for smoke-free legislation and knowledge of the harmful effect of SHS.

4.2.2 Exposure to SHS

Self-reported exposure to second-hand smoke was the outcome variable and was assessed in the study by the following questions: 1) “During the past 7 days, on how many days has anyone smoked in your presence inside your home, 2) in an outdoor public place, 3) in an indoor public place, 4) inside any public transportation and 5) during the past 30 days has anyone smoked in your presence inside the school buildings or premises. Exposure to SHS was defined as being exposed to SHS on at least one day in the past 7 days in any public place and/or in the home or in the past 30 days at school. Exposure to SHS outside the home was defined as any exposure in outdoor and indoor public places, inside any public transportation and at school. During data analysis to ascertain exposure to SHS in public transportation the responses ‘I did not use public transportation during the past 7 days’ and ‘I use public transportation but no one smoked in my presence were combined into one category.

The independent variables used in the study were gender, age religion, school level, school funding type, school locality, parents’ educational

level, tobacco use by family and friends, being sent to purchase cigarettes and support for smoke-free bans.

4.2.3 Frequency of exposure to SHS at different locations

The study assessed the frequency of exposure to SHS at home by asking the questions: 1) How often do you see your Father, 2) Mother, 3) Sibling and 4) other people smoke in your home. The response options were: don't have / don't see this person; about every day; sometimes; and never. Exposure to SHS at school was assessed by asking: 1) During the past 30 days has anyone smoked inside the school buildings, 2) school property in your presence and the response options were "yes" and "no". Further questions about exposure to SHS were also asked: 1) The person you saw smoking, who was, and 2) How often do you see teachers smoking in school buildings and outdoors on school premises during school hours.

4.2.4 Knowledge of the harmful effects of exposure to SHS

Knowledge of the harmful effects of exposure to SHS was assessed by asking the question: "Do you think the smoke from other people's tobacco smoking is harmful to you?" Possible responses were 'definitely not', 'probably not', 'probably yes' and 'definitely yes'.

4.2.5 Support for Smoke-free polices

Two questions were asked about support for smoke-free policy: 1) Are you in favour of banning smoking inside enclosed public places (such as schools, shops restaurants, shopping malls) and 2) are you in favour of banning smoking at outdoor public places (such as markets,

garages, entrances to buildings, bantabas, beaches), to which the options were ‘no’ and ‘yes’.

4.2.6 Statistical analysis

Data were analysed in Stata version 14. Proportions and 95% Confidence Intervals were obtained as estimates of the prevalence of exposure to second-hand smoke. Initial univariate logistic regression analysis was performed using the two main outcome variables (exposure to SHS at home and outside the home). Exposure variables that were statistically significant in the univariate analysis were then included in multivariate logistic regression analyses to predict factors associated with exposure to SHS at home and outside the home. We adjusted associations for a *priori* confounders comprising age, gender and rural/urban area of schools.

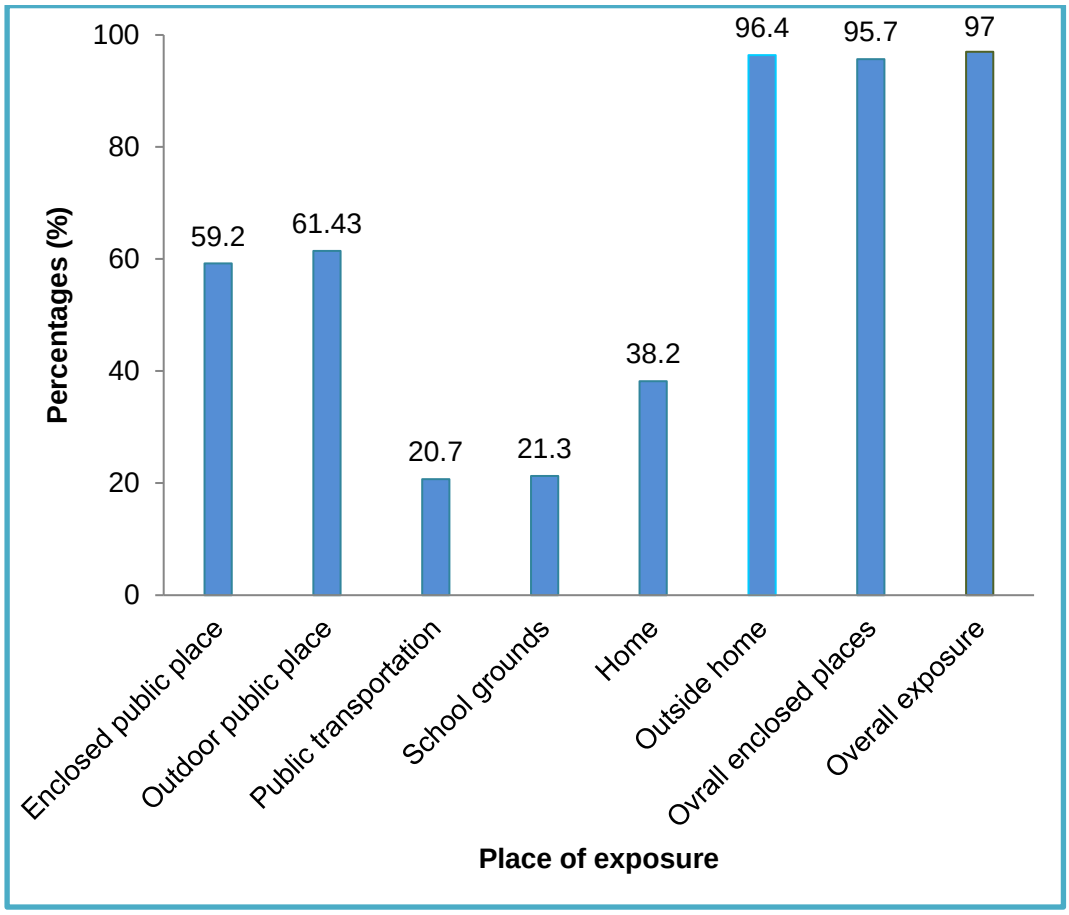
4.3 RESULTS

4.3.1 Prevalence of exposure to SHS and participants’ place of exposure to SHS

Figure 1 describes the overall prevalence of exposure to SHS and participants’ exposure to SHS in different locations. Overall about 97.0% of students were exposed to SHS. More than half of the students were exposed to SHS for at least one day in the past week in enclosed (59.2%) and outdoor (61.4%) public places, and 38.2 % in the home. 96.4% of students were exposed to SHS outside the home (enclosed and outdoor public places, public transportation and school) and 95.7% of the students were exposed to SHS in an enclosed place (enclosed

public place, public transportation, school buildings and/or at home). About one in five (21.3%) students had been exposed to SHS at school on at least one day in the previous 30 days.

Figure 4. 1: Exposure to SHS at different locations



4.3.2 Frequency of exposure to SHS at home

The frequency of SHS exposure at home and school is summarised in Table 4.1. Approximately 8% of students reported their father smoking in their presence, and 4.7% of students reported their mother smoking in their presence, every day in the past 7 days. Daily exposure to SHS from other family members (11.7%) was much higher compared to exposure from parents.

Table 4.1: Frequency of exposure to SHS at home

Characteristics	Total(n=10,289) N	(%)
Father		
About every day	800	7.7
Sometimes	1253	12.1
Never	6265	60.9
Don't have/don't see this person	1958	19.0
Mother		
About every day	489	4.7
Sometimes	951	9.2
Never	6834	66.5
Don't have/don't see this person	2000	19.4
Sibling		
About every day	468	4.5
Sometimes	1060	10.3
Never	6848	66.6
Don't have/don't see this person	1901	18.5
Other family members		
About every day	1210	11.7
Sometimes	3223	31.3
Never	3802	37.0
Don't have/don't see this person	2309	19.8

4.3.3 Factors associated with SHS exposure at home

As shown in Table 4.2, after adjusting for age, gender and school location, girls (OR 1.34, 95% CI 1.22-1.47), students aged 18-20 years (OR 1.20, 95% CI 1.02-1.40), those in UBS schools (OR 1.40, 95% CI 1.25 -1.57) and students attending grant–aided schools (OR 1.36, 95% CI 1.17 -1.58) were significantly more likely to be exposed to SHS. Living with parents (OR 0.83, 95% CI 0.74-0.93), being a smoker (OR 1.63, 95% CI 1.31-2.03), having smoking allowed at home and having family members or friends who smoked also significantly increased the risk of students' exposure to SHS at home. In addition, students who were sent to purchase cigarettes (OR 1.98, 95% CI 1.80-2.18) and

supported a ban at enclosed public places (OR 1.22, 95% CI 1.09-1.37) were significantly more likely to be exposed to SHS at home.

Table 4.2: Determinants of SHS exposure at home

Characteristics	Categories	Total (n=9982)	Unadjusted OR (95%:CI)	Adjusted OR (95%:CI)	P-values
Age group	12 - 14	2184 (21.8)	1	1	**0.010**
	15 - 17	5129 (51.3)	0.97(0.88-1.08)	1.07(0.95-1.21)	
	18 – 20	2669 (26.7)	0.96(0.86-1.08)	1.20(1.02-1.40)	
Gender	Boys	4437 (44.4)	1	1	**<0.001**
	Girls	5545 (55.5)	1.03(0.95-1.12)	1.34(1.22-1.47)	
School type	SSS	4380 (43.8)	1	1	**<0.001**
	UBS	5602 (56.1)	1.29(1.19-1.40)	1.40(1.25-1.57)	
School funding	Public	7464 (74.7)	1	1	**<0.001**
	Grant–aided	991 (9.9)	1.02(0.89-1.16)	1.36(1.17-1.58)	
	Private	1527 (15.3)	0.62(0.55-0.70)	0.80(0.70-0.92)	
School locality	Rural	2389 (23.9)	1	1	**<0.001**
	Urban	7593 (76.1)	0.61(0.55-0.66)	0.71(0.64-0.79)	
Religion	Muslim	9277 (92.9)	1	1	**0.049**
	Christian	588 (5.8)	1.31(1.11-1.54)	1.22(1.01-1.47)	
	Other	98 (0.98)	1.97(1.33-2.91)	1.35(0.86-2.12)	
Fathers education	No education	2326 (23.3)	1	1	0.150
	Primary	655 (6.5)	1.19(1.00-1.42)	0.95(0.78-1.16)	
	Secondary	2063 (20.6)	1.28(1.14-1.45)	1.26(1.09-1.45)	
	Tertiary	1827 (18.3)	0.77(0.68-0.88)	0.88(0.75-1.04)	
	Quranic/Arabic	2033 (20.3)	0.96(0.85-1.08)	0.98(0.85-1.14)	
	Don`t know	1077 (10.7)	1.04(0.90-1.21)	1.14(0.95-1.36)	
Mothers education	No education	2941 (29.4)	1	1	**<0.001**
	Primary	1137 (11.3)	1.51(1.32-1.73)	1.38(1.18-1.61)	
	Secondary	2176 (21.7)	0.96(0.86-1.08)	0.92(0.81-1.04)	
	Tertiary	1009 (10.1)	0.78(0.67-0.91)	0.91(0.77-1.07)	
	Quranic/Arabic	1676 (16.7)	0.95(0.84-1.08)	0.95(0.83-1.08)	
	Don`t know	1040 (10.5)	0.88(0.76-1.01)	0.83(0.71-0.98)	
Living with parents	No	7988 (80.1)	1	1	
	Yes	1987 (19.9)	0.84(0.76-0.92)	0.83(0.74-0.93)	**0.001**
Smoking Status	Non-smokers	8309 (83.2)	1	1	**<0.001**
	Ever smokers	1671 (16.7)	2.28(1.88-2.76)	1.63(1.31-2.03)	
Smoking at home allowed	No	7060 (70.7)	1	1	**<0.001**
	Sometimes	1070 (10.2)	3.24(2.85-3.70)	2.29(1.99-2.64)	
	Yes	1849 (18.5)	4.22(3.79-4.69)	2.73(2.43-3.07)	
Family smoking	None	7112 (71.2)	1	1	**<0.001**
	Mother	270 (2.7)	3.08(2.41-3.93)	1.66(1.27-2.18)	
	Father	1177 (11.8)	5.56(4.87-6.35)	3.16(2.74-3.65)	
	Sibling	702 (7.0)	2.63(2.25-3.07)	1.76(1.49-2.08)	
	Others	716 (7.1)	3.10(2.66-3.62)	2.09(1.77-2.47)	
Number of friends who smoke	None	6563 (65.8)	1	1	**<0.001**
	one	653 (6.5)	2.47(2.10-2.90)	1.89(1.58-2.26)	
	Two	344 (3.4)	2.50(2.01-3.10)	1.94(1.52-2.47)	
	Three or more	743(7.4)	1.94(1.67-2.26)	1.53(1.28-1.82)	
	Not sure	1670 (16.7)	1.22(1.10-1.37)	1.13(1.00-1.28)	
Sent to buy cigarettes	**No**	5700 (57.1)	1	1	**<0.001**
	Yes	4271 (42.9)	2.41(2.22-2.62)	1.98(1.80-2.18)	
Ban in enclosed public places	No	5638 (56.4)	1	1	**<0.001**
	Yes	4336 (43.4)	1.21(1.13-1.32)	1.22(1.09-1.37)	
Ban in outdoor public places	No	5713 (57.2)	1	1	**0.024**
	Yes	4259 (42.8)	1.07(0.99-1.16)	0.88(0.78-0.98)	

4.3.4 Factors associated with SHS exposure outside the home

Table 4.6 outlines the factors associated with exposure to SHS outside the home. Outside the home, lower maternal and higher paternal educational level, living with parents and being sent to purchase cigarettes for others (OR 1.42, 95% CI 1.14-1.77) were significantly associated with increased risk of exposure to SHS. In addition, older students aged 18-20 (OR 1.14, 95% CI 0.83-1.56) were more likely to be exposed to SHS outside the home compared to younger students aged 12-14.

Table 4.3: Determinants of SHS exposure outside the home

Characteristics	Categories	Total(n=9982)	Unadjusted OR (95%:CI)	Adjusted OR (95%:CI)	P value
Age group	12 - 14	2184 (21.8)	1	1	**<0.001**
	15 - 17	5129 (51.3)	1.06(0.82-1.38)	1.04(0.80-1.35)	
	18 – 20	2669 (26.7)	1.22(0.90-1.65)	1.14(0.83-1.56)	
Gender	Boys	4437 (44.4)	1	1	0.890
	Girls	5545 (55.6)	0.91(0.73-1.12)	1.01(0.81-1.26)	
School type	SSS	4380 (43.8)	1	1	0.119
	UBS	5602 (56.1)	0.75(0.60-0.93)	0.80(0.61-1.05)	
School funding	Public	7408 (74.4)	1	1	0.121
	Grand –aided	988 (9.9)	0.55(0.42-0.73)	0.59(0.43-0.80)	
	Private	1525 (15.3)	1.67(1.15-2.41)	1.47(1.00-2.17)	
School locality	Rural	2374 (23.9)	1	1	0.360
	Urban	7547 (76.1)	0.87(0.68-1.13)	0.88(0.67-1.15)	
Religion	Muslim	9219 (93.1)	1	1	0.346
	Christian	586 (5.9)	1.35(0.81-2.25)	1.16(0.69-1.95)	
	Other	97 (0.98)	0.59(0.26-1.37)	0.56(0.24-1.32)	
Father's education	No education	2291 (23.0)	1	1	**<0.001**
	Primary	653 (6.5)	1.75(1.09-2.79)	2.01(1.24-3.26)	
	Secondary	2060 (20.7)	1.93(1.41-2.64)	2.36(1.69-3.31)	
	Tertiary	1825 (18.4)	2.50(1.75-3.58)	3.46(2.29-5.22)	
	Quranic/Arabic	2022 (20.3)	1.51(1.13-2.03)	2.49(1.77-3.50)	
	Don`t know	1069 (10.7)	1.54(1.07-2.22)	2.12(1.39-3.23)	
Mother's education	No education	2932 (29.5)	1	1	**<0.001**
	Primary	1136 (11.4)	1.08(0.72-1.64)	0.94(0.62-1.43)	
	Secondary	2161 (21.7)	1.16(0.83-1.62)	0.75(0.52-1.08)	
	Tertiary	988 (9.9)	0.84(0.56-1.24)	0.41(0.26-0.65)	
	Quranic/Arabic	1667 (16.8)	0.48(0.36-0.64)	0.30(0.21-0.42)	
	Don`t know	1034 (10.4)	0.70(0.48-1.01)	0.45(0.30-0.69)	
Living with parents	No	7938 (80.0)	1	1	**0.008**
	Yes	1975 (19.9)	0.69(0.52-0.93)	0.66(0.49-0.89)	
Smoking status	Non smokers	8309 (83.2)	1	1	0.250
	Ever smokers	1671 (16.7)	1.66(0.88-3.14)	1.46(0.76-2.82)	
Smoking at home allowed	No	7038 (70.9)	1	1	0.524
	Sometimes	1045 (10.5)	0.94(0.67-1.32)	0.88(0.62-1.25)	
	Yes	1835 (18.5)	0.93(0.7101.2)	0.86(0.65-1.14)	
Family smoking	None	7080 (71.4)	1	1	0.060
	Mother	270 (2.7)	2.5990.967.02)	2.64(0.95-7.29)	
	Father	1149 (11.5)	0.88(0.65-1.20)	0.75(0.54-1.04)	
	Sibling	697 (7.0)	1.27(0.81-2.00)	1.14(0.72-1.81)	
	Others	712 (7.1)	1.61(0.98-2.64)	1.33(0.80-2.21)	
Number of friends who smoke	None	6515 (65.7)	1	1	0.062
	one	650 (6.5)	1.17(0.761.810	1.11(0.71-1.73)	
	Two	344 (3.4)	1.19(0.66-2.15)	1.14(0.63-2.08)	
	Three or more	743(7.5)	1.63(1.01-2.61)	1.39(0.85-2.25)	
	Not sure	1660 (16.7)	1.77(1.26-2.49)	1.63(1.15-2.30)	
Sent to buy cigarettes	**No**	5700 (57.1)	1	1	**0.001**
	Yes	4271 (42.8)	1.55(1.26-1.91)	1.42(1.14-1.77)	
Ban in enclosed public places	No	5638 (56.4)	1	1	0.191
	Yes	4336 (43.5)	1.45(1.17-1.79)	1.19(0.91-1.55)	
Ban in outdoor public places	No	5713 (57.2)	1	1	0.760
	Yes	4259 (42.7)	1.33(1.08-1.64)	1.04(0.80-1.35)	

4.3.5 Exposure to SHS at school among participants

About 4.4% and 5.0% of students were exposed to SHS every day inside school buildings or premises respectively (Table 4.4). About 21% of students had seen people smoking inside their school and about a third of those who had seen people smoking in their schools (12.1% of the total sample) had seen teachers smoking.

Table 4.4: Exposure to SHS at school

Characteristics	**Total (n=10,289) N**	**(%)**
Anyone smoking in school buildings or property		
Yes	2185	21.2
No	8086	78.7
Person seen smoking at school		
Friends	807	7.8
Other students	891	8.6
Teachers	1232	12.1
Other staff	674	6.5
None	6666	64.9
Teachers or staff smoking inside school buildings		
About every day	516	5.0
Sometimes	1905	18.5
Never	5339	52.0
Don’t Know	2506	24.1
Teachers or staff smoking on school premises		
About every day	459	4.4
Sometimes	1839	17.8
Never	5218	50.7
Don’t Know	2762	26.8

4.3.6 School-level smoking policies in participating school

All schools that participated in the study had a policy prohibiting smoking inside school buildings and the majority of schools (95.0%) also had polices or rules specifically prohibiting tobacco use outside school buildings on school premises or property (Table 4.3). While most schools also had policies prohibiting smoking in school buildings among staffs/personnel more than 50% of schools had no policies prohibiting tobacco use on school premises outside school buildings among personnel. About 90% of schools indicated that they had a complete enforcement of the smoking ban policy among students. Enforcement of smoking polices among teachers in schools was low, only 38% of schools enforced a complete ban of smoking among teachers in school.

Table 4.5: School smoking policies and enforcement

Characteristics	N	(%)
Policy prohibiting smoking inside school buildings among students	50	100.0
Yes	0	0
No	0	0
Don't know		
Policy prohibiting smoking on school premises among students	47	94.0
Yes	2	4.0
No	1	2.0
Don't know		
Policy prohibiting smoking on school inside school buildings among personnel	43	86.0
Yes	7	14.0
No	0	0
Don't know		
Policy prohibiting smoking on school premises among school personnel	24	48.0
Yes	26	52.0
No	0	0
Don't know		
Enforcement among students		
No policy	2	4.0
Completely	45	90.0
Partially	3	6.0
Not at all	0	0
Enforcement among school personnel		
No policy	2	4.0
Completely	19	38.0
Partially	21	42.0
Not at all	8	16.0

4.3.7 Perception of the risk of exposure to SHS and support for public smoking bans

Participants' perceptions of the risk of exposure to SHS are outlined in Table 4.4. One in four (26.6%) and one in ten (9.4%) participants reported that exposure to SHS was definitely not harmful and probably not harmful respectively. About half of the participants supported a smoking ban in enclosed (56.0%) and outdoor (56.9%) public places.

Table 4.6: Perception of the risk of exposure to SHS and support for public smoking bans

Characteristics	Total(n=10,289) N	(%)
Thinks SHS is harmful		
Definitely not	2736	26.6
Probably not	968	9.4
Probably yes	1296	12.6
Definitely yes	5278	51.3
Thinks smoking should be banned in enclosed public places		
Yes	5761	56.0
No	4517	43.9
Thinks smoking should be banned in outdoor public places		
Yes	5852	56.9
No	4424	43.0

4.4 DISCUSSION

4.4.1 Summary of study findings

This is the first study to provide detailed data on exposure to SHS in a nationally representative sample of school students in The Gambia. We found a very high level of self-reported exposure to SHS among students in this sample, and, contrary to expectation, found that while around two in five respondents reported SHS exposure in the home, a large majority of young people reported exposure in public places.

Older students in our sample were generally more likely to be exposed to SHS, as were children under the age of 15. Older students and girls were significantly more likely to be exposed to SHS at home compared to boys. Students in our sample were also more likely to be exposed to SHS if their family members or friends smoked, if they attended UBS or grant-aided schools, smoking was allowed in the home and among those who were not Muslim. Exposure to SHS at home and outside the home were also associated with parental educational level, though in opposite ways; higher maternal and lower paternal levels of education were associated with lower exposure. Students who were sent to purchase cigarettes for others were also more likely to be exposed to SHS. Awareness of the harm to health of SHS exposure was low; with more than a quarter of students reporting that exposure was probably or definitely not harmful. However, most students supported a smoking ban in both enclosed and outdoor public places.

4.4.2 Strengths and limitations

The general limitations of the survey methods are discussed in chapter three; section 3.4.2. In brief, our sampling method ensured that the population selected was likely to be highly representative of young people in The Gambia, but we recognise that this limits the generalisability of our findings to young people not in school. Furthermore, we used a self-administered questionnaire to measure exposure to SHS: students may have under- or over reported the answers. However, students' self-reports of exposure to SHS have

been found to be highly consistent with urinary cotinine level measurement in other settings (166).

The strengths of our survey method, which include a large sample size and high response rate among those interviewed, are also described in section 3.4.2. Additionally, the study addressed SHS exposure both at home and outside the household (including school premises and buildings). This provides useful information for parents, school authorities and policy makers to develop targeted interventions to prevent students and young people from being exposed to SHS

4.4.3 Comparison with previous findings

Previous studies of smoking and exposure to SHS among students in The Gambia are limited, the most recent and widely quoted being the 2008 GYTS survey. The GYTS estimated a lower overall prevalence of exposure to SHS than ours, but this could well reflect the restricted local sampling frame used in the GYTS (125). The high prevalence of exposure to SHS is consistent with earlier studies in The Gambia and other countries in Africa (167, 168).

In The Gambia, the Public Smoking Act, which bans smoking in all public places, came into effect in 1998. However, our observation that exposure to SHS remains high, and may even have increased since the 2008 GYTS, suggests that efforts are still needed to enhance the enforcement of this law, particularly since public places were the most frequent source of exposure to SHS among young people in The Gambia. Beyond the direct health benefits of smoke-free policies, implementing smoke-free laws, especially in public places, has been

shown to change the public acceptance of smoking by the general population (169, 170). Most countries in the African region still have weak or even non-existent smoke-free laws and compliance with smoke–free laws varies extensively (12). Furthermore, enforcement of smoke-free polices in most African countries have been identified as a major challenge (171). Similar to previous findings (172), our study also showed that more than half of the students are supportive of policies that ban public smoking; however many are unaware of the harmful effects of exposure to SHS. Adolescent awareness of the harmful health effects of SHS has been shown to be associated with a reduced risk of exposure to SHS (173, 174), and suggests that improved education on the risks of SHS could lead to reductions in exposure. We found that older students were more likely to be exposed to SHS both outside the home and inside the home; this is consistent with findings in previous studies among students (175, 176). Older students have more opportunities to be outside the home in public places where there are more likely to be smokers. Our finding that parents' educational level, living with parents and being sent to purchase cigarette for others were significant determinants of exposure to SHS in public places is consistent with previous studies (172, 177, 178), and probably arises from the fact that these characteristics all identify contact with others who smoke. These findings emphasise the importance of developing polices that will protect young people from exposure to SHS in private environments such as the home. The majority of the participating schools in this study reported that they had

implemented a comprehensive smoke–free campus policy, yet more than a quarter of students reported SHS exposure at school. These findings, which are consistent with previous reports of significant exposure to SHS at school (179-181) suggest that enforcement of school-based tobacco control measures needs to be strengthened. Studies have shown that in schools with comprehensive policies and high compliance, students are much less likely to report exposure, and report lower intentions to smoke in the future (182).

Our findings that students in homes without smoking rules or with partial rules were more likely to be exposed to SHS compared to those who have smoking rules at home. This finding corroborates results in previous studies (29) that compared to those without rules, young people exposure to SHS is higher in homes when no smoking rules exist.

Our results showed that parents' educational level, family or friends' smoking status, living with parents, home smoking rules and being sent to purchase cigarette for others were significant determinants of exposure to SHS in the home and is consistent with previous studies (172, 175-178). Furthermore it has also been shown that non-smokers exposed to SHS at home are more likely to be susceptible to initiating smoking than those not exposed (183). Educating parents about the harmful effects of smoking and exposure to SHS could be one of the effective ways to protect young people at home. This will help to protect children, help parents who smoke to quit and discourage others from smoking in their homes.

4.5 CONCLUSION

This study has shown that exposure to SHS is very high among students and that despite smoke-free laws, protection against SHS exposure in public places in The Gambia is still inadequate. There is an urgent need to advocate for interventions to reduce the current level of exposure to SHS and minimise further exposure among students. This underscores the need to develop comprehensive smoke-free laws and strictly enforce these laws in all environments. Further research is required to determine whether this is a problem among students alone, or reflects a wider pattern of exposure to SHS among the general population.

5 CHAPTER FIVE: PREVALENCE AND DETERMINANTS OF SUSCEPTIBILITY TO TOBACCO SMOKING AMONG STUDENTS IN THE GAMBIA

5.1 INTRODUCTION

Smoking susceptibility has been found to be a strong predictor of smoking experimentation and young people who are susceptible to smoking have been identified to have double the risk of taking up smoking compared to those who are not susceptible (6, 33, 184). A number of factors that influence susceptibility to smoking initiation among young people have been identified in the literature. These include sociodemographic, environmental, socioeconomic and behavioural characteristics (6, 185-187). Understanding the factors that influence never smokers to initiate smoking is critical to shaping future smoking prevention programmes (6, 188). In Chapter 3 we reported a prevalence of current smoking of 7.9% in boys and 1.5% in girls, and found that shisha use was becoming increasingly popular. To our knowledge data on smoking susceptibility in The Gambia are not available. Therefore, this chapter reports the prevalence of smoking susceptibility, and the risk factors for susceptibility among young people in The Gambia.

5.1 METHODS

5.1.1 Study population and variables

The study sampling methods and population has been described previously in Chapter 2. Briefly, participating students completed a self-administered questionnaire adapted from the GYTS questionnaire. Data

were also collected on a range of variables including smoking susceptibility, exposure to tobacco advertisements and promotion, anti-smoking media messages, beliefs about the dangers of smoking and the perceived benefits of smoking.

5.1.2 Smoking susceptibility

The outcome variable, susceptibility to smoking, was measured using two standard GYTS questions: 1) If one of your best friends offered you a tobacco product, would you smoke it, 2) At any time during the next 12 months do you think you will smoke any form of tobacco. Students who were currently non-smokers and answered “definitely not” to both questions were coded as non-susceptible and others who answered “probably not”, “probably yes”, or “definitely yes” to either question were labelled as susceptible to smoking (189-191).

5.1.3 Awareness of tobacco advertisement and promotion

Participants were asked questions about their awareness of and attitudes towards advertisements or promotion for tobacco products. The first part asked about noticing tobacco advertisements in the media (TV, videos or movies, internet) and point of sale advertisements (stores, shop, etc) in the past 30 days. The second part asked if they would support a tobacco advertisement ban and if they owned and used any non- tobacco items or products with a tobacco brand/logo/ name on it.

5.1.4 Awareness and knowledge of anti-tobacco messages

To assess students' awareness and knowledge of anti-tobacco messages the following questions were asked: 1) during the past 30 days did you see or hear any anti-tobacco media messages (TV, radio, internet, newspapers), 2) at social gatherings or community events and 3) did you see any health warnings on cigarette packages. The responses for health warnings on cigarette packs were 'yes but I didn't think much of them', 'yes and they led me to quit smoking or not to start smoking' and 'no'. These categories were regrouped in to 'yes and 'no' during analysis. They were further asked if they were taught about the dangers of tobacco use in class during the past 12 months, to which they had three options 'yes' 'no' and 'I don't know'. During the analysis 'no' and 'don't know' were grouped into one category.

5.1.5 Attitudes, beliefs and perceived benefits of smoking

The study assessed participants' attitudes towards and beliefs about smoking by asking the following questions: 1) once someone has started smoking do you think it would be difficult for them to quit, 2) Do you think smoking tobacco helps people feel more comfortable at social gatherings, 3) Do you think it is safe to smoke tobacco for only a year or two as long as you quit after that, 4) Do you think people who smoke have more or less friends, 5) Do you think young people who smoke tobacco are less attractive. To assess participants' perceptions of the benefits of smoking three questions were asked: 1) Do you believe that by smoking tobacco you can improve your general health status 2) Do you believe that smoking tobacco can help someone to lose weight, 3)

Do you believe that smoking can make people more comfortable at social events.

5.1.6 Knowledge of the harmful effects of smoking

Knowledge of the harmful effects of smoking was assessed by asking: Do you think smoking is harmful to your health. All students who responded “definitely not” and “probably not” to the question on knowledge of the harmful effects of smoking were defined as having poor knowledge and those who responded “probably yes” and “definitely yes” were defined as having good knowledge.

5.1.7 Statistical analysis

Only non-smokers were included in the analysis of this study. Initially descriptive and chi-squared analyses were used to obtain estimates of the prevalence of susceptibility to smoke and to determine any correlation of smoking susceptibility with students’ demographic characteristics, awareness of tobacco advertisements, attitudes, beliefs and perceived benefits of smoking. Univariate logistic regression was carried out first to look for association between smoking susceptibility (outcome variable) and the exposure variables. The exposure variables included gender, age, school locality, school funding source, religion, home smoking rules, family and friends’ smoking status, whether students were sent to purchase cigarettes for others, knowledge of the harmful effects of smoking, and exposure to tobacco advertisements. Gender, purchasing cigarettes for others, knowledge of the harmful effects of smoking and exposure to tobacco advertisements were entered as binary variables and the rest of the exposure variables were

categorical. We constructed a multivariate logistic regression model to ascertain the predicting factors of smoking susceptibility. Similar to previous analyses in chapter three and four we adjusted for a priori confounders comprising age, gender and rural/urban area of school, which previous studies have suggested are associated with susceptibility to initiate tobacco use (6, 33). Variables with p-values equal or less than 0.05 in the univariate analysis were included in the final model.

5.2 RESULTS

5.2.1 Sample description

Details of the socio-demographic characteristics and prevalence of active smoking in this survey population are reported in Chapter three. In brief, a total of 50 schools throughout the country participated in the study, including 33 upper basic and 17 senior secondary schools, comprising 13 private, 27 public and 10 grant-aided schools. All schools (100%) approached during the study participated. A total of 10,395 students were registered in the selected classes, of which 10,289 (99%) students participated in the study. After excluding the 455 current smokers, 9831 students were included in the current analysis.

5.2.2 Characteristics of the study population and prevalence of smoking susceptibility

Detailed characteristics of the study participants by smoking susceptibility are summarised in Table 5.1. Among the total sample of 9831 students, 3,333 (33.9%) of never smokers were susceptible to

initiating smoking and 6498 (66.1%) were non-susceptible. Smoking susceptibility was more common among students attending grant-aided schools (45.3%), among those of Christian or other faiths compared to Muslims, those who lived without parents (36.1%), were subject to partial home smoking rules (42.5%), those who had smoking mothers (63.1%), who had one or more family members and friends that smoked and among students who were sent to purchase cigarettes for others.

Table 5.1: Baseline characteristics of the study participants by smoking susceptibility

Characteristics	Total N= 9831	Non–susceptible N (%)	Susceptible N (%)	P-value
	N (%)	6498(66.1)	3333(33.9)	
Gender				0.628
Boys	4201(42.7)	2788(66.3)	1413(33.6)	
Girls	5630 (57.2)	3710(65.9)	1920(34.1)	
Age group				0.542
12 - 14	2167 (22.0)	1411(65.1)	756(34.8)	
15 - 17	5071 (51.5)	3369(66.4)	1702(33.5)	
18 - 20	2593 (26.3)	1781(66.2)	875(33.7)	
School type				0.461
UBS	5533(56.2)	3640(65.7)	1893(34.2)	
SSS	4298 (43.7)	2858(66.5)	1440(33.5)	
School funding				**<0.001**
Public	7356 (74.8)	4946(67.2)	2410(32.7)	
Grant-aided	1015 (10.3)	555(54.6)	460(45.30)	
Private	1460 (14.8)	997(68.20	463(31.70	
School locality				0.560
Rural	2335 (23.7)	1555(66.6)	780(33.4)	
Urban	7496 (76.2)	4943(65.90)	2553(34.0)	
Religion				<**0.001**
Muslim	9463 (96.2)	6108(66.6)	3055(33.3)	
Christian	561 (5.7)	351(62.5)	210(37.4)	
Other	88 (0.8	28(31.8)	60(68.1)	
Living with parents				**0.021**
Yes	7873 (80.0)	5245(66.6)	2625(33.3)	
No	1953 (19.9)	1248(63.9)	705(36.1)	
Home smoking rules				<**0.001**
No	7043 (71.6)	4799(68.1)	2244(31.8)	
Sometimes	1010 (10.2)	580(57.4)	430(42.5)	
Yes	1775 (18.0)	1117(62.9)	658(37.0)	
Family smoking				**<0.001**
None	7125 (72.4)	4997(70.1)	2128(29.8)	
Mother	244 (2.4)	90(36.8)	154(63.1)	
Father	1110 (11.2)	657(59.1)	453(40.8)	
Brother/Sister	652 (6.6)	358(54.9)	294(45.0)	
Others	695 (7.0)	394(56.6)	301(43.3)	
Number friends who smoke				**<0.001**
None	6640 (67.5)	4659(70.1)	1981(28.8)	
One	621 (6.3)	279(44.9)	342(55.0)	
Two	310 (3.1)	165(53.2)	145(46.7)	
Three or more	618 (6.2)	327(52.9)	291(47.0)	
Not sure	1633 (16.6)	1062(66.1)	571(34.9)	
Sent to buy cigarettes for parents or others				**<0.001**
Yes	4298 (43.7)	2756(64.1)	1542(35.8)	
No	5523 (56.2)	3739(67.7)	1784(32.0)	
Knowledge of harmful effects of smoking				**<0.001**
Good	4023 (40.9)	2295(57.0)	1728(42.9)	
Poor	5803(59.0)	4203(72.4)	1600(27.5)	

5.2.3 Awareness of tobacco advertisement and promotion

Participants' awareness of tobacco advertisements and promotion, both overall and by smoking susceptibility status, is summarised in Table 5.2. About half (49.3%) of all students had noticed tobacco advertisements in the media (TV, videos and movies) and one in six had noticed point-of-sale tobacco advertisements. Among those students who noticed point-of-sale tobacco advertisements; the brands most widely noticed were Bond Street (14.4%), Monte Carlo (6.1%), Piccadilly (5.9%) and Business Royal (2.6%). About 12.9% of students had been offered a free cigarette by a tobacco company sales agent and 15.0% of participants owned an item with a tobacco logo or brand on it. The majority of students (58.8%) would not wear or use an item with a tobacco brand name or logo on it. More than half (59.7%) of all students indicated that they would support a tobacco advertisement ban. In addition, smoking susceptibility was more common among students who noticed point-of-sale tobacco advertisements (42.4%), who had been offered a free cigarette (56.9%), who owned an item with a tobacco brand or logo (51.9%), who were prepared to wear something with tobacco brand on it, and those who did not support a tobacco advertisement ban (43.1%).

Table 5.2: Awareness of tobacco advertisement and promotion

Characteristics	Total N= 9831	Non-susceptible N (%)	Susceptible N (%)	P value
Noticed tobacco advertisement in the media				**0.013**
No	4976(50.6)	3231(64.9)	1745(35.0)	
Yes	4855(49.3)	3269(67.2)	1588(32.7)	
Noticed point-of-sale tobacco advertisement				**<0.001**
No	8251(83.9)	5589(67.7)	2662(32.2)	
Yes	1580(16.0)	909(57.5)	671(42.4)	
Offered a free cigarette by tobacco company sales agents				**<0.001**
Yes	1275(12.9)	549(43.0)	726(56.9)	
No	8540(87.0)	5949(69.6)	2591(30.3)	
Own anything with a tobacco brand/logo				**<0.001**
Yes	1470(15.0)	707(48.1)	763(51.9)	
No	8332(85.0)	5780(69.3)	2552(30.6)	
Wear or use something with a tobacco brand				**<0.001**
Yes	1098(11.9)	646(56.1)	482(43.9)	
May be	2938(29.9)	1711(58.2)	1227(41.76)	
No	5775(58.8)	4168(72.1)	1607(27.8)	
Support tobacco advertisement ban				**<0.001**
No	3951(40.2)	2248(56.9)	1703(43.1)	
Yes	5857(59.7)	4245(72.4)	1612(27.5)	

5.2.4 Awareness and knowledge of anti-tobacco messages

The majority (53.6%) of students had not noticed anti-tobacco media messages (television, radio, internet, billboards, posters, newspapers, magazines, or movies) and anti-tobacco messages at social gatherings (75.9%) (Table 5.3). More than half of students had not seen health warnings on cigarette packets (52.5%) and were not taught in school about the dangers of tobacco use (57.25%). Smoking susceptibility was more common among students who noticed anti-tobacco messages at social events (38.1%), who saw health warnings on cigarette packets (35.1%) and among students who were not taught about the dangers of tobacco use (38.5%).

Table 5.3: Awareness and knowledge of anti –tobacco messages

Characteristics	**Total N= 9831**	**Non – susceptible N (%)**	**Susceptible N (%)**	**P value**
Noticed anti-tobacco media messages				0.832
No	5277(53.6)	1782(33.8)	3498(66.1)	
Yes	4542(46.3)	1543(33.9)	2999(66.0)	
Noticed anti-tobacco messages at social events				**<0.001**
Yes	2369(24.1)	1465(61.8)	904(38.1)	
No	7453(75.9)	5031(67.5)	2422(32.5)	
Saw health warnings on cigarette packages				**0.120**
	4664(47.4)			
Yes	5167(52.5)	3024(64.8)	1640((35.1)	
No		3474(67.2)	1693(32.7)	
Taught in class about the dangers of tobacco use				**<0.001**
Yes	4144(42.1)	3006(72.5)	1138(27.4)	
No	5677(57.2)	3490(61.4)	2187(38.5)	

5.2.5 Attitudes, beliefs and perceived benefits of smoking

Table 5.4 outlines the study participants' attitudes, beliefs and perceived benefits of smoking by smoking susceptibility status. The majority (57.8%) of the students agreed that it would be difficult to quit smoking once initiated. Around 15.0% of the participants believed that smoking makes people more comfortable at social gatherings and 35.1% that it is safe to smoke tobacco as long as you can quit later. One in five students also believed that smoking can help people to have more friends. In addition, about one in six participants believed that smoking makes people more attractive (17.8%); one in ten participants that smoking can help improve general health status; almost half (47.0%) that smoking can help people lose weight and 18.8% that smoking makes people feel more relaxed. Perceptions that smokers are more comfortable at social gatherings (45.4%) and are more attractive (38.5%); and relaxed (43.1%) than non-smokers, were significantly positively associated with susceptibility to smoking. Additionally, susceptibility to smoking was more common among students who believed that it is safe to smoke so long as you quit later, those who believed that smoking can help to lose weight, and those who believed that smoking can improve general health status.

Table 5.4: Attitudes, beliefs and perceived benefits of smoking

Characteristics	Total N=9831	Non – susceptible N (%)	Susceptible N (%)	P value
Difficult to quit once smoking is initiated				**<0.001**
No	4140(42.1)	3075(74.2)	1065(25.7)	
Yes	5691(57.8)	3423(60.1)	2268(39.8)	
Make people more comfortable in social gathering				**<0.001**
No	6296(64.0)	4300(68.3)	1996(31.7)	
Yes	1475(15.0)	805(54.5)	670(45.4)	
Don't know	2055(20.9)	1393(67.7)	662(32.2)	
Safe to smoke tobacco for only a year or two as long as you quit after that				**<0.001**
	6376(64.8)	4920(77.1)	1456(22.8)	
No	3455(35.1)	1578(45.6)	1877(54.3)	
Yes				
Have more or less friends				**<0.001**
Less friends	4728(48.1)	3425(72.4)	1303(27.5)	
More friends	2188(22.2)	1309(59.8)	879(40.1)	
No difference	2898(29.5)	1762(60.8)	1136(39.2)	
Make people more or less attractive				**<0.001**
Less attractive	5470(55.6)	3924(71.7)	1546(28.2)	
More attractive	1756(17.8)	1079(61.4)	677(38.5)	
No difference	2597(26.4)	1493(57.4)	1104(42.5)	
Can improve general health status				**<0.001**
Yes	943(9.6)	436(46.2)	507(53.7)	
No	6993(71.1)	4988(71.3)	2005(28.6)	
Don't know	1888(19.2)	1074(56.8)	814(43.1)	
Can help to lose weight				**<0.001**
Yes	4621(47.0)	3287(71.3)	1334(28.8)	
No	3041(30.9)	1811(59.5)	1230(40.4)	
Don't know	2164(22.0)	1400(64.7)	764(35.3)	
Can make people more relaxed				**<0.001**
Yes	1850(18.8)	1051(56.8)	799(43.1)	
No	5374(54.6)	3645(67.8)	1729(32.1)	
I don't know	2602(26.4)	1802(69.2)	800(30.7)	

5.2.6 Independent determinants of smoking susceptibility among the study participants

The association between smoking susceptibility and student characteristics is outlined in Table 5.5. After adjusting for all independent variables, smoking susceptibility was more common among students attending grant-aided schools (OR 1.59, 95% CI 1.35-1.87), of other non-Muslim or Christian faiths (OR 2.01, 95% CI 1.17-3.46), who had smoking sometimes allowed in their homes (OR1.33, 95% CI 1.13-1.56), had family members who smoked (Mother; OR 2.56, CI 1.87-3.50, Father; OR 1.48 CI 1.26-1.74, Siblings; OR 1.91 CI 1.58-2.31 and Others OR 1.50 CI1.24-1.81 , had friends who smoked (one friend who smoked; OR 1.62 CI1.33-1.99, two friends who smoked; OR1.28 CI0.97-1.68, three friends who smoked: OR1.48 CI1.21-1.81 and not sure the number of friends who smoked; OR1.06 CI 0.93-1.21, and were sent to purchase cigarettes for others. Additionally, students who had poor knowledge of the harmful effects of smoking (OR 1.65, 95% CI 1.48-1.83) and those who noticed point-of-sale tobacco advertisements (OR 1.15, 95% CI 1.01-1.32) were significantly more likely to be susceptible to smoking. Students who had been offered a free cigarette, owned and used a tobacco branded item, who believed that it is difficult to quit once smoking is initiated, that it is safe to smoke as long as one quits later on, that smoking can improve general health status and that smoking can make people relaxed were significantly more likely to be susceptible to smoking. Students with perceptions that smokers have more friends, are more attractive and that smoking

can help people to lose weight were significantly less likely to be susceptibility to smoking.

Table 5.5: Prevalence and determinants of susceptibility to smoking

Characteristics	Total N=9831	Susceptible N= 3333	Unadjusted OR	P-value	Adjusted OR	P-value
Gender				0.628		0.585
Boys	4201	1413(33.6)	1		1	
Girls	5630	1920(34.1)	1.02 (0.93-1.11)		1.02 (0.92-1.13)	
Age group				0.541		0.280
12 - 14	2167	756(34.8)	1		1	
15 - 17	5071	1702(33.5)	0.94 (0.84-1.04)		0.97 (0.86-1.10)	
18 – 20	2593	875(33.7)	0.95 (0.84-1.07)		1.07 (0.92-1.23)	
School funding				**<0.001**		**<0.001**
Public	7356	2410(32.7)	1		1	
Grant-aided	1015	460(45.30	1.70 (1.48-1.94)		1.59 (1.35-1.87)	
Private	1460	463(31.70	0.95 (0.84-1.07)		1.04 (0.90-1.20)	
School locality				0.560		0.477
Rural	2335	780(33.4)	1		1	
Urban	7496	2553(34.0)	1.02 (0.93-1.13)		1.04 (0.92-1.17)	
Religion				**<0.001**		**0.004**
Muslim	9463	3055(33.3)	1		1	
Christian	561	210(37.4)	1.19 (1.00-1.42)		0.99 (0.80-1.22)	
Other	88	60(68.1)	4.28(2.72-6.72)		2.01(1.17-3.46)	
Living with parents				**0.021**		0.291
Yes						
No	7873	2625(33.3)	1		1	
	1953	705(36.1)	0.88 (0.79-098)		1.06 (0.94-1.20)	
Home smoking rules				**<0.001**		**0.001**
No						
Sometimes	7043	2244(31.8)	1		1	
Yes	1010	430(42.5)	1.58 (1.38-1.81)		1.33 (1.13-1.56)	
	1775	658(37.0)	1.25 (1.13-1.40)		0.98 (0.86-1.12)	
Family smoking				**<0.001**		**<0.001**
None	7125	2128(29.8)	1		1	
Mother	244	154(63.1)	4.01 (3.08-5.23)		2.56 (1.87-3.50)	
Father	1110	453(40.8)	1.61 (1.42-1.84)		1.48 (1.26-1.74)	
Brother/Sister	652	294(45.0)	1.92 (1.63-2.26)		1.91 (1.58-2.31)	
Others	695	301(43.3)	1.79 (1.53-2.10)		1.50 (1.24-1.81)	
Number friends who smoke				**<0.001**		**<0.001**
None	6640	1981(28.8)	1		1	
One	621	342955.0)	2.88 (2.44-3.40)		1.62 (1.33-1.99)	
Two	310	145(46.7)	2.06 (1.64-2.59)		1.28 (0.97-1.68)	
Three or more	618	291(47.0)	2.09 (1.77-2.47)		1.48 (1.21-1.81)	
Not sure	1633	571(34.9)	1.26 (1.12-1.41)		1.06 (0.93-1.21)	
Sent to buy cigarettes for others				**<0.001**		**<0.001**
Yes						
No	4298	1542(35.8)	1		1	
	5523	1784(32.00	0.85 (0.78-0.92)		0.81 (0.73-0.90)	
Knowledge of harmful effects of smoking				**<0.001**		**<0.001**
Good						
Poor	4023	1728(27.5)	1		1	
	5803	1600(42.9)	1.97 (1.81-2.15)		1.65 (1.48-1.83)	
Noticed tobacco advertisement in media				**0.013**		0.148
No	4976	1745(35.0)	1		1	
Yes	4855	3231(64.9)	0.90 (0.82-0.97)		0.92 (0.84-1.02)	
Noticed point of sale tobacco advertisement				**<0.001**		**0.032**
No	8251	2662(32.2)	1		1	
Yes	1580	671(42.4)	1.54 (1.38-1.72)		1.15 (1.01-1.32)	
Offered a free cigarette by tobacco company sales agents				**<0.001**		**<0.001**
Yes						
No	1275	726(56.9)	1		1	
	8540	2591(30.3)	0.32 (0.29-0.37)		0.50(0.43-0.57)	

Table 5.5: Prevalence and determinants of susceptibility to smoking (continued)

Characteristics	Total N=9831	Susceptible N= 3333	Unadjusted OR	P-value	Adjusted OR	P-value
Own anything with a tobacco brand/logo				**<0.001**		**<0.001**
Yes	1470(15.0)	763(51.9)	1		1	
No	8332(85.0)	2552(30.6)	0.40 (0.36-0.45)		0.76 (0.66-0.87)	
Wear or use something with a tobacco brand				**<0.001**		**<0.001**
	1098(11.9)	482(43.9)	1		1	
Yes	2938(29.9)	1227(41.76	0.91 (0.79-1.05)		1.03 (0.88-1.22)	
May be	5775(58.8)	)	0.49 (0.43-0.56)		0.70 (0.59-0.82)	
No		1607(27.8)				
Difficult to quit once smoking is initiated				**<0.001**		**<0.001**
No	4140(42.1)	1065(25.7)	1		1	
Yes	5691(57.8)	2268(39.8)	1.91(1.75-2.08)		2.01(1.81-2.22)	
Make people more comfortable in social gathering				0.002		0.424
	6296(64.0)	1996(31.7)	1		1	
No	1475(15.0)	670(45.4)	0.78 (0.70-0.88)		0.93 (0.81-1.08)	
Yes	2055(20.9)	662(32.2)	0.80 (0.71-0.90)		0.88 (0.73-1.08)	
Don't know						
Safe to smoke tobacco for only a year or two as long as you quit after that				<0.001		**<0.001**
	6376(64.8)	1456(22.8)	1		1	
No	3455(35.1)	1877(54.3)	4.01(3.67-4.39)		3.35 (3.04-3.70)	
Yes						
Have more or less friends				<0.001		**<0.001**
Less friends	4728(48.1)	1303(27.5)	1		1	
More friends	2188(22.2)	879(40.1)	0.56 (0.50-0.63)		0.69 (0.60-0.78)	
No difference	2898(29.5)	1136(39.2)	0.96 (0.85-1.07)		0.85 (0.74-0.97)	
Make people more or less attractive				<0.001		**<0.001**
Less attractive	5470(55.6)	1546(28.2)	1		1	
More attractive	1756(17.8)	677(38.5)	0.62 (0.56-0.70)		0.89 (0.78-1.02)	
No difference	2597(26.4)	1104(42.5)	1.17 (1.04-1.33)		1.29 (1.11-1.51)	
Can improve general health status				<0.001		**<0.001**
Yes	943(9.6)	507(53.7)	1		1	
No	6993(71.1)	2005(28.6)	0.34 (0.30-0.39)		0.50 (0.43-0.59)	
Don't know	1888(19.2)	814(43.1)	0.65 (0.55-0.76)		0.74 (0.61-0.89)	
Can help to lose weight				<0.001		**<0.001**
Yes	4621(47.0)	1334(28.8)	1		1	
No	3041(30.9)	1230(40.4)	1.67 (1.51-1.84)		1.40 (1.25-1.58)	
Don't know	2164(22.0)	764(35.3)	1.34 (1.20-1.49)		1.22 (1.06-1.41)	
Can make people more relaxed				<0.001		**<0.001**
Yes	1850(18.8)	799(43.1)	1		1	
No	5374(54.6)	1729(32.1)	0.62 (0.55-0.69)		0.69 (0.61-0.79)	
I don't know	2602(26.4)	800(30.7)	0.58 (0.51-0.66)		0.56 (0.48-0.66)	

5.3 DISCUSSION

5.3.1 Summary of findings

This is the first study to provide detailed data on smoking susceptibility and risk factors in a nationally representative sample of adolescent school students in The Gambia. We found that one in three students were susceptible to smoking. Susceptibility was more common among students attending grant-aided schools and non-Muslims. Young people in our sample were more likely to be susceptible to smoking if they had smoking allowed in their homes, had family or friends who smoked, were sent to purchase cigarettes for others, had poor knowledge of the harmful effect of smoking and noticed tobacco at the point-of-sale. Additionally, most positive attitudes, beliefs and perceived benefits of smoking were significantly associated with susceptibility to smoking.

5.3.2 Strength and limitation

The limitation of this study is similar to those outlined in chapter three. In brief this study was also cross-sectional and has limited ability to attribute causality to smoking susceptibility. While all estimates in our assessment were based on self-reports which might be affected by reporting bias, efforts were taken to ensure student confidentiality and that the data were reliable and valid. In addition, a validated smoking susceptibility measure was a used (33, 141, 192) and the study was able to recruit a large nationally representative sample of UBS and SSS students. Given the number of variables included in the analysis, we acknowledge the possibility of type I error given the fact that included variables may be highly correlated. The survey was conducted in

schools and therefore may not be representative of Gambian youth as a whole. However doing surveys in schools is one of the most efficient ways to collect data among young people and our study has provided very useful data on a topic with very sparse information particularly in sub-Saharan Africa.

5.3.3 Comparison with previous findings

Previous studies on smoking initiation among young people in The Gambia and in West Africa are limited. However, our finding that one in three students were susceptible to smoking initiation is consistent with work from other developing and developed countries (191, 193). Moreover, young people in other countries in Africa at a similar stage of economic development to The Gambia are likely to be exposed to similar risk factors and we think it is likely that our findings will be generalisable to such countries. Given the validation of smoking susceptibility as a predictor of smoking experimentation (33, 194), these findings suggest that smoking prevalence among young people is likely to rise in the near future in The Gambia. This is particularly important in many sub-Saharan African countries with low current smoking rates but at high risk of the smoking epidemic.

Our finding that susceptibility to smoking varies significantly between types of schools and that religious beliefs influence smoking susceptibility is consistent with existing evidence (6, 66, 191, 193). The link between susceptibility to smoking with socio-cultural factors, and particularly religious faith and attending non-public schools is consistent with our previous findings that non-Muslim students attending grant-

aided or private schools were more likely to be current smokers. We found that students who live in homes with only some smoking restrictions were more likely to be susceptible to smoking. This finding is in line with previous studies reporting that the absence of, or only a partial ban on home smoking, are associated with an increased risk of smoking susceptibility (195-197); and that partial home smoking bans have not been effective in preventing smoking initiation (196, 198).

In line with existing findings (189-191), we found that students who had parents or friends who smoked and had been sent to purchase cigarettes for their parents or other older adults were significantly more likely to be susceptible to smoking initiation. These characteristics appear to identify contact with others who smoke, and these findings indicate that efforts to minimise parents and peer smoking are needed.

Students' knowledge of the harmful effects of smoking as they relate to susceptibility to initiate smoking is well-documented (189, 191, 199). Our results provide further confirmation that having good knowledge about the harmful effects of smoking serves as a protective factor against susceptibility to initiate smoking, and underscores the importance of education on the harmful effects of smoking.

The finding that awareness of point-of-sale tobacco advertising is associated with smoking susceptibility is consistent with previous studies in both developing and developed countries (200-203). Given that all forms of tobacco advertisements have been banned in The Gambia since 2003, our findings demonstrate worryingly high levels of exposure to tobacco advertisements, which may be a reflection of poor

implementation of the Tobacco Advertisement Act. To reduce exposure to tobacco advertisements and promotion, the ban needs to be comprehensive (202, 204). Advertisements were predominantly seen on television, movies, magazines, radio and on the internet, which are available and accessible online and from within The Gambia and outside. These are most likely to be cigarettes brand display on TV programmes and smoking incidents in movies. It is possible that media advertisements within and outside the country are not adequately regulated and can potentially undermine the advertisement ban (135, 205). The WHO have recommend classifying movies with tobacco smoking as R rating (restricted to under 17 year old) to minimise youth exposure to smoking incidents in movies (206).

Although we did not find exposure to anti-tobacco media messages to be a significant predictor of susceptibility to smoking in our study, we found that more than half of all students did not hear or see any anti-tobacco media messages in the 30 days preceding this study. This suggests that messages are insufficient and even available messages are not delivered effectively. This highlights the need for more mass media campaigns and it is also important that anti-smoking media messages are appropriately delivered without interference by tobacco companies. Limited research is available to compare and explore young Gambians perspectives, attitudes and beliefs about smoking. However similar to previous findings elsewhere (125), we found that students who had positive attitudes, beliefs and perceived benefits of smoking were significantly susceptible to smoking. Preventive measures and

efforts that particularly focus on various social and behavioural aspects are needed.

5.4 CONCLUSION

This study has shown that susceptibility to smoking is relatively high among students in The Gambia and associated with preventable exposures. Although based on cross-sectional data, these findings suggest that extending tobacco advertising restrictions to include point-of-sale, raising students' awareness of the harmful effects of smoking and reducing the prevalence of adult smoking are all important to preventing uptake of smoking among young people. To help minimise future smoking initiation among young people, intervention may need to be targeted particularly at parents and peers who smoke, and raising students' awareness of the harmful effects of smoking. This may help to reduce future smoking among students and provide the maximum benefit as a protective factor against smoking initiation. Our findings also suggest there is a need to broaden the ban on tobacco advertising to explicitly include all forms of media and point-of-sale advertisements. In addition, strict enforcement of the ban on tobacco advertisements should be a high priority for policy makers.

6 CHAPTER SIX: EXPLORATION OF POLICY MAKERS` VIEWS ON THE IMPLEMENTATION OF THE FRAMEWORK CONVENTION ON TOBACCO CONTROL IN THE GAMBIA: A QUALITATIVE STUDY

6.1 INTRODUCTION

In the previous chapters, it has been shown that smoking uptake, exposure to SHS and smoking susceptibility among young people in The Gambia are relatively high, in spite of the presence of several tobacco control polices. Furthermore the key risk factors for current smoking, exposure to SHS and susceptibility to initiate smoking have been identified. It is important that the policy measures outlined in the FCTC are implemented in a bid to minimise smoking uptake among young people and to further control the tobacco epidemic in The Gambia. The WHO FCTC was developed in response to the globalisation of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. It presents a unique opportunity to reduce the global burden of tobacco related morbidity and mortality. The FCTC is particularly important in developing countries, such as those in sub-Saharan Africa, where tobacco smoking is on the rise (4, 13). The FCTC requires Parties to implement tobacco control measures such as health warning labels on tobacco products; bans on tobacco advertising, promotion and sponsorship; measures to protect people from second hand tobacco smoke; tobacco tax and price increases; regulation of the contents of tobacco products; support for economically viable alternatives to

tobacco growing and measures to curb the illicit trade in tobacco products. For the FCTC measures to be successful, it is essential that ratification is followed by implementation;(207) however, there are concerns that in many countries legislation and implementation of FCTC are weak (207). In developing countries, particularly in many sub-Saharan African countries, data on the progress of implementation are limited. Tobacco control has been a focal point for the Ministry of Health in The Gambia since 2002 and an outline of key tobacco control polices is given in chapter one. In 2012 the Convention Secretariat needs assessment for implementation of the WHO Framework Convention on Tobacco Control in The Gambia found that The Gambia had not met several obligations under the Convention, and progress on implementation has been slow (135). Furthermore our findings of high exposure to SHS and tobacco advertisement indicate poor implementation of the Prohibition of Smoking Act and the Ban on Advertisement Act. However, the extent of progress in the implementation of tobacco control policies in The Gambia is unknown. This chapter report the findings of a qualitative study undertaken to assess policy makers' awareness of the FCTC and national tobacco control policies, and assess the achievements in and challenges to the implementation of the FCTC.

6.2 METHODS

6.2.1 Data collection

The study involved qualitative one-to-one interviews with members of the NTCC. All 35 members of the committee were contacted by telephone to book an appointment for the interview, and written informed consent obtained before the start of the interview. Face to face interviews were carried out with all consenting individuals using a semi-structured interview guide adapted from a similar study conducted in Ghana (208). All interviews were conducted in English which is the main official language. However, most Gambians speak various local languages and 3 participants sometimes spoke in local languages during the interviews. All the local languages spoken during the interviews were languages the interviewee understood.

6.2.2 Interview guide

The interview guide covered members' perceptions of current tobacco use in The Gambia, awareness of current tobacco policies and implementation of various aspects of the WHO FCTC. The interview also covered challenges, achievements and recommendations for implementing specific tobacco control measures such as price and tax measures; protection from tobacco exposure; regulation of tobacco product disclosure; packaging and labelling of tobacco products; education, communication, training and public awareness (media campaigns); tobacco dependence and cessation services; illicit trade; sales to and by minors; research and surveillance (See appendix two for details of the interview guide). All interviews were audio-recorded

and transcribed verbatim. In instances where participants spoke in local languages this was directly translated in English during transcription by the researcher. Data collection was conducted between June and September 2016.

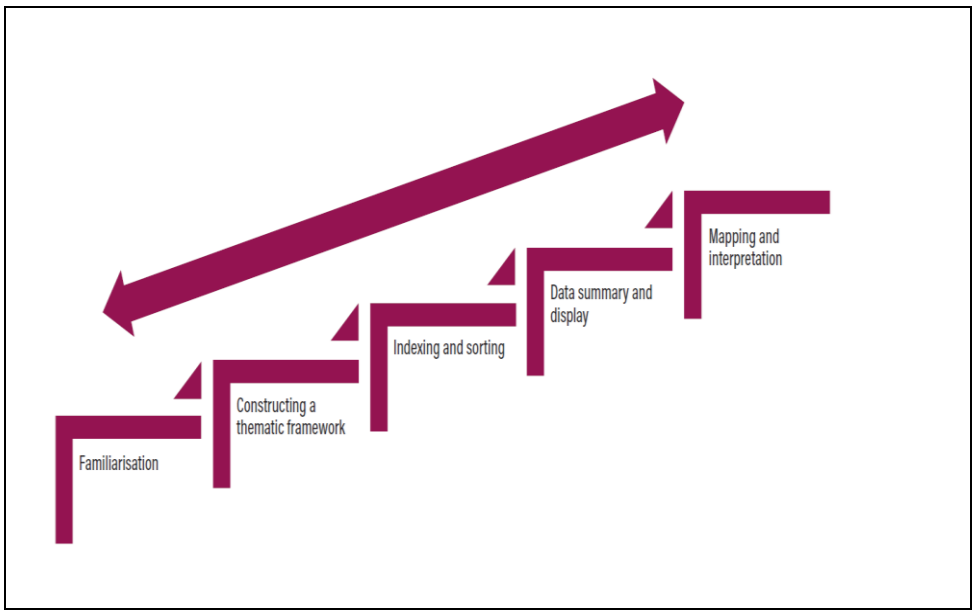
6.2.3 An overview of the Framework approach

The Framework approach which is commonly used to analyse semi-structured interviews was used in this study to analyse the data. The Framework Method was developed by social policy researchers at the National Centre for Social Research in 1980 and is becoming an increasingly popular approach as a means of analysing qualitative health research (209, 210). The framework method of qualitative data analysis offers researchers a systematic structure to manage, analyse and identify themes. The framework method of data analysis consists of five inter connected stages that provide clear guidance from data analysis to development of explanatory outcomes. These stages include familiarisation with the data, constructing a thematic framework, indexing and sorting, summarising and displaying the data, and mapping an interpretation (Figure 6.1) (211). The stages of analysis are a continuous, flexible and iterative process which can be moved up and down between the different stages of analysis to identify emerging themes. This is particularly useful with large volumes of text data.

A number of approaches to qualitative data analysis exist such as; discourse analysis and ethnomethodology (which focus on language and how it's used in social interactions) (212, 213), phenomenology and narrative methods (which are concerned with experience, meaning and

language) (214) and grounded theory which seek to develop theories derived from the data (215). With the Framework method the research is not aligned to a particular philosophical, epistemological or theoretical approach, but it is a relatively flexible tool that can be adapted with many qualitative approaches (209). This was one of the important considerations for this study as many philosophical assumptions underpinning a study's approach can influence data analysis. Using the framework approach enables the study to provide participants` accounts and views. This method of analysis also helps to provide a clear audit trail from the raw data to the final themes (209, 210). Like in all qualitative data analysis the framework method is time consuming, resource–intensive and requires specific training. In addition the systematic and matrix format is intuitively appealing to quantitative trained researchers to quantify qualitative research data (209).

Figure 6.1: The Thematic framework ladder



Adapted from: Hackett A, Strickland K. Using the framework approach to analyse qualitative data: a worked example.

6.2.4 Analysis

The data were analysed using NVivo software version 11 (QSR International, Australia). The first stage of the analysis involved preparing and organising the data by listening back to all the audio-recorded interviews and reading all the interview transcripts to become familiarised with the data. After familiarisation with the data, the first few transcripts were reduced into themes and subthemes through a process of coding by the lead researcher. For quality control purposes a random sample of 9 transcripts were double coded by two other researchers to check the consistency of coding. To reach consensus on all the initial themes and subthemes and to resolve any coding discrepancies, all authors met to discuss the codes assigned to each transcripts and all coded sections of each of the transcripts.

After discussions identified themes and sub-themes, these were given unique codes and an initial thematic node hierarchy was set up for all identified themes. The lead researcher then coded the remaining transcripts using the initial framework, taking note of any new codes or themes which did not fit into the initial themes and sub-themes. All researchers met again and following discussions the initial framework was revised to incorporate new codes, refine existing codes and group related codes. The process of refining, applying, and refining the analytical framework was repeated until no new codes were generated. A thematic node hierarchy was set up for all identified themes and sub-themes and the final analytical framework was applied to all transcripts in NVivo. Once all the transcripts were coded using the framework, the

data were summarised in a matrix for each of the main themes and sub-themes using the framework matrices in NVivo. (Table 6.1).The main themes were allocated to each row on the chart and each transcript assigned to a specific column (sample in appendix three). This process allowed the data to be rearranged according to the appropriate part of the thematic framework to which they related and the process of charting also ensured that all coded data; and context were included in the charts. Finally, the chart matrices (See appendix three: sample of the matrix) were used to identify the differences and similarities across transcripts and within themes; to explore relationships and association between the themes and concepts.

Table 6.1: The procedure and steps of the framework method of analysis conducted in NVivo

Steps	Steps in NVivo	Comments
1	Importation of transcript and setting each transcript in to a case node	All transcripts were imported as case node that represent each participant
2	Coding	The coding of the first few transcripts
3	Creation of an analytical framework or thematic node hierarchy	A note hierarchy of the themes and sub-themes identify during the coding of the first few transcripts was set up
4	Applying the analytical framework	All transcripts were coded to the theme nodes hierarchy
5	Charting data in to the frame matrix	A framework matrices was created from the case node (as rows) and the theme nodes (as columns). The intersection of each case and thematic node forms matrix cell, and this is where code (source content) that relates to the case and theme is found
6	Mapping and interpreting the data	A Summarized framework matrix was created that links to the themes, cases and the supporting source materials.

6.3 RESULTS

6.3.1 Sample description

Of the 35 members of the NTCC, one declined to participate, six agreed but were unavailable for interview during the study period, and 28 were interviewed. The interviews lasted between 29 and 70 minutes. The

interview time varied according to participant's roles and responsibilities and their knowledge of tobacco control in The Gambia. Participants included individuals from all the ministries of the government, and from NGOs, civil society organisations, research institutions, private institutions, parastatals, WHO, security services and media institutions. The socio-demographic characteristics of the participants are presented in Table 6.2. The mean age of participants was 43.6 years and the age range 28-65 years. The majority of those interviewed were male (89.2%), never smokers (67.8%) and worked at government ministries/agencies (75%).

Table 6. 2: Participant socio-demographic characteristics

Characteristics	Total N=28	%
Age (years)		
28-38	11	39.2
39-49	9	32.1
50+	8	28.5
Gender		
Male	25	89.2
Female	3	10.7
Smoking status		
Never smokers	19	67.8
Ever smokers	9	32.2
Representing institutions		
Government ministries & agencies	21	75.0
Others	7	25.0

6.3.2 Themes and subthemes

Ten main themes emerged from the sub-themes. The themes and subthemes are summarised in Table 6.3, and individual quotes provided in italics.

Table 6.3: Themes and subthemes identified

Themes	**Sub-themes**
FCTC and national polices	• Knowledge of FCTC • Awareness of national tobacco polices • Coverage of FCTC in national polices/legislation
Prevalence and trends	• Trends in adults and youths • Factors influencing prevalence
Public smoking (smoke-free policy)	• Implementation • Lack of awareness of health risks and legislation • Weak enforcement
Tax and Illicit trade	Achievements • Tax increase plan • Increasing revenue • Decreasing volume of importation Challenges • Price and affordability • Cheaper brands and products • Porous borders and country geography • Customs challenges
Mass media	• Need for public awareness • Enabling factors • Lack of resources
Advertisement and promotion	Achievements • Success in enforcement • High level of compliance Challenges • Indirect form of advertisement • Ongoing sponsorship
Access	• Sales to minors • Reasons for youth access
Stop smoking support	Lack of stop smoking services Use of traditional treatments
Packaging and labelling	• Warning labels currently in use • Language barriers/Illiteracy • Need for pictorial warnings
Research and surveillance	• Lack of data • The role and importance of research

6.3.3 FCTC and national tobacco control polices

Most participants were aware of current existing national tobacco polices but majority had limited knowledge of the details of the FCTC. However, one consistent issue that emerged was that the current policies were inadequate and implementation was lacking. The majority of members were optimistic that when the new bill (the draft Tobacco control Act 2016) comes into law implementation and enforcement of these laws will be much more effective. Furthermore despite their limited knowledge of the FCTC, most participants believed that policies which predated the current bill did not adequately address FCTC requirements.

Yes there are several Acts and legislations dealing with smoking. There is a policy for public smoking ban and advertisement. However, these past Acts and the Bills are not effective, but this new draft bill if it is endorsed I think it will be effective. This new bill has an enforcement plan which addresses the enforcement part. ***Participant 022***

My knowledge about the FCTC is not that much but I know it's a tobacco policy that was developed by WHO and countries have to implement this polices. ***Participant 09***

6.3.4 Prevalence and trends in smoking

Almost all participants thought that smoking prevalence was increasing in The Gambia particularly among young people and that smoking was still higher among men but there was an increasing trend among women.

Yeah, tobacco prevalence I think is increasing, it's really increasing, especially among the youths. The prevalence in terms of both gender, cigarette smoking is higher in males than females. Female cigarette smoking is still lower but you know now you see more women smoking compare to before. ***Participant 011***

Cigarettes were believed to be the most common type of tobacco product used, however hand-rolled cigarette were said to be very common among youths.

I think most people smoke the cigarette. Yes, in The Gambia most people smoke cigarette, especially among the ladies. Men, especially among the youths, most of them tend to smoke cigarette as well, but we have also a larger percent of youth who do smoke hand roll cigarettes. ***Participant 009***

6.3.5 Smoke-free policy

Participants reported that despite the implementation of the Public Smoking Act in 1998, little had been achieved with the ban on public smoking. Participants identified lack of awareness of the health risks of smoking, limited knowledge of existing legislation, weak enforcement, minimal fines and law enforcers smoking as contributors to the challenges of achieving smoke-free public places. The lack of success was also attributed to cultural factors such as the 'Maslaha Syndrome' (socially accommodating negative habits/behaviours and trying to cover it up in order not to be blamed for reporting it).

I think it's still a challenge. Because of enforcement it's the biggest challenge for this policy. We've seen even still now hospitals are not smoke free zone. Everywhere people can smoke anyhow they want and they can walk freely without any fine. Also most law enforcers like the police are smokers and you know what you see them openly smoking in the streets. I think we need to do more to educate everyone about this law. ***Participant 009***

The "Maslaha" syndrome, contributes a lot to the problem of implementing the public smoking Act. Because if you want to address somebody or even report the person to the police for smoking in prohibited area, they will say "ah" this is a fellow human being or it's a relative, "why should you do that?", so people's attitude is a problem. ***Participant 019***

6.3.6 Tax and Illicit trade

All participants said that The Gambia has achieved a lot in relation to tobacco taxation. Participants highlighted that the 3 year tax increase plan has increased the revenue collected from tobacco and that The Gambia has seen a decrease in the volume of tobacco imports. However many believed that further increases in tax are needed as tobacco products are still cheap and affordable to many Gambians.

There is achievement in terms of tobacco taxation, but we still need to increase the price because it's still cheaper than many countries, it's still cheaper in The Gambia than many countries and let's also look at other cheaper tobacco products or alternatives to cigarettes that people switch to. Actually most of the sweets here cost D1, so it's like cigarette

is equal to a sweet, so it's still cheap, kids can buy…oh yes it's very cheap. ***Participant 028***

Nearly all of the respondents were of the view that smuggling of tobacco products could potentially be occurring, due to the fact that The Gambia has several porous borders and that increased efforts are needed to monitor smuggling of tobacco products coming both in and out of the country.

Smuggling and illicit trade are some of the concerns we have now. We have been consistently increasing the taxes on the product from 2013 to date. The fact that we have several porous borders means that we need to strengthen our border controls now. We also need a very good tracking and tracing system ***Participant 017.***

They said that a tax stamp system currently exists which involves labelling all cigarette packs with "Sold in The Gambia", but that this alone is inadequate for tracking illicit tobacco products. Most were of the view that customs officers at border posts need to be trained and motivated by rewards and incentives for identifying illicit products. Participants highlighted, however, that resources for dealing with this problem are very low and that this posed a problem.

6.3.7 Public Awareness

Mass media campaigns and education were areas of tobacco control which some of the respondents said were ongoing in The Gambia but the majority said not much has been achieved. The need for more public awareness was mentioned by nearly all interviewees, and they also identified that several opportunities exist to improve this through

school education, radios and using existing community structures. Furthermore, most participants highlighted that there are very limited resources available for tobacco control activities and particularly for public awareness campaigns.

Yeah, I think we achieved something, but I think we still have a lot of challenge, because this definitely has to do with resource constraints, but we are trying our best to target specific groups who are at risk of being tobacco smokers. Those are the youth groups. So we also have a lot of community sensitizations, both with the mass media communications and also going down to the community, meeting with the people, having dialogue with them face to face a lot can be done. We do a lot of tobacco advocacy. But I think still we need to do more. We need to do more because most of our interventions are centred on the urban areas and forgetting about the rural area, which is also another area that is highly concentrated with smokers. Also we need to educate people about the tobacco control bill and all the tobacco laws.

Participant 009

No it's still a major challenge, but it's a major challenge because there's no continuity because of lack of funds, because these things they are not free. What I think is required here is mass sensitization should be done in a different way to address all issues. That means we have to use the radio, we have to use the television, we have to use the newspapers, one to one, there have to be organized workshops, you know especially in the communities, local people and in schools. It has

to be a campaign, some sort of a massive campaign that has to go for a period of time. ***Participant 005***

6.3.8 Advertising and promotion

Respondents were of the opinion that this was one of the areas of success of tobacco control in The Gambia. Furthermore most attributed this success to enforcement of the Ban on Tobacco Advertisement Act of 2005. However, many participants hoped that these gains can be further consolidated when the tobacco control Draft Bill is implemented. Some raised concerns about some of the indirect forms of advertisement going on, such as the use of tobacco brand names and logos on vehicles and umbrellas and sponsorships.

I think this is one area we've made progress. When this law entered into effect, you don't see any billboard signs about cigarette smoking or advertising cigarettes and so on around. Before I do see in some newspapers tobacco advertisement, but now I don't see or hear of any advertisements going on. ***Participant 023***

Yeah there are definitely adverts that are currently happening. The indirect advertisement is a problem. You will see vehicles being painted in cigarette colours and umbrellas. It's a problem. ***Participant 009***

6.3.9 Access

Respondents unanimously agreed that until now, very little had been achieved in preventing young and underage children accessing cigarettes. Many raised concerns that parents and adults sending young people to purchase cigarettes was a big problem in The Gambia. They said that although the current Draft Bill includes minimum age for

the sale to, and by, minors, nothing is being done currently to check access to and use of tobacco products by minors. In addition, parents' and retailers' lack of knowledge about the harmful effects of smoking and exposure to second hand smoke was highlighted as a major barrier.

There is no achievement, in my own perception. There is no achievement in that sense because you still see young people buying cigarettes. It still comes back to the culture the influence culture have in our society. It is believed that once you are an adult you have every right to send whosoever underage, and regardless of age to buy you your basic needs and even cigarettes. ***Participant 006***

It's still one of the biggest problems because in The Gambia especially parents and adults send children to buy cigarettes for them and some even go to the extent of asking children to lighten the cigarettes for them. Having Age limit is important it should not be made easy for a child to access cigarette. You know many parents and even the shopkeepers do not know that it's illegal to send or sell cigarette to childe under the age of 18 years .Some parents don't even know that is bad to smoke in front of their kids, you know. ***Participant 014***

6.3.10 Smoking Cessation Services

Many of the respondents were of the view that little has been done in providing support to reduce demand for tobacco use. In the absence of this service many raised the concern that most smokers will resort to using local traditional treatment methods which may be ineffective.

Many also praised the launching of the clinical guideline for cessation services by the Ministry of Health, however many said that more efforts are needed if Gambia is to achieve anything meaningful.

This is a major challenge and currently there is no services provided for people who want to quit. That's why some people go to the Marabous (traditional healers) to help them to quit smoking. I could fully remember when I visited one such Marabou. However you don't know what he/she is giving you to use so this could be dangerous.

*P**articipant 011***

Its one thing to sensitise people but it's another thing also to have those avenues where you can help these people to quit. We have launched the national cessation guideline recently and training was conducted, five clinics were involved. So these services will definitely help.

Participant 029

6.3.11 Packaging and labelling

Most respondents thought there had been achievements in packaging and labelling of tobacco products, particularly cigarette packaging which has largely conformed to the current laws and requirements (health warning messages describing the harmful effects of tobacco use covering 30% of the principal display of each unit of tobacco packaging and *sold in The Gambia* label). However they were also quick to say that more needs to be done, due to the fact that packages currently carry only written health warnings and that many Gambians may not be

able to understand these messages. The use of graphic warning labels was recommended by all participants.

Yes we have achieved something, but I think there are still some challenges, because the health warning on tobacco products I think most of the cigarette packs in The Gambia have a health warning, but the challenge there is most of the people in The Gambia cannot read and write. They will not understand the health warning. Even most of the smokers, they will not understand the words in the health warning. So we are advocating for pictorial warning, and that's a challenge because that's not captured yet. ***Participant 009***

6.3.12 Research and surveillance

All participants were of the view that surveillance and research was a major challenge. They indicated that there was no or limited tobacco research and monitoring ongoing in The Gambia. The overarching barriers for lack of research and surveillance data identified by participants were lack of adequate resources and expertise for tobacco control. They believed that if adequate research is available this will help to develop tailor-made strategies to control the tobacco epidemic.

Our research and surveillance is one of our major constraints, because we need to do more research, we need a recent research on tobacco smoking prevalence in the country, so research is one of our major challenges we need to conduct research to see the prevalence of tobacco use in the country. ***Participant 001***

Well actually I just wanted to say the surveillance should be strengthened and resources should also be provided for surveillance. You know lack of resources is one of the main reasons for inadequate surveillance. ***Participant 30***

Because is through research we know our gaps and deliver solutions that will match with realities of the society. This is where research comes in. If it is product we improve on the quality, if it is service we improve on the quality, it should be continuity. ***Participant 005***

6.4 DISCUSSION

6.4.1 Summary of findings

This study provides the first data on the progress of implementation of the FCTC in The Gambia using qualitative methods. Our findings demonstrate that The Gambia has made modest progress in tobacco control before and since ratification of the FCTC, particularly in terms of bans on tobacco advertisement and promotion, smoke-free laws and tobacco taxation. However, whilst several pieces of tobacco control legislation exist, enforcement and implementation remain a major challenge. We found that policy makers' awareness of polices covered in the FCTC was limited. Furthermore there was also a belief among policy makers that the general public's awareness of existing tobacco control legislation was low.

6.4.2 Strengths and limitations

Our findings are somewhat limited by the fact that our data were collected in 2016. However, apart from the passing of the Tobacco Control Act 2016 (which outlines key strategies for implementing tobacco control polices in The Gambia) into law there have not been any major policy changes since we collected our data. Therefore all our findings remain relevant to tobacco control in The Gambia. Another limitation of the study was that not all the committee members participated. However, our study has a number of strengths and has provided valuable findings for a review of tobacco control efforts in The Gambia. One of the strengths of our study is that the findings are based on data from a purposive sample of members of the multi-sectoral committee, who are likely to have the best overview of the state of tobacco control in The Gambia. We also used the framework method for analysis which has the strength to produce credible and relevant findings that is based on the participants accounts and views (210).

6.4.3 Comparison with previous findings

WHO has developed a simple framework to guide and measure the implementation of specific provisions of the FCTC, known as MPOWER. These measures include **M**onitoring tobacco use (Article 20); **P**rotecting people from exposure to second-hand smoke (Article 8); **O**ffering help to quit (Article 4); **W**arning about the dangers of tobacco (Articles 11 and 12); **E**nforcing bans on tobacco advertising, and promotion (Article 13); and **R**aising taxes on tobacco (Article 6)(89). To achieve maximum benefit of the FCTC and the MPOWER

measures, all polices in it need to be implemented as they are all complementary and synergistic to each other (89).The means to control the tobacco epidemic are therefore clear, and implementing these control measures is crucially important for African countries which are generally in the early stages of the tobacco epidemic model (11 80). Like many other developing countries, (216) The Gambia started developing and implementing some tobacco control polices which are covered by MPOWER before the ratification of the FCTC. Thus the ratification provided an opportunity for the country to strengthen existing polices and set up a legal framework for implementing tobacco control measures. Whereas some countries have made very substantial progress since ratification of the Treaty, many countries have found implementation to be rife with challenges (217). Implementing effective tobacco control policy is a major challenge for many governments particularly those in developing countries, where resources and capacity are limited. Our findings suggest that The Gambia is yet to achieve full implementation and benefit of the FCTC. The Gambia has made modest progress in incorporating the FCTC in to the existing national tobacco legislation, in particular the recent 2016 Tobacco Control Act is a step in the right direction. However, progress with implementation and enforcement of existing legislation since FCTC ratification has been slow. For the goals and objectives of the Treaty to be achieved, good coordination and adequate resources are needed (218). One example of the success and impact of a well-coordinated intervention in The Gambia was the development of a 3 year gradual

increase in excise and environmental tax on tobacco products. This intervention resulted in a decrease in tobacco product importation and growth in tax revenue collection (132) however, more needs to be done: as outlined by most of our participants, tobacco products are still very cheap and affordable. In addition, due to the geographical features of the country, increasing tobacco tax, corruption, lower penalties, inadequate customs and border controls, most participants were concerned that this can potentially create financial incentives for cross border smuggling and illicit trade of tobacco products. On the other hand it is also important to note that the key to controlling tobacco smuggling is not to cut tobacco taxes, it is an issue of enforcement, controlling the tobacco manufacturing industry and supporting the implementation of the WHO FCTC (219).

In contrast, most participants acknowledge that the Public Smoking Act (which comprehensively banned smoking in all public places) which was developed almost a decade before ratification of the FCTC, has still not been effective in protecting people from exposure to second-hand smoke. There is no safe level of exposure to tobacco smoke and the FCTCs call on parties to strive to provide universal protection within five years of the Treaty entering into force (79 220). Smoking by law enforcers, weak enforcement, and low fines for violators, lack of awareness of the public smoking law among the public and enforcement authorities, and societal cultural norms are some of the barriers hindering effective implementation of smoke-free polices in The Gambia.

As previously noted by the Needs Assessment report by the Convention Secretariat (135), The Gambia has had weak legislation and administrative measures to prevent access of tobacco products to minors. Most cigarettes are sold in packs of 20, but packs of 10 are also available and sale of single sticks is very common (135). Furthermore, participants highlighted that it is a common practice for younger people to run errands for parents or other adults, including purchasing tobacco products. The findings in Chapter four showed that nearly half of young people (most of them less than 16 years) were sent to buy cigarettes for their parents or others and age was not a common barrier to purchase cigarettes for half of smokers. Measures to reduce direct access of minors to cigarettes, such as requesting identification if age is in doubt, and prohibition of the sale of single cigarettes or small cigarette packs are required. Furthermore mass media campaigns have been shown to be effective in raising public awareness, increasing smoking cessation and reducing smoking prevalence and uptake (12, 221). Therefore well-designed tobacco control mass media campaigns are urgently needed to improve public awareness of the adverse health, economic and environmental consequences of tobacco consumption.

Effective health warnings and labelling as outlined by the FCTC article 11 guidelines are one of the ways that can be used to increase quit attempts and reduce tobacco consumption. Moreover graphic warnings are particularly effective in communicating harmful health effects among young people and among populations with high illiteracy rates (87, 222). However, according to the 2017 WHO report on the global tobacco

epidemic, only eight African countries have a full warning label policy (large warning with all appropriate characteristics) (12); The Gambia is not one of them. Due to high illiteracy rates and the high proportion of young people in the population, it is important for The Gambia to adopt and implement graphic health warnings.

The FCTC has raised tobacco use as a public health concern and has laid the foundation for a set of guidelines for tobacco control, which countries can adopt based on their own unique situation. However this cannot be achieved without adequate resources (218) like in many other sub-Saharan African countries inadequate resources and inadequate capacity for tobacco control, is also an obstacle in The Gambia. In the midst of the need for resources for other crucial and pressing heath conditions such as infectious diseases, it can be challenging to allocate adequate resources, build capacity and maintain tobacco control as an urgent public health priority. However The Gambia has embarked on tobacco tax increase for several years now (132) and further increases and tobacco tax hypothecation can ensure some funding is available for tobacco control. For example, tobacco tax hypothecation has led to additional reduction in tobacco use in several states in the US that use tobacco revenues to fund tobacco control programmes which support mass media campaigns, cessation services and policy implementation (109, 223, 224).

6.5 Conclusions

Our findings highlight several challenges in implementing the FCTC requirements in The Gambia; these includes lack of awareness of existing polices, weak enforcement and implementation, inadequate public awareness of the harmful effects of smoking, sales to and by minors, limited resources and capacity, and inadequate research. The Gambia urgently needs to step up efforts that will help to accomplish the obligations of the FCTC. In order to achieve this, The Gambia needs to accelerate the implementation the following measures: ensure that existing policies are fully compliant with the FCTC requirements, prioritise the enforcement and implementation of existing legislation, develop specific youth tobacco control polices and interventions, public awareness interventions (media campaigns), establish cessation services, mobilise and allocate adequate resources for tobacco control, capacity building, prevent tobacco industry interference, and strengthen surveillance and research to inform policy.

7 CHAPTER SEVEN: OVERALL CONCLUSIONS, IMPLICATIONS AND FUTURE DIRECTIONS FOR RESEARCH

7.1 INTRODUCTION

The overall aims of this thesis were to assess smoking uptake and describe the tobacco epidemic among young people, and assess the implementation of tobacco control polices in The Gambia. This concluding chapter summarises the key findings of the thesis in relation to the study objectives and makes recommendations for implementation of tobacco control polices and future research.

7.2 Smoking prevalence, determinants of tobacco use and smoking cessation

7.2.1 Summary of the findings

Chapter 3 of this thesis identified that tobacco use is common among young people in The Gambia and that shisha smoking was surprisingly high and relatively more prevalent among girls. Even though most young smokers wanted to stop smoking, access to help in quitting was low. The determinants of smoking among young people in The Gambia include age, gender, religion, type of school funding, living with parents, home smoking rules and family and friends smoking status.

7.2.2 Implications of findings and future research

This research has shown that smoking experimentation is very common among young people in The Gambia. The estimated prevalence of ever smoking measured in this study is consistent with the GYTS conducted in 2008.

Further assessment of the demographics of students who had ever tried to smoke reveal that smoking tends to be more common among older students and boys, and there is a relatively high proportion of ex-smokers, suggesting that smoking among young people could be on the rise. However this study is limited to young people at school and prevalence among young people outside schools may be different than that of our study population.

Available national data for monitoring of smoking prevalence among young people in The Gambia is currently inadequate for the purpose of investigating trends over time and it is evident that current available data are not adequate for policy evaluation. Therefore programmes for surveillance on the magnitude, patterns and determinants of tobacco use are urgently needed. Several international repeated cross-sectional surveys exist, and The Gambia should seek to implement such surveys, which include the GYTS, Global Adult Tobacco Survey and the International Tobacco Control (ITC) survey. These surveys serve to enable monitoring of tobacco use and smoking uptake, particularly among young people, and help to evaluate the impact of tobacco control interventions over time.

It is necessary to monitor uptake of all forms of tobacco products, however our study identified a particular need to investigate shisha use. Although data on the use of shisha in The Gambia are scarce, our finding of 8% ever shisha smoking and that it is relatively common among girls was surprising and worrisome. The pattern of shisha use in The Gambia has not been studied in detail; our finding calls for further

research on the use of shisha in The Gambia to determine if this is a problem primarily among young people, or whether shisha use is a wider problem among the general population.

A final key finding in this study was that access to NRT and help or advice for quitting smoking among young people was very low. Even though data were not collected for adults these findings are likely to be generalisable to adults too. There are no formal cessation services indicating that there is still a lot of work to be done in developing and promoting effective treatments for those who want to stop smoking. It has been shown that tobacco cessation intervention are not only effective, but are also cost effective (225, 226).

7.3 Exposure to second-hand smoke, perception of risk of exposure to SHS and support for smoke-free laws

7.3.1 Summary of findings

Chapter 4 of this thesis explored the prevalence of exposure to SHS. The study found that exposure to SHS is highly prevalent among students in The Gambia, and occurs mostly outside of the home. Exposure to SHS in the home was more common among girls and older students. Parental education, living with parents and being sent to purchase cigarettes were associated with exposure to SHS both within and outside the home. More than half of students supported a public smoking ban in both enclosed and outdoor public places. About 35% of students were unaware of the harmful effects of exposure to SHS.

7.3.2 Implications of findings and further research

The main implication of these findings is that the Prohibition of Smoking (Public Places) Act has not been effective in protecting young people from exposure to other people's smoke in public places, and therefore that interventions to reduce SHS exposure in students, and to raise awareness of the existing smoke-free legislation, are urgently needed Although our findings are based on a large and representative sample, exposure to SHS was assessed retrospectively by self-report which has the potential for recall bias. In this context future studies should use a combination of self-reports and biomarkers such as urinary or hair cotinine levels, which may provide data that are more accurate in assessing exposure to SHS (227, 228).

Most students strongly supported measures to ban smoking in both outdoor and indoor public places; it is not clear whether this positive attitude to smoke-free laws was a cause or noting to with the Prohibition of Smoking (Public Places) Act. The strong support for smoke-free policies is perhaps a reflection of the general attitude to smoking in The Gambia and indicates that smoking is generally not acceptable. Similar findings have been reported elsewhere; that support for smoke-free laws were associated with lower social acceptability of tobacco use and exposure to SHS (229). Smoking susceptibility

7.3.3 Summary of findings

Chapter five of this thesis shows that susceptibility to smoking is common among students and associated with preventable exposures. Smoking susceptibility was more common among students attending

grant-aided schools, non-Muslims, students who had smoking allowed at home, had family members or friends who smoke, were sent to purchase cigarettes, had poor knowledge of the harmful effects of smoking, noticed point-of-sale tobacco advertisements and had positive attitudes towards smoking.

7.3.4 Implication of findings and for future research

Although based on cross-sectional data these findings suggest that extending tobacco advertising restrictions to include point-of-sale, raising students' awareness of the harmful effects of smoking and reducing the prevalence of adult smoking are all important to preventing uptake of smoking among young people. These findings provide valuable information for tobacco control polices and evidence to enable targeted intervention for young people most at risk of initiating smoking. Targeting students at the beginning of adolescence and developing specific school-based interventions such as teaching students skills to help refuse smoking, correcting misperceptions about smoking and enhancing social and personal competence skills may be useful in this population (230-232).

Our findings identify an urgent need to broaden the ban on tobacco advertising to explicitly include all forms of tobacco advertisements including; ban on cross-border and online/internet advertisement, brand stretching and sponsorship from tobacco industry and importers (135). In addition, strict enforcement of the ban on tobacco advertisements should be a high priority for policy makers. Identifying other factors such as availability and ease of acquiring cigarettes which have been shown

to have impacts on adolescents smoking (233) may be import for implementing the ban on tobacco advertisement. In addition the finding that parents and peer smoking increase the risk of smoking susceptibility among students underscores the need to develop interventions targeting parents and peers who smoke and the need for more community based primary prevention programmes (189, 191). Finally raising students' awareness of the harmful effects of smoking may help to impact future smoking behaviour of students and provide the maximum benefit as a protective factor against smoking initiation (234, 235).

7.4 Implementation of the Frame Convention on Tobacco Control in The Gambia

7.4.1 Summary of main findings

Our findings in Chapter 6 demonstrate that The Gambia has made modest progress in tobacco control before and since ratification of the FCTC, particularly in the areas of policy formulation, bans on tobacco advertisement and promotion, smoke-free laws and tobacco taxation. Whilst several pieces of tobacco control legislation exist, enforcement and implementation remain a major challenge. We found that policy makers' awareness of polices covered in the FCTC was limited.

7.4.2 Implication for tobacco control and future research

The FCTC is particularly important in developing countries, such as those in sub-Saharan Africa, where tobacco smoking is on the rise (2, 4). The WHO FCTC presents a unique opportunity to reduce the global

burden of tobacco related mortality and morbidity. Our findings highlight several challenges to FCTC implementation in The Gambia and the need to step up efforts and implement effective tobacco control policies that are fully compliant with the FCTC requirements. To achieve this, The Gambia should prioritise the enforcement of existing legislation, mobilise resources for tobacco control, implement the articles of the FCTC measures and conduct more research to inform policy.

7.5 Implication and recommendations for tobacco control policy in The Gambia

The findings from this PhD indicate that smoking experimentation is relatively high among young people and implementation of tobacco control policies is weak. If nothing is done, this can lead to serious health consequences and economic implications (18, 236). Based on these findings some recommendations are made for specific policy measures that could be used by policy makers to minimise the possibility of a tobacco epidemic. The Tobacco Control Act 2016 has ensured that The Gambia has adopted comprehensive tobacco control legislation that fully meets the requirements of the WHO FCTC. Thus it is recommended that The Gambia should first prioritise and scale up the enforcement of existing legislation. Enforcement officers such as The Gambia Police Force (GPF) and Health Inspection teams need to be trained and sensitised to effectively enforce these laws. Furthermore, to sustain tobacco control implementation, the general public needs to be educated about existing tobacco control laws if compliance is to be achieved. It is also recommended that the Ministry

of Health actively collaborate and partner with relevant NGOs and civil society groups, to support and contribute to the comprehensive implementation of the FCTC.

Indirect forms of tobacco advertising such as display of tobacco products at points of sale, free distribution of tobacco products and event sponsorships represent breaches of the Ban on Advertisement Act 2003. It is therefore recommended that The Gambia needs to identifies and blocks any form of tobacco advertising. Given that geographically The Gambia is almost completely surrounded by its bordering country (Senegal) where potential tobacco advertisements can emanate from, it is important to work with this country to help ensure that enforcement of the advertisement ban becomes a reality. Furthermore, this should also be extended to measures that prevent illicit tobacco trade and smuggling.

Prevention measures such as health promotion and mass media campaigns should be a key priority, and targeting key groups such as young people, family members and friends are needed. Raising awareness of health, community and social workers, media professionals, decision makers and educators could also potentially increase awareness of the harmful effects of tobacco use. It is further recommended that the Ministry of Basic and Secondary Education introduces tobacco awareness and education programmes in school. The Ministry of Health could work closely with the Ministry of Higher Education, Research, Science and Technology (MoHERST) to ensure

that adequate training on tobacco control is provided to health professional during pre and in- service training.

The health warning on cigarettes packets currently implemented in The Gambia is probably having minimal effects. It is therefore recommended that the Ministry of Health advocate for the introduction of pictorial warnings which are more likely to be effective for tobacco control (237).

The overwhelmingly high level of exposure to SHS indicates that measures are urgently needed to ensure that The Prohibition of Smoking (Public Places) Act is effectively enforced and this should be a particular priority for tobacco control in The Gambia. To simplify the enforcement process it is recommended that penalties such as “on the spot” fines be implemented and the amount on the fine be increased to ensure greater impact. Measures such as raising awareness of the harmful effect of exposure to SHS and increased awareness of the Act among enforcement agencies, government institutions and the general public will increase compliance with this Act.

It is clear that treatment of tobacco dependency is inadequate in The Gambia. Even though we found most young smokers wanted to quit, cessation services were not available or offered. Urgent establishment of national programmes and services to diagnose and treat tobacco dependency is needed. Cessation services could be integrated into the existing primary health care system, for example Senegal is now offering full cessation support which is integrated within health clinics and primary care facilities (12). Additionally as outlined earlier, healthcare professionals should be trained to record tobacco use, give

advice and encourage quitting. Furthermore, other smoking cessation strategies such as a national quit lines and medications should be made available for those who want to quit

Our findings showed that a lot of smokers received support and advice for quitting from friends and family members, highlighting the importance of educating the general public with knowledge and skills to provide support for smokers who want to quit.

Finally Article 26 of the FCTC outlines the importance financial resources play in achieving the objectives of the Convention. This research has shown that there is a clear need for mobilising financial resources for tobacco control. Spending on tobacco control measures is limited and is subject to pressures from other government demands. For tobacco control to be taken seriously the Ministry of Health needs to develop effective advocacy strategies to help persuade and inform the government and politicians of the need for more resources for tobacco control activities. Currently there is no specific fiscal budget line allocated for tobacco control activities and capacity building.

7.6 Recommendation for future research

There is limited surveillance data on tobacco control and there is a clear need to conduct research to inform policy. Regular monitoring of tobacco use can help to detect early evidence of smoking uptake particularly among young people. Including tobacco use indicator questions in national surveys such as the DHS will also help to monitor trends in tobacco use. Furthermore, based on our finding that shisha could be a potential national health threat, there is the need for

concerted efforts to conduct more research on shisha uptake, which is necessary to inform future policy. More research is required to determine whether exposure to SHS is a problem among students alone, or reflects a wider pattern of exposure to SHS among young people and the general population. Further research is also needed to identify other environmental variables associated with smoking susceptibility such as availability and ease of acquiring cigarettes which have been shown to have impacts on adolescents smoking. The Ministry of Health needs to conduct research to identify appropriate and effective pictorial warning labels on cigarette packets for The Gambia to replace the current written labels “smoking Kills and smoking seriously harms you and others around you”.

Given anecdotal reports of high marijuana use among young people in The Gambia further research is recommended on the association between smoking and use of other illicit drugs.

7.7 CONCLUSION

The main conclusion of this thesis is that smoking experimentation among young people is high in The Gambia and implementation and enforcement of current tobacco control polices remains a major challenge. Measures to reduce current smoking rates, experimentation and exposure to SHS among young people; and implementation of current laws should be a high priority for policy makers in The Gambia. A number of actions that will help The Gambia to prevent a smoking

epidemic and ensure that smoking remains rare have been identified in this thesis.

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APPENDICES

Appendix 1: School Questionnaire

ID----------

School Questionnaire

Name of School ……. School Code……

Class/Grade……Index number……

Introduction

Thank you for participating in this survey. Before you start, please read the following information that will help you to answer the questions.

- Some of the questions will ask about smoking cigarettes.
- Other questions may ask about smoking tobacco in general that includes cigarettes and other types of smoked tobacco products.
- Other questions may ask about using smokeless tobacco, which is tobacco that is not smoked, but is sniffed through the nose, held in the mouth, or chewed.
- Finally, other questions may ask about any tobacco use or any tobacco products – this includes smoking cigarettes, smoking tobacco other than cigarettes, and using smokeless tobacco.

Here is a table that provides examples of various tobacco products:

Any Tobacco Use	
Smoking Tobacco includes:	**Smokeless Tobacco includes:**
Manufactured Cigarettes	Snuff
Hand-rolled cigarettes	Chewing tobacco
Pipes	Betel quid with tobacco
Cigars	

Instructions

Please read each question carefully before answering it.

- Choose the answer that best describes what you believe and feel to be correct.
- Choose only **one** answer for each question.
- Circle your answer with the pencil that was provided to you completely. If you have to change your answer, don't worry, just erase it completely, without leaving marks.

Example: Do you believe that fish live in water?

a. Definitely yes
b. Probably yes
c. Probably not
d. Definitely not

The first few questions ask for some background information about you

1. Are you a boy or a girl?

1. Boy
2. Girl

2. How old are you?

1. 12 years old
2. 13 years old
3. 14 years old
4. 15 years old
5. 16 years old
6. 17 years old
7. 18 years old
8. 19 years old
9. 20 years old

3. In what grade are you?

1. Grade 7
2. Grad 8
3. Grade 9
4. Grade 10
5. Grade 11
6. Grade 12

4. What is your religion?

1. Muslim
2. Christian
3. Others

5. During a day how much money do you have that you can spend on yourself (Lunch), however you want?

1. I usually don't have any spending money
2. Less than 15
3. D16 - D25
4. D.D26- D35
5. D36 - D45
6. D46 - D55

7. D56 - D65
8. More than 65

6. Do you live with your parents?

1. Yes
2. No

7. Do your parents work?

1. Father (or stepfather/guardian) only
2. Mother (or stepmother/guardian) only
3. Both
4. Neither
5. Don't know

8. What level of education did your father completed?

1. Did not go to school
2. Primary school
3. Junior school
4. Senior secondary/ High school
5. Tertiary (College or University)
6. Quranic school/Dara
7. Don't know

9. What level of education did your mother completed?

1. Did not go to school
2. Primary school
3. Junior school
4. Senior secondary/high school
5. Tertiary (college or University)
6. Quranic school/Dara
7. Don't Know

<u>The next questions ask about tobacco use. Remember that we guarantee that no-one who knows you will find out your answers.</u>

10. How often do you go to corner shop/ (Bitic)?

1. Almost every day
2. Two or three times a week
3. Once a week
4. Never

11. When you go to the corner shops/bitic and street vendors how often do you notice cigarettes products on display?

1. Every time
2. Most times
3. Sometimes
4. Hardly ever
5. Never

12. When you go to corner shops/ street vendors have you noticed any of the following brands on display? (circle all that apply to you)

1. Piccadilly
2. Marlboro
3. Monte Carlo
4. Benson
6. Business Royals
7. Bond
8. Empire
9. All brands name above

5. Camel 10. I never notice any brands on display

13. Is smoking allowed in your home?

1. Yes
2. No
3. Sometimes

14. Does anybody in your family smoke tobacco (circle all) that apply to you

1. None 4. Brother/sister
2. Mother 5.Others specify……..
3. Father

15. How many of your friends smoke tobacco?

1. None 4. Three or more
2. One 5. Not sure
3. Two

16. Have you ever tried or experimented with smoking tobacco, even one or two puffs?

1. Yes
2. No

17. Now read the following statements carefully and circle the one that best describes you:

1. I have never smoked any tobacco products
2. I have only ever tried smoking tobacco once
3. I used to smoke tobacco sometimes in the past but don't use them now
4. I sometimes use to smoke tobacco now but less than once a week
5. I used to smoke tobacco between one and six times a week
6. I used to smoke tobacco more than six times a week

<u>NB: Please go to question 55 if your answer to question 17 is 1, otherwise continue to 18.</u>

18. How old were you when you first tried smoking a cigarette?

1. I have never tried smoking
2. 7 years old or younger
3. 8 or 9 years old
4. 10 or 11 years old
5. 12 or 13 years old
6. 14 or 15 years old
7. 16 years old or older

19. What was the reason for initiation of smoking cigarettes?(circle all the answers that apply to you)

1. Peer pressure 4. Curiosity

2. Loneliness 5. Stress
3. Family influence 6. Others

20. What factors most influence your decision to smoke cigarettes?

1. Friends and family smoking
2. The taste and feeling of it
3. To relief stress
4. All of the above
5. Don`t know

21. During the past 30 days, on how many days did you smoke cigarettes?

1. 0 days
2. 1 or 2 days
3. 3 to 5 days
4. 6 to 9 days
5. 10 to 19 days
6. 20 to 29 days
7. All 30 days

22. Please think about the days you smoked cigarettes during the past 30 days. How many cigarettes did you usually smoke per day?

1. I did not smoke cigarettes during the past 30 days
2. Less than 1 cigarette per day
3. 1 cigarette per day
4. 2 to 5 cigarettes per day
5. 6 to 10 cigarettes per day
6. 11 to 20 cigarettes per day
7. More than 20 cigarettes per day

23. Where do you normally smoke when you are at school?

1. At the toilet
2. Sport grounds
3. School gate
4. Behind the school fence
5. None
6. I don't smoke
7. Others. Please specify……

24. During the past 30 days, what brand of cigarettes did you usually smoke most? (SELECT ONLY ONE RESPONSE)

1. I did not smoke cigarettes during the past 30 days
2. No usual brand
3. Piccadilly
4. Monte Carlo
5. Bond street
6. Business royal
7. Benson & Hedges
8. Marlboro

9. Other Please give full name…….

25. Is there any specific reason for the choice of brand?

1. Yes
2. No

If yes please specify ……..

26. Have you ever tried or experimented with any form of smoked tobacco products other than cigarettes (such as hand rolled cigarettes, cigar, and pipe)?

1. Yes
2. No

27. During the past 30 days, did you use any form of smoked tobacco products other than cigarettes

1. Yes
2. No

28. Do you ever smoke tobacco or feel like smoking tobacco first thing in the morning?

1. No, I don't smoke tobacco or feel like smoking tobacco first thing in the morning
2. Yes, I sometimes smoke tobacco or feel like smoking tobacco first thing in the morning
3. Yes, I always smoke tobacco or feel like smoking tobacco first thing in the morning

29. How soon after you smoke tobacco do you start to feel a strong desire to smoke again that is hard to ignore?

1. I never feel a strong desire to smoke again after smoking tobacco
2. Within 60 minutes
3. 1 to 2 hours
4. More than 2 hours to 4 hours
5. More than 4 hours but less than one full day
6. 1 to 3 days
7. 4 days or more

30. During the past 30 days, how often did you smoke hand-rolled cigarettes?

1. I did not smoke hand-rolled cigarettes during the past 30 days
2. Less than once a week
3. At least once a week but not every day
4. Every day

31. During the past 30 days, where did you buy hand roll cigarettes from?

1. I did not smoke hand roll cigarettes during the past 30 days
2. From the shop
3. From a friend
4. Others (specify)…….

32. During the past 30 days, how often did you smoke cigars/mini cigars/cigarillos?

1. I did not smoke cigars/mini cigars/cigarillos during the past 30 days
2. Less than once a week
3. At least once a week but not every day
4. Every day

33. During the past 30 days, how often did you smoke tobacco in a pipe?

1. I did not smoke tobacco in a pipe during the past 30 days
2. Less than once a week
3. At least once a week but not every day
4. Every day

The next questions ask about getting cigarettes.

34. The last time you smoked cigarettes during the past 30 days, how did you get them? (SELECT ONLY ONE RESPONSE)

1. I bought them in a corner shop
2. I bought them from a street vendor
3. I got them from someone else
4. I got them some other way. Please specify……

35. During the past 30 days, did anyone refuse to sell you cigarettes because of your age?

1. I did not try to buy cigarettes during the past 30 days
2. Yes, someone refused to sell me cigarettes because of my age
3. No, my age did not keep me from buying cigarettes

36. On the whole, do you find it easy or difficult to buy cigarettes from a shop?

1. Very difficult
2. Fairly difficult
3. Fairly easy
4. Very easy
5. I don't know

37. Can you purchase cigarettes near your school?

1. Yes
2. No
3. I don't know

38. How easy or difficult would it be for you to get cigarettes if you wanted some?

1. Very difficult
2. Fairly difficult
3. Fairly easy
4. Very easy
5. I don't know

39. The last time you bought cigarettes during the past 30 days, how did you buy them?

1. I did not buy cigarettes during the past 30 days
2. I bought them in a pack
3. I bought individual sticks (singles)
4. I bought them in a carton
5. I bought them in rolls
6. I bought tobacco and rolled my own

40. How much do you spend on cigarette/tobacco in a day?

1. D10 or less
2. D11- D20
3. D21-D40
4. D41-D60
5. D61-D80
6. More than D80
7. I don't know

41. Have you ever been in trouble in school because of smoking?

1. Yes
2. No

42. Where do you mostly smoke tobacco?

1. At school
2. At home
3. At a friend's house
4. At a street corner
6. Others/specify……

43. When you smoke who do you smoke with most of the time?

1. Alone
2. With friends
3. With brothers/sisters
4. With others

44. Do you wish that others don't know about your smoking status

1. Yes
2. No
3. I don't mind
4. I don't smoke

<u>The next questions ask about your feelings toward stopping smoking.</u>

45. Do you want to stop smoking now?

1. I don't smoke now
2. Yes
3. No
4. I don't know

46. During the past 12 months, did you ever try to stop smoking?

1. I did not smoke during the past 12 months
2. Yes
3. No
4. I don't know

47. How easy or difficult would you find it to go without smoking for as long as a week?

1. I do not smoke now
2. Very difficult
3. Fairly difficult

4. Fairly easy
5. Very easy
6. I don't know

48. How easy or difficult would you find it to give up smoking altogether if you wanted to?

1. I do not smoke now
2. Very difficult
3. Fairly difficult
4. Fairly easy
5. Very easy

49. How long ago did you stop smoking?

1. I have not stopped smoking
2. 1-3 months
3. 4-11 months
4. One year
5. 2 years
6. 3 years or longer

50. What was the main reason you decided to stop smoking? (SELECT ONE RESPONSE ONLY)

1. I have never smoked
2. I have not stopped smoking
3. To improve my health
4. To save money
5. Because my family does not like it
6. Because my friends does not like it
7. Others

51. Do you think you would be able to stop smoking if you wanted to?

1. I don't smoke now
2. Yes
3. No

52. Have you ever received help or advice to help you stop smoking? (SELECT ONLY ONE RESPONSE)

1. Yes, from a programme or professional
2. Yes, from a friend
3. Yes, from a family member
4. Yes, from both programmes and professionals and from friends or family members
5. No

53. Have you ever received any medications such as patches, gums or medication to help you stop smoking?

1. Yes
2. No

54. When you stopped smoking, how did you feel about it?

1. I have not stopped smoking
2. It is very difficult
3. It was rather difficult
4. It was rather easy

5. It was very easy

The next questions ask about smokeless tobacco. This includes chewing tobacco and snuff.

***55. Have you ever tried or experimented with any form of smokeless tobacco (such as snuff, chewing tobacco)**

1. Yes
2. No

NB: Please go to question 66 if your answer to question 55 is 2, otherwise continue to 56.

56. How old were you when you first tried using smokeless tobacco?

1. 7 years old or younger
2. 8 or 9 years old
3. 10 or 11 years old
4. 12 or 13 years old
5. 14 or 15 years old
6. 16 years old or older

57. During the past 30 days, did you use any form of smokeless tobacco products (such as snuff, chewing tobacco etc)?

1. Yes
2. No

58. During the past 30 days, on how many days did you use smokeless tobacco?

1. 0 days
2. 1 or 2 days
3. 3 to 5 days
4. 6 to 9 days
5. 10 to 19 days
6. 20 to 29 days
7. All 30 days

59. Please think about the days you used smokeless tobacco during the past 30 days. How many times did you usually use smokeless tobacco per day?

1. I did not use smokeless tobacco during the past 30 days
2. Less than once per day
3. Once per day
4. 2 to 5 times per day
5. 6 to 10 times per day
6. 11 to 20 times per day
7. More than 20 times per day

60. Do you want to stop using smokeless tobacco now?

1. I don't use smokeless tobacco now
2. Yes
3. No

61. During the past 12 months, did you ever try to stop using smokeless tobacco?

1. I did not use smokeless tobacco during the past 12 months
2. Yes
3. No

62. Do you think you would be able to stop using smokeless tobacco if you wanted to?

1. I don't use smokeless tobacco now
2. Yes
3. No

63. Have you ever received help or advice to help you stop using smokeless tobacco? (SELECT ONLY ONE RESPONSE)

1. I have never used smokeless tobacco
2. Yes, from a programme or professional
3. Yes, from a friend
4. Yes, from a family member
5. Yes, from both programmes or professionals and from friends or family members
6. No

64. The last time you used smokeless tobacco during the past 30 days, how did you get it? (SELECT ONLY ONE RESPONSE)

1. I did not use smokeless tobacco during the past 30 days
2. I bought it in a shop/bitic
3. I bought it from a street vendor
4. I got it from someone else
5. I got it some other way Please specify…….

65. During the past 30 days, did anyone refuse to sell you smokeless tobacco because of your age?

1. I did not try to buy smokeless tobacco during the past 30 days
2. Yes, someone refused to sell me smokeless tobacco because of my age
3. No, my age did not keep me from buying smokeless tobacco

***66. Have you ever been sent by your parents or anyone else to buy cigarettes**

1. No
2. Yes

67. On average, how much do you think a pack of 20 cigarettes costs?

1. D10 or less
2. D11- D20
3. D21-D40
4. D41-D60
5. D61-D80
6. More than 80
7. I don't know
8. I don't smoke

68. Do you think the price of cigarettes should be increased?

1. Yes
2. No
3. Don't Know

<u>The next Question ask about your exposure to other people`s smoking</u>

69. During the past 7 days, on how many days has anyone smoked in your presence, inside any enclosed public place, other than your home (such as: school, shops, restaurants, garages)?

1. 0 days
4. 5 to 6 days

2. 1 to 2 days 5. 7 days
3. 3 to 4 days

70. During the past 7 days, on how many days has anyone smoked inside your home, in your presence?

1. 0 days
2. 1 to 2 days
3. 3 to 4 days
4. 5 to 6 days
5. 7 days

71. How often do you see your father (or stepfather or mother's partner) smoking in your home?

1. Don't have/don't see this person
2. About every day
3. Sometimes
4. Never

72. How often do you see your mother (or stepmother or father's partner) smoking in your home?

1. Don't have/don't see this person
2. About every day
3. Sometimes
4. Never

73. How often do you see your brother/sister smoking in your home?

1. Don't have/don't see this person
2. About every day
3. Sometimes
4. Never

74. How often do you see other people smoking in your home?

1. Don't have/don't see this person
2. About every day
3. Sometimes
4. Never

75. During the past 7 days, on how many days has anyone smoked in your presence, at any outdoor public place (such as: markets, garages, entrances to buildings, and beaches)?

1. 0 days 4. 5 to 6 days
2. 1 to 2 days 5. 7 days
3. 3 to 4 days

76. During the past 7 days, on how many days has anyone smoked in your presence, inside any public transportation vehicles, such as buses, taxis, vans?

1. I did not use public transportation during the past 7 days
2. I used public transportation but no one smoked in my presence
3. 1 to 2 days

4. 3 to 4 days
5. 5 to 6 days
6. 7 days

77. During the past 30 days, did you see anyone smoke inside the school building or school property in your presence?

1. Yes
2. No

78. The person you saw smoking who it was (circle all that apply)

1. Your friend
2. Other students
3. Teachers
4. Other staffs
5. None

79. During school hours, how often do you see teachers or staff smoking in the school building?

1. About every day
2. Sometimes
3. Never
4. Don't know

80. During school hours, how often do you see teachers smoking outdoors on school premises?

1. About every day
2. Sometimes
3. Never
4. Don't know

81. Do you think the smoke from other people's tobacco smoking is harmful to you?

1. Definitely not
2. Probably not
3. Probably yes
4. Definitely yes

82. Are you in favour of banning smoking inside enclosed public places (such as schools, shops, restaurants, shopping malls)?

1. Yes
2. No

83. Are you in favour of banning smoking at outdoor public places (such as: markets, garages, entrances to buildings, bantabas, beaches)?

1. Yes
2. No

The nest questions ask you about your knowledge of messages that are against using tobacco (might include cigarettes, other smoked tobacco, and smokeless tobacco).

84. During the past 30 days, did you see or hear any anti-tobacco media messages on television, radio, internet, billboards, posters, newspapers, magazines, or movies?

1. Yes
2. No

85. During the past 30 days, did you see or hear any anti-tobacco messages at sports events, fairs, concerts, or community events, or social gatherings?

1. I did not go to sports events, fairs, concerts, or community events, or social gatherings in the past 30 days
2. Yes
3. No

86. During the past 30 days, did you see any health warnings on cigarette packages?

1. Yes but I didn't think much of them
2. Yes, and they led me to quitting smoking or not starting smoking
3. No

87. During the past 12months, were you taught in any of your classes about the dangers of tobacco use?

1. Yes
2. No
3. I don't know

The next questions ask about your knowledge of advertisements or promotions for tobacco (might include cigarettes, other smoked tobacco, and smokeless tobacco).

88. During the past 30 days, did you see any people using tobacco on TV, in videos, or in movies?

1. I did not watch TV, videos, or movies in the past 30 days
2. Yes
3. No

89. How much time, on an average week have you spent on the Internet in the last 3 months?

1. Never
2. 1-5 times a week or less
3. Up to 4 hours per day
4. >4 hours up to 6 hours per day
5. 6 hours or more per day

90. Does spending time on internet influence you to try tobacco products?

1. Never

2. Very little influence
3. It influences
4. It influence too much

91. During the past 30 days, did you see any advertisements or promotions for tobacco products at points of sale (such as: stores, shops, school, etc.)?

1. I did not visit any points of sale in the past 30 days
2. Yes
3. No

92. Think back to advertisements for tobacco products you have seen in the past 30 days. What is the name of the brand you saw been advertise?

1. I did not see any tobacco product advertisements in the past 30 days
2. Piccadilly
3. Monte Carlo
4. Bond street
5. Business royal
6. Benson & Hedges
7. Marlboro
8. Some other brands. Please specify…….

93. Do you think tobacco advertising should be banned?

1. Yes
2. No

94. Would you ever use or wear something that has a tobacco company or tobacco product name or picture on it such as a lighter, t-shirt, hat, or sunglasses?

1. Yes
2. Maybe
3. No

95. Do you have something (for example, t-shirt, pen, pen bag) with a tobacco product brand logo or a picture on it?

1. Yes
2. No

96. Has a person working for a tobacco company/sales marketer ever offered you a free tobacco product?

1. Yes
2. No

The next questions ask about your attitudes and beliefs about using tobacco.

97. If one of your best friends offered you a tobacco product, would you use it?

1. Definitely not
2. Probably not
3. Probably yes

4. Definitely yes

98. At any time during the next 12 months do you think you will use any form of tobacco?

1. Definitely not
2. Probably not
3. Probably yes
4. Definitely yes

99. Once someone has started smoking tobacco, do you think it would be difficult for them to quit?

1. Definitely not
2. Probably not
4. Probably yes
5. Definitely yes

100. Do you think smoking tobacco helps people feel more comfortable or less comfortable at celebrations, parties, or in other social gatherings?

1. More comfortable
2. Less comfortable
3. No difference whether smoking or not

101. Do you agree or disagree with the following: "I think I might enjoy smoking a cigarette."

1. I currently smoke cigarettes
2. Strongly agree
3. Agree
4. Disagree
5. Strongly disagree

102. During the past 12 months, were you taught in any of your classes about the effects of using tobacco like it makes your teeth yellow, causes wrinkles, or makes you smell bad?

1. Yes
2. No
3. Not sure

<u>Please read the following sentences and tell us how they describe you</u>

103. I get in trouble in school

1. Not at all like me
2. A little like me
3. Pretty much like me
4. Exactly like me

104. I do things my parents wouldn't want me to do

1. Not at all like me
2. A little like me
3. Pretty much like me
4. Exactly like me

105. I like scary things

1. Not at all like me
2. A little like me
3. Pretty much like me
4. Exactly like me

106. I like to do dangerous things

1. Not at all like me
3. Pretty much like me

2. A little like me 4. Exactly like me

107. Do you think people who smoke tobacco have more or less friends?

1. More friends
2. Less friend
3. No difference from non-smoker

108. Do you think young people who smoke tobacco are less attractive?

1. More attractive
2. Less attractive
3. No difference to non-smoker

109. During the past 30 days, did you smoke tobacco to help you lose weight or keep from gaining weight

1. I did not smoke tobacco in the past 30days
2. Yes
3. No

110. Do you think smoking is harmful to your health?

1. Definitely not 3. Probably yes
2. Probably not 4. Defiantly yes

111. Do you think it is safe to smoke tobacco for only a year or two as long as you quit after that

1. Definitely not 3. Probably yes
2. Probably not 4. Definitely yes

112. Has anyone in your family discussed the harmful effects of smoking tobacco with you?

1. Yes
2. **No**

<u>The Next questions ask about your beliefs of the benefit of Smoking</u>

113. Do you believe that by smoking tobacco you can improve your general health status?

1. Yes
2. No
3. Don't Know

114. Do you believe that smoking tobacco can help someone to lose weight?

1. Yes
2. No
3. Don't Know

115. Do you belief that smoking can make people more comfortable in social events

1. Yes
2. No

3. Don’t Know

116. Do you think smoking can make people more relaxed?

1. Yes
2. No
3. Don’t Know

117. Have you ever tried or experimented with shisha smoking, even one or two puffs?

1. Yes
2. No

118. How old were you when you first tried smoking shisha?

1. I have never tried smoking
2. 7 years old or younger
3. 8 or 9 years old
4. 10 or 11 years old
5. 12 or 13 years old
6. 14 or 15 years old
7. 16 years old or older

Thank you for participating in the survey

Appendix 2. Key informant interview guide

Key Policy maker's interview guide

The aim of the project is to provide detailed insight into tobacco use, and to assess barriers to implementation of tobacco policies in The Gambia. You taking part in this research study will help us to identify the extent to which the FCTC has been implemented and barriers to its effective implementation in The Gambia. We have the pleasure to invite you to take part in this research study. Check if participant has signed consent, if they have any questions before starting the interview.

Part 1: Introduction

1. How long have you been a member of this committee and what's your role?
2. What do you think about the prevalence of tobacco use in The Gambia?
    - Do you think prevalence is different in youth and adults?
    - How about among males and females

Part 2: Tobacco Polices and FCTC

3. Can you tell me about any policies you are aware of for controlling the tobacco epidemic in Gambia?
4. How effective do you think these polices are in controlling the epidemic?

Now moving to the WHO Framework Convention on Tobacco Control (FCTC). Note: Give a brief information of the FCTC for those who did not mention it among the existing policies)

5. Tell me what do you know about the FCTC
6. Do you think the tobacco polices in The Gambia has adequately covered the FCTC requirement?
7. Which areas do you think progress has been made in a bid to implement the FCTC?
8. Are there other specific areas that ha**ve** been carried out by The Gambia as a unique strategy

Part 3: Achievements and challenges:

A. Achievements

Can you describe the existing tobacco policies with regard to achievements in relation to the following specific areas?

9. Price tax measures to reduce demand on tobacco products
10. Protection from exposure to tobacco smoke (smoke free policy)
11. Regulation of the contents and disclosure of tobacco products
12. Packaging and labelling of tobacco products
13. Education, communication, training and public awareness (media campaigns)
14. Demand reduction measures concerning tobacco dependence and cessation services and provision of support for quitting

15. Illicit trade in tobacco products
16. Sales to and by minors
17. Research and surveillance

B. Challenges

18. Now with regards to some of the achievements you have mentioned above can you describe any challenges that you think still exist.

Part 4: Recommendations and way forward

19. Can you think of any recommendations on the way forward required in the area of tobacco control and policy implementation
20. What do you think the next step should be for Gambia in addressing tobacco control
    - How can this be achieved
    - What may be some of the barriers and challenges
    - How can these be address

Closing Remarks

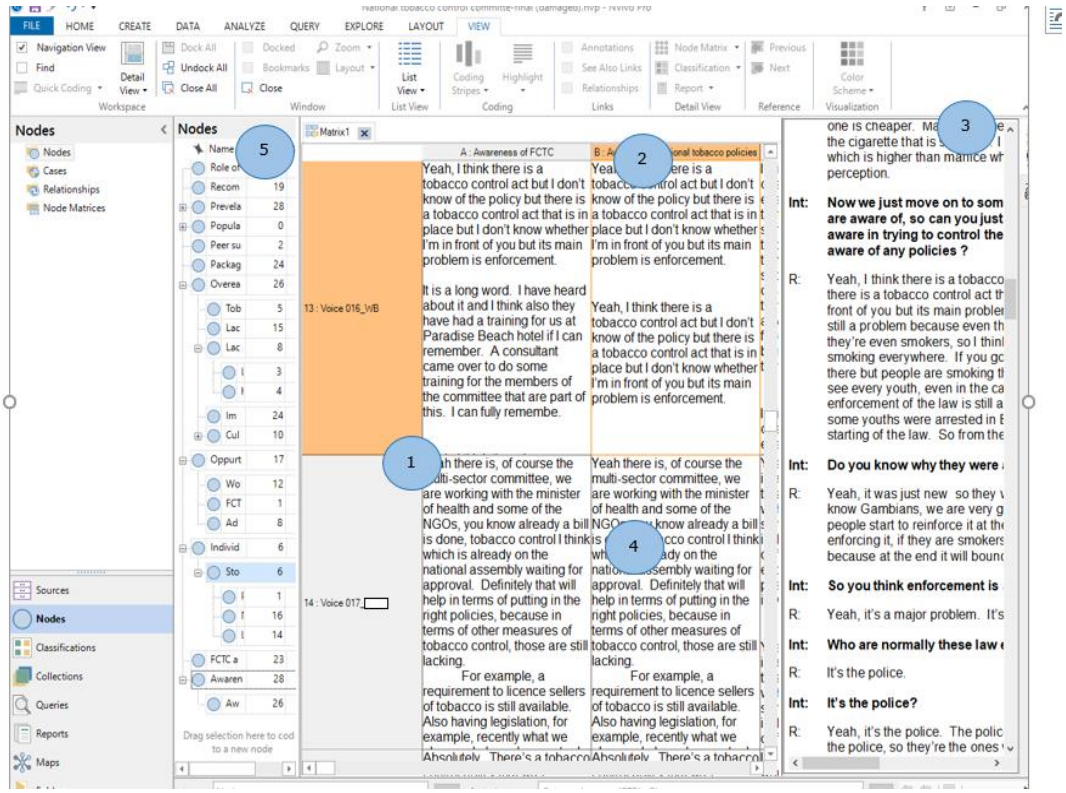
- Is there anything you would like to add that we have not already covered?
- Thank participant for their time and reassure confidentiality.

Sociodemographic details:

1. Job title/designation
2. Representing institution
3. Age
4. Gender
5. Have you ever use any tobacco products
6. Have you ever smoke cigarette
7. Do you currently smoke cigarettes

Thank you

Appendix 3: An illustrative sample of the framework matrix used in Nvivo during analysis



1 Rows: Each of the row represents a case node (transcript). For this example the cases are the people who participated in the study and they are represented by the transcript

2 Column: Each column represents a theme node, for this example the themes are; are awareness of the FCTC and *awareness of existing national tobacco control polices*

3 Associated view: This displays the source content that is coded at the row (case)

4 Cells: Each of the cell shows the intersection between a case and theme node.

5 Thematic node hierarchy: Display of the themes and sub-themes map in a chart

Appendix 4: The Gambia Government/MRC Joint Ethics Committee approval

The Gambia Government/MRC Joint
ETHICS COMMITTEE

C/o MRC Unit: The Gambia, Fajara
P.O. Box 273, Banjul
The Gambia, West Africa
Fax: +220 – 4495919 or 4496513
Tel: +220 – 4495442-6 Ext. 2308
Email: ethics@mrc.gm

11 May 2016

Ms Isatou Jallow
University of Nottingham
School of Medicine
Division of Epidemiology and Public Health

Dear Ms Jallow

SCC 1468v3, Prevalence, risk factors and epidemiology of tobacco use, and the implementation of tobacco control policies in The Gambia

Thank you for submitting your revised proposal addressing the issues raised by The Gambia Government/MRC Joint Ethics Committee at its meeting held on 8 April 2016.

I have looked at your responses the queries raised by the Committee – these are satisfactory. This project has now received full Ethics Committee approval and may proceed.

With best wishes

Yours sincerely

Mr Malamin Sonko
Chairman, Gambia Government/MRC Joint Ethics Committee

Documents submitted for review:-

- SCC reply letter - 14 March 2016
- Revised SCC application form
- Response letter
- Consent Form, version 1.0 – 12 January 2016
- Information Sheet, version 1.0 – 02 February 2016
- Questionnaires, version 3.0 – 21 April 2016
- Protocol
- CVs: Isatou Jallow; John Britton; Tessa Elisabeth Langley

Appendix 5: Ethics approval, University of Nottingham, UK.

The University of Nottingham

Faculty of Medicine and Health Sciences

Research Ethics Committee
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham
NG7 2UH

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabin@nottingham.ac.uk

4th April 2016

Isatou K Jallow
PhD Student in Epidemiology and Public Health
c/o Dr Tessa Langley
Assistant Professor in Health Economics
UK Centre for Tobacco & Alcohol Studies
Division of Epidemiology and Public Health
School of Medicine
Clinical Sciences Building
City Hospital Nottingham Campus
Nottingham University Hospitals
Hucknall Road
NG5 1PB

Dear Isatou

Ethics Reference No: OVS24022016 SoM EPH – **please always quote**
Study Title: Prevalence, risk factors and epidemiology of tobacco use, and the implementation of tobacco control policies in The Gambia.
Chief Investigator/Supervisor: Dr Tessa Langley, Assistant Professor in Health Economics, UK Centre for Tobacco & Alcohol Studies, Division of Epidemiology and Public Health, School of Medicine.
Lead Investigators/student: Isatou K Jallow, PhD Student, Epidemiology and Public Health, School of Medicine.
Other Key Investigators: Professor John Britton, Professor of Epidemiology, Director UK Centre for Tobacco & Alcohol Studies, Division of Epidemiology and Public Health, School of Medicine.
Type of Study: Overseas, epidemiology, qualitative, quantitative, PhD project
Proposed Start Date: 01/06/2016 **Proposed End Date**: 31 May 2017
No of Subjects: 20,000 **Age**: 12-17 and 18+ yrs

Thank you for submitting the above application which was considered by the Committee on 24th February 2016 and the following documents were received:

Tobacco use and control in The Gambia:

- FMHS Research Ethics Application Form version 1.0 date 10/01/2016
- Research Protocol
- Adult Survey Information Sheet
- National Tobacco Task Force Committee members Information Sheet
- Key Policy makers (non-members of the tobacco task force committee Information Sheet.
- Youth/School Survey Information Sheet
- Adult Study Consent Form final version 1.0: 12th January 2016
- Policy Makers Consent Form final version 1.0: 12th January 2016
- Adult Survey Questionnaire

The University of Nottingham

- Key informant interview questionnaire
- School Questionnaire

These have been reviewed and are satisfactory and the study has been given a favourable opinion.

Approval is given subject to the following conditions:

1. A Favourable opinion is given on the understanding that all appropriate ethical and regulatory permissions are respected and followed in accordance with all local laws of the country in which the study is being conducted and those required by the host organisation/s involved.

2. Please submit copies of the approval/ permission letters from: The MRC/Gambia Government Research Ethics Committee, Local School/Education Authority when these are available for information and our records.

3. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

4. You must notify the Chair of any serious or unexpected event.

5. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.

6. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely

pp L. Morgan

Professor Ravi Mahajan
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

Appendix 6: Collaboration letter from the Ghana Health Service

REPUBLIC OF THE GAMBIA

MINISTRY OF HEALTH & SOCIAL WELFARE
THE QUADRANGLE
BANJUL

HOS 231/254/01/PART III/ (69-MD) 14th June, 2016

EXTREMELY URGENT

ALL ADDRESSEES

REQUEST FOR SUPPORT TO CONDUCT RESEARCH FIELD WORK

This Ministry is pleased to inform you all that **Mrs. Isatou Jallow, Principal Laboratory Scientist, National Public Health Laboratories (NPHL)** under the purview of this Ministry currently a PhD Student at the University of Nottingham is to undertake her research field work in The Gambia.

Her research work is on *the Prevalence, risk factors and Epidemiology of Tobacco use, and the Implementation of Tobacco Control Policies in The Gambia.* The study will be conducted in 20 (Twenty) Enumeration Areas (EAs) in Banjul, KMC, West Coast Region and in Upper Basic and Senior Secondary Schools. The study has been approved by The Gambia government /Medical Research Council (MRC) Joint Ethics Committee.

In this regard, **this Ministry is kindly requesting your institution's support in making this research a success.**

Please find attached the Ethics Committee support letter for your information.

Your necessary support is highly solicited.

Malang Darboe
For: Permanent Secretary

Cc: Files

MINISTRY OF HEALTH & SOCIAL WELFARE
DATE 15/6/16
DESPATCHED
SIGN

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