SOCIAL FACTORS ASSOCIATED WITH TOBACCO SMOKING AMONG MEDICAL STUDENTS OF MASENO UNIVERSITY, KENYA

BY

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A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF ARTS IN SOCIAL DEVELOPMENT AND MANAGEMENT

SCHOOL OF ARTS AND SOCIAL SCIENCES

MASENO UNIVERSITY

DECLARATION

This project report is my own work through research and personal reflection and has never been presented to any University for academic award.

Stephen Odhiambo Ongalo

PG/MA/00071/2013

SIGNED…….

Date……

SUPERVISOR

This project report has been presented for examination with my approval as the supervisor

Dr. Mary A. Ochieng

SIGNED……

Date……...

ACKNOWLEDGEMENT

Glory to God who is able to do exceedingly abundantly more than we think or believe, he provided me with life and good health to embark on this work. I also express my gratitude to my supervisor, Dr. Mary A. Ochieng for great partnership. Her guidance, encouragement and patience in reading, correcting, rereading and refining this work is commendable and cannot go unmentioned. I would also like to thank the entire faculty staff from the department and the school for the unwavering support.

My appreciation also goes to my Chair of department, Departmental postgraduate studies committee, Maseno university colleagues and my classmates for their encouragement and support. I am equally grateful to all respondents for sparing time to read through and provide valuable feedback in the questionnaires. The work would not have been accomplished without the keen typesetting of the several versions done by several colleagues. My warmest gratitude to my family for their fervent prayers and moral support accorded me throughout my studies.

I am also indebted to the Deans of the School of Medicine and School of Nursing for not only allowing me to carry out data collection in their respective schools but also becoming part of my Key informants. My sincere gratitude also goes to the NACADA officer who agreed to be part of this study through his honest input during the data collection.

DEDICATION

I wish to dedicate this work to my Grandmother Mama Julia Ogutu who sold part of her valuable assets to finance my education. I also thank my wife Violet and children for their unwavering encouragement and understanding during my long hours away during my studies.

ABSTRACT

Tobacco smoking is a major health concern among healthcare professionals globally; it kills and sickens millions of people annually. In the US and UK, tobacco is responsible for about one in five and one in eight deaths annually respectively. It is projected that about 10 million people would die annually by 2030 since tobacco related diseases take time to become evident. A global commitment by World Health Organization to reversing the tobacco epidemic was done in 2003 by member states adopting WHO-FCTC which laid out specific evidence based action to reduce the demand for tobacco by at least 30%. Prevalence rate among medical students globally ranges from 2 to 58% despite the interventions put in place. Smoking among medical students may impact negatively on their health, future professional conduct and consequently safety of patients. Protecting medical students from tobacco smoke is essential to help them survive and thrive. Medical students are future doctors and role models in the society. Subsequently, their smoking habits have a direct impact on the cessation rate. In Kenya, the magnitude of tobacco smoking among medical students is unclear since the data is scanty. The main objective of the study was to establish the social factors associated with smoking among medical students of Maseno University, Kenya. The specific objectives were to: examine the socio-demographic characteristics associated with smoking habits of medical students of Maseno University, establish the relationship between social referent groups and smoking habits of medical students of Maseno University and assess the association between attitude of medical students and smoking habits. The study was guided by the theory of planned behaviour by Icek Ajzen (1991) since it is best used to predict behaviour guided by its three constructs; behavioural control, subjective norm and perceived behavioural control. The study was carried out in Maseno University in both Schools of Medicine and School of Nursing which had a total of 712 medical students enrolled in the schools. For quantitative data collection, 264 students were sampled using stratified random sampling using Yamane (1967) formula. Qualitative data was collected from purposively selected medical and nursing students to participate in the four focus group discussion (FGDs) of eight students each. In addition, deans of School of Medicine, School of Nursing and one officer from NACADA were purposively selected as key Informants. Quantitative data was analyzed through descriptive and inferential statistics using SPSS software 20.0 version while qualitative data was coded and organized in themes and sub-themes for generalization purposes using NVivo software. Chi-square was used to test the association with 5% level of significance. The findings revealed that the main influence on students to start smoking was peer pressure which may be direct or normative to take up certain habits such as initiating tobacco use. Mass media has greater influence in shaping minds of medical students who are in the social transition to adulthood. There was also demonstrable evidence that parental smoking influence smoking habits of young adults. The study also revealed that health and religious considerations are important motives for not smoking. The study also exhibited that attitude played a role in smoking habits of medical students. The study concluded and recommended that there should be targeted cessation interventions by the stakeholders to mitigate smoking among medical students; prevention programmes should be broad based with priorities to target peer effect and parents for effective results.

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ACRONYMS AND ABBREVIATIONS

BAT	British American Tobacco
CBD	Central Business District
CDC	Centers for Disease Control and Prevention
ETS	Environmental Tobacco Smoke
FCTC	Framework Convention on Tobacco Control
FIFA	Federation of International Football Associations
GATS	Global Adult Tobacco Survey
GYTS	Global Youth Tobacco Survey
HCP	Health Care Professional
KDHS	Kenya Demographics and Health Survey
KII	Key Informant Interview
LMICs	Low and Middle-Income Countries
NACADA	National Authority for the Campaign against Drug Abuse
NCD	Non-Communicable Diseases
NGO	Non-Governmental Organization
SHS	Second Hand Smoke
TCA	Tobacco Control Act
TCB	Tobacco Control Board
WHO	World Health Organization
WNTD	World No Tobacco Day

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Tobacco remains one of the leading causes of preventable death globally. It kills half of its long-time users. Millions of deaths are caused by diseases such as cancer, stroke and still births which are largely related to tobacco use (WHO, 2019). According to World Health Organization it is approximated that 5.4 million people die every year from tobacco related diseases. This is projected to rise to 10 million by 2030 if the trend is not reversed (Owili et al., 2017). Approximately 80% of this population lives in Low-and Middle-Income Countries (L&MIC) which are largely found in Africa. Estimated 1.3 billion people using tobacco products worldwide represent 15% of the global population (Owili et al., 2017). Tobacco consumption is largely traced among the young adults and is likely to continue to lifetime due to its addictive nature (WHO, 2019). The exponential growth of tobacco smoking in L&MIC is as a result of marketing tactics by tobacco industries and the addictive nature of nicotine in tobacco. This is likely to negatively affect the potential and energetic work force (WHO, 2018).

Globally, United States and United Kingdom regions have witnessed a decrease in tobacco consumption by 33% and 44% between 1980 and 2016 while at the same time there is a corresponding increase of 65% and 52% in Eastern Mediterranean and African countries respectively (Fouad et al., 2021). Tobacco use is gradually and steadily shifting to developing countries due to the unprecedented expansion in terms of population growth, income growth, affordability of tobacco and aggressive marketing and political lobbying (WHO, 2018). In the US and UK, tobacco is responsible for about one in five and one in eight deaths annually respectively (WHO, 2019).

Medical students are better placed to promote preventive health for themselves and others but, on the contrary, tobacco prevalence is steadily rising among them (Armstrong, et al., 2017). According to Abdulaziz et, al. (2022) in Riyadh, Saudi Arabia the prevalence rate among medical students stood at 14.5% male students having a prevalence of 32.7% and female students 5.9%. This was a cause of concern since tobacco smoking among medical students has an impact on health, future professional conduct and safety of the patients (Abdulaziz et al., 2022). The

study opined that medical students are future doctors and their smoking habits would have an impact on the professional conduct and efficiency. Health of medical students is important in the safety of patients and in driving the economy of a society (Abdulaziz et al., 2022). The community expects instant and constant services of healthcare professionals regardless of their personal challenges arising from tobacco use. Medical students are also perceived as role models to many including fellow students and patients (Abdulaziz et al., 2022). Many people look up to them and would want to emulate their public life. Moreover, tobacco use among medical students is likely to jeopardize the important role of educating patients about health hazards of tobacco, providing advice, support and motivation to patients to quit smoking (Shehab et al., 2018).

According to Chezhian, et al., (2015), some of the social factors that are associated with smoking habits are peer influence, mass media, and family history of smoking, stress among other factors. The study reported that socio demographic characteristics such as age, gender, religion, are some of the factors that would significantly determine smoking habits among young people (Chezhian et al., 2015). Youth, including medical students, pass through a critical period of transition into adulthood, exploration and formation of behaviour. The study found that most smokers are targeted by tobacco the industry at an early stage in life to continue thriving in the market because of the addictive nature of tobacco (Abdulaziz et al., 2022). Behaviour of adolescents are shaped by both internal and external forces, thus, most decisions are easily influenced by families, peers, environment and media (Chen et al., 2021). This development is likely to expose them to many risk factors compounded by the economic situation in developing countries where poverty, low level of education and family stress among others are the order of the day (Farooq et al., 2021). This habit of initiating smoking early in life is likely to continue into lifelong smoking considering the addictive nature of nicotine in tobacco (Shehab et al., 2018).

According to World Health Organization (2017), on the global tobacco epidemic, monitoring tobacco use and prevention policies, age factor is so significant in tobacco consumption (WHO, 2017). Although the influence of peer groups on adolescent smoking vary depending on the social dynamics, it is not understood how these elements that are most crucial unfold for smoking initiation and continuation across areas of the world (Chen et al., 2021) children who

grow up in parental smoking homes are predisposed by the influence of parents and family members through secondhand smoke and an environment of tobacco (WHO, 2019). This habit is likely to influence young people into smoking if no urgent measure is taken to curb the situation (Shehab et al., 2018). Some of the young people get into this habit without the knowledge of the adverse effects of tobacco but just because of learning the habit from the parents (Shehab et al., 2018). At an early age, many people go through psychological and physiological changes making them vulnerable to experiment with a lot of things including tobacco. At this stage of life, peer influence becomes so strong to influence a habit and many young people fall into this trap and explore a number of things (Shehab et al., 2018). However, having best friends is likely to influence a positive attitude towards quitting smoking. Smoking habits among family members and friends significantly influence smoking habits of an individual (Baig et al., 2016). The study further found that medical students fall in the stage characterized by extensive network of peer group than any other age bracket. In this stage, medicals students are exposed to intense sociability, conformity to group rules and pressure from peers gets stronger than ever before (Baig et al., 2016). However, it is not clear what drives medical students into smoking despite the presumed knowledge of the harmful nature of tobacco. This suggests that there were several factors that could attract young people to smoke.

In Africa, the rising trend of tobacco use is likely to cause untold suffering to many families considering the low implementation rates of WHO-MPOWER measures that were introduced in 2008 to reduce tobacco demand by 30% by member countries (WHO, 2015). The implementation rates range from as low as 9% in Sierra Leone to slightly above 75% in Kenya. This gives Africa an existing opportunity to heighten compliance to fit into World Health Organization recommended best practices as provided for in the policy (WHO 2015). There is very little infrastructure to deal with associated health issues in most African countries. Confronting the problem early will be crucial to give African nations an opportunity to reduce poverty and improve standards of living along with overall health (Owili et al., 2017). Studies conducted among medical students in Ethiopia revealed varied results of which in one study 13.1% lifetime prevalence rate of cigarette smoking and 8.1% current prevalence of cigarette smoking while in another survey among undergraduate medical students reported a lifetime smoking prevalence of 9% and the current smoking prevalence of 1.8% (Eticha et al., 2014). On

the same length survey conducted among university students in southwest Nigeria showed that the prevalence of ever smoked was 22.0%, while those that currently smoke was 13.7%. Although the rates are within the global prevalence rate of 19.1% but due to tobacco industry which targets African countries, the figure is likely to increase if measures are not taken (Dania et al., 2015). Similarly, a study conducted among university students in Cameroon reported an ever-smoking prevalence of 30.1% and the current smoking prevalence of 6.3% (Mbatchou Ngahane et al., 2013). This shows that tobacco consumption among medical students is rising at an alarming rate and is likely to surpass the global prevalence rate of 19.1% among medical students if no control measures are taken.

Kenya has tried to stop tobacco use through legislation such as the enactment of the 2007 Tobacco Control Act (TCA). The knowledge of tobacco effects has been enhanced through research, tobacco promotion and sponsorship (TAPS), international tobacco control (ITC), Kenya Demographic Health Survey (KDHS) and Global Adult Tobacco Survey (GATS) to curb tobacco menace in the country.(MoPH&S, 2010). However, these efforts are yet to bear positive results, since statistics show a worrying trend in tobacco use among the young Kenyan population. Several studies have confirmed an increase in tobacco use among young adults of the Kenyan population. Consequently, expenditure arising from tobacco abuse has sharply increased both nationally and at the individual level (Gathecha et al., 2014).

According to Kenya Demographic Health Survey (KDHS, 2014) it is estimated that 19.1% of men aged 15-45 currently consume tobacco products. Similarly, a study by GYTS showed that 18.5% of youth aged 13-15 currently use tobacco products. This is an increase of 43% in overall tobacco consumption among the young adults, category in which medical students fall as compared with the previous global youth tobacco survey (MoPH&S 2010). Smoking among young adults are influenced by peer pressure, stress, familial issues and mass media (KDHS, 2014). Many of tobacco future victims are the current young adults because tobacco is initiated in adolescence and continues through adulthood (Ngaruiya et al., 2018). The young adults are in social transition accompanied with taking of risks to acquire adult behavior, making mature decision at this developmental stage is a challenge because the mind is not yet fully developed to make such judgements since they are in the exploration and implementation stage (Noland et al., 2016). This shows that the government will spend huge amount of money on non-communicable

diseases (NCDs) and loss of the potential labor force will be imminent since the effects of tobacco are exhibited later in life (Kurgat et al, 2019).

Approximately 2.7 million people in Kenya smoke tobacco with men being the majority (KDHS, 2014). Kenya ratified the WHO-FCTC in 2004 and subsequently enacted the Tobacco Control Act in 2007, as an indication that Kenya is a committed member of the agency and supports the fight against tobacco control use to achieve the intended purpose as stipulated by WHO-FCTC and MPOWER (KDHS, 2014). Kenyan government spends approximately 15 billion Kenya shillings (KES) annually in mopping up the effects of tobacco abuse. The most commonly used smoking cessation approaches are community-based interventions and media campaigns with very minimal use of medical interventions (Gichuki et al., 2014). The highest prevalence is a concern and calls for urgent action as tobacco use is not only a major health factor but also a major contributor to inequalities in health and social development (NACADA, 2020). Such inequalities deny the users enjoyment of quality life by infringing on the fundamental rights such as the right to life which is guaranteed in the constitution, high cost of treatment of terminal illnesses such as lung cancer which may later lead to premature deaths as provided for in the laws of the land (TCA. 2007). This does not only affect the smokers but also becomes a burden to the fragile health system in the developing countries. An increasing trend of smoking habits among medical students is anticipated to have a direct impact on the future professional conduct and safety of the patients. (Gathecha et al., 2014). However, smoking habits of medical students in Kenya is not clear since most studies carried out in Kenya were on drug and substance abuse by university students in Kenya (Kurui, 2019). These studies put tobacco smoking in the second position after alcohol among students which has future ramification.

Maseno University is the only public University in Kisumu County; it is the first University in western region to start the School of Medicine and School of Nursing. The school has been rated as one of the best Medical schools in East Africa Community by the East Africa Commission for University Education. Studies within public universities have given a lot of emphasis on drug abuse in general which did not adequately cover the effects of tobacco which is easily accessible and has long time effect on its user (Gathecha et al., 2014). Medical students are exceptional students and therefore concentrating on medical students, as opposed to the general student body, helps us understand the dissonance between health education and personal behavior. Medical

students are educated about the health risks associated with smoking, and studying their smoking habits can inform us of the disparity between knowledge and behavior, thus helping us understand factors other than knowledge that influence smoking (Shehab et al., 2018). This is essential for future policy formulation within medical institutions. Medical students go through academic pressure of passing examination, meeting the societal expectation to handle human life and working in a unique environment of emaciated patients, accident victims and decomposed bodies during their studies (Shehab et al., 2018). According to the Alcohol, Drug and Substance Abuse committee of Maseno University, (MUADS), drug and substance abuse is a health concern within the University and medical students are not exceptional. The prevalence rate is at 45% among the students and mostly drugs are abused in halls of residence. Several cases have been brought up before the disciplinary committee and action taken. However little studies have been done to establish the force behind smoking habits of medical students especially in the medical field. This study intended to look at some social factors that are associated with smoking among medical students of Maseno University

1.2 Statement of the Problem

Smoking behaviour among medical students is a major public health problem and a barrier to development in Kenya. Tobacco causes cancer, respiratory problems, impotence among other things. Kenya ratified WHO-FCTC in 2004 and implemented TCA (2007) giving birth to agency dedicated to ensure the highest level of achievement of WHO-FCTC and MPOWER yet smoking still persists among medical students. The dire situation demonstrated that there is need to enhance control measures to avert tobacco related epidemics including premature death and disability among others. During clinical training, medical students go through stress emanating from academic pressure and secondary trauma that are likely to initiate them into smoking habits. Despite the government domesticating WHO-FCTC interventions, through the enactment of Tobacco Control Act (2007), as a strategy for tobacco cessation interventions such as restricting smoking in public spaces, increasing taxes and creating awareness of adverse effects of tobacco. However, smoking habits among medical students is still on the rise. This is likely to be a major healthcare breakdown compounded by the already overburdened and fragile health budget experienced in public health facilities in Kenya. The magnitude of health problem occasioned by tobacco use and its associated diseases prompted the study to find out the

association of social factors and smoking habits among medical students. Further, there is scanty data in Kenya on smoking habits among medical students thereby limiting the assessment of the magnitude of the problem. As a result, coming up with targeted interventions for this category of students may be a challenge. The fact that tobacco use could be traced among medical students propelled the interest in understanding the social factors associated with smoking among medical students of Maseno University, Kenya. This study was also informed by the fact that most previous studies done in Kenya on the relationship between knowledge and smoking behaviour have largely focused on secondary school students. This makes it difficult to generalize their findings to the medical students in public universities.

1.3 Research Questions

i. What is the relationship between socio-demographic characteristics and smoking habits of medical students of Maseno University?
ii. What is the association between social referents and smoking habits of medical students of Maseno University?
iii. What is the relationship between attitudes of medical students and smoking habits in Maseno University?

1.4 Objectives of the Study

1.4.1 Main objective

The main objective of this study was to understand social factors associated with tobacco smoking among medical students of Maseno University, Kenya.

1.4.2 Specific objectives

i. To examine the relationship between socio-demographic characteristics and smoking habits of medical students
ii. To establish the association between social referents and smoking habits of medical students of Maseno University.
iii. To assess the relationship between attitude of medical students and smoking habits in Maseno University.

1.5 Justification of the Study

Tobacco smoking is a preventable cause of deaths and diseases in the whole world. One in every five deaths globally is as a result of tobacco related illnesses. Up to 71% of all lung cancer, 42% of chronic respiratory diseases and cardiovascular diseases are attributed to tobacco use. WHO-FCTC has recommended several interventions to curb the adverse effects of tobacco. It is against this background the Kenya enacted Tobacco Control Act (2007) to address issues to do with ban, promotion and advertisement of tobacco products. Tobacco smoking among medical students is likely to affect health, future professional conduct and safety of the patients. High prevalence rate is a worrying trend to healthcare providers since it's not only a major risk factor for health but also contributor to inequalities in health and social development (NACADA, 2020). Therefore, the results of this study will have implications on tobacco cessation interventions that target medical students (Shehab et al., 2018). The results of this study could be important for informing tobacco control policy and programmes in Maseno University Alcohol and Drug Abuse (MUADS) and other Universities across Kenya. The study is also likely to inform effective tobacco cessation intervention programmes that targets tobacco consumers. Moreover, the results can also be used to assess the training needs for the public on smoking among students. Lastly, the study sought to document the social factors associated with tobacco smoking habits among medical students of Maseno University. These findings can be useful to policy makers in their efforts to formulate new or revise existing policies on preventive measures against smoking such as university Alcohol and drug and substance abuse (ADS).

1.6 Scope of the Study

The study was conducted in Maseno University Main campus which hosts the two schools under study that is School of Medicine and School of Nursing. The study was conducted among undergraduate students in the two medical schools namely; Medicine and Nursing. The purpose of the study was to explore the social factors associated with tobacco smoking among medical students of Maseno University. The specific objectives were; first to examine the association between socio-demographic characteristics such as gender, age, year of study, programme and religion, secondly to establish relationship between social referent groups such as parental smoking, parenting style, friends/peer influence, mass media and smoking habits. Thirdly to

assess relationship between attitude towards health hazard, training, sales of tobacco in sticks, increase on tax, enhanced peer counseling and enhanced laws and policies on smoking habits

1.7 Theoretical Framework

This study adopted the Theory of Planned Behaviour (TPB) by Ajzen (1991) which underscores the explaining and predicting of behaviour. TPB is an improved Theory of Reasoned Action (TRA) by adding one more construct to it. This theory is considered as an explanatory theory since it goes into the roots cause of problems by guiding the search to factors promoting the problem. It states that the three constructs are the most significant and direct determinant of behaviour control, attitude towards performing the behaviour, subjective norm associated with the behaviour as well as perceived behaviour control over of behavioural pattern.

The theory states that behaviour is predicted by intention; where intention is the cognitive representation of a person's readiness to perform a given behaviour (Ajzen, 1991). Intention is determined by three things: attitude towards the specific behaviour whether favorable or not favorable (Behavioural beliefs), subjective norm/social influence-perception of social pressure to perform or not perform (Normative beliefs) and finally perceived behaviour control- perception of ease or difficulty of performing the behaviour (Control beliefs). These behavioural beliefs produce a favorable or unfavorable attitude towards behaviour (Ajzen, 1991). For example, belief of smoking making one relax from their routine distress and calm nervousness will encourage medical students to smoke. A medical student may also develop a desire towards smoking regardless of the established laws depending on the attitude and the common practice in the community. Attitude is influenced by external variables such as knowledge and demographics which in turn determine someone's belief to the outcomes of certain behaviour (belief outcomes) and how to evaluate those outcomes (evaluation outcomes). A review by Worsley (2002) highlighted declarative (awareness of things and process) and procedural knowledge (how to do things) as the two different types of knowledge. He concluded that simply being aware of things does not lead to the ability to do those things. The effects of tobacco use are well documented but that is not enough until we understand the attitude of the medical students on smoking behaviour which supports the use of TPB.

Therefore, knowledge is generally influenced by experience, personal beliefs, the people we interact with (social group) and the people we aspire to be like. In this regard, medical students may be aware of the effects of tobacco consumption. However, that alone may not stop them from smoking if there is no change of attitude. Worsley (2002) further states that people have knowledge about what they are interested in and therefore, it would be a challenge to educate individuals on smoking if they do not have an interest. Medical students can receive training, support and guidance on the knowledge and practice against smoking from their lecturers, peer friends, trainers and seminars only if they have interest. This means that attitude plays an important role and determines whether the knowledge will be applied or disregarded. Therefore, simply having knowledge on the dangers of smoking by medical students does not necessarily mean they will put to practice what they know.

Karimy, et al. (2015) provided the most current definition of the attitude which is consistent with this tripartite position. He states that attitudes are "inclinations to assess an object with some grade of favour or disfavour, ordinarily communicated in cognitive, affective and behavioural reactions." where cognitive responses refer to the beliefs, thoughts, and ideas about the attitude object and affective component refers to the feelings, moods, and emotions that people experience in relation to the attitude objects. According to Zhao, et al. (2019), adoption process is mainly a communication process in which various forms of the social influence are involved. For instance, a belief that an individual should perform certain behaviour is largely influenced by the choice to perform it even if they do not hold a positive attitude toward the behaviour or its consequences (Ajzen & Fishbein, 1975). The TPB describes this type of social influence as subjective norm. It refers to person's perception that most important people in his life think he should or should not perform the behaviour in question (Fishbein & Ajzen, 1975). This construct is found to be more important in the early stages of innovation implementation when users have limited direct experience from which to develop attitudes (Karimy et al., 2015).

It is agreeable that personal insufficiencies and external barriers are likely to prevent the achievement of any behaviour (Ajzen, 1991). These factors determine the person's actual control or dearth of control over certain behaviour. Personal control might also be barred from effectively achieving behaviour depending on numerous factors. The availability of resources and opportunities to an individual therefore dictate the possibility of performing a particular

behaviour (Ajzen, 1991). The perceived behavioural control (PBC) was the additional construct proposed by Ajzen (1991) to explain non-volitional actions. Specifically, PBC implies that the existence of constraints is possible to interfere with the intentions to perform behaviour and its actual performance. According to Zhao, et al., (2019), TPB have validated the most significant factor as perceived difficulty, particularly because of its connection to the internal constraints. Essentially, it is not the actual control that one has over behaviour but the individuals' perceptions of control that is measured in TPB (Karimy et al., 2015). In an e-learning study, perceived behavioural control was found to be significant in determining the intentions to adopt a Blackboard system (Zhao, et al., 2019).

If the actual degree of control is sufficient, individuals are expected to carry out the behaviour when they are given the opportunity (Ajzen, 1991). Intention then directly affects behaviour; the concept encapsulates the intention and behaviour has been tested in a substantial number of prospective studies; these have supported this relationship. Moreover, it is possible to state that when intentions are stronger and more durable the more likely it is that the behaviour will be performed (Ajzen, 1991). This theory will assist in understanding the study by observing the factors associated with tobacco among medical students to assist in coming up with the right cessation interventions. According to the theory, past behaviour is a best predictor of future behaviour as long as all other determinants are stable. This assumption of stability overtime is one of the conditions for accurate prediction of behaviour. Intention and perceived behavioural control must remain unchanged in the interval between assessing intention and measuring behaviour. The other requirement for accuracy is a high degree of correspondence between the measure of intention and perceived behavioural control (Ajzen, 1991).

Other than being used in understanding consumer intention to purchase local food in Iowa by Andrew Roggers, intention to eat a Healthy Diet: Applying Theory of Planned Behaviour in African American faith-Based population to understand, predict and design interventions to change health behaviour (Worsley, 2002), TPB has also been used to incorporate both social influences and personal factors as predictors that specify health risky or health protective behaviour making TPB be considered the more sufficient model of prediction of behaviour and

more so smoking among medical students (Karimy et al., 2015). These studies may include measuring and predicting behaviours in relation to providing specific interventions such as encouraging nonsmoking in the university, providing awareness and implementing best practice guideline (Worsley, 2002). Although not carried out on tobacco, the studies smoking they assist in understanding intentions to engage in specific behaviours or interventions related to attitudes, subjective norms and perceived control.

However, the use of this theory has its shortcomings that it is confined to three variables at the intrapersonal factors. The theory does not address variables such as self-image, emotional or cultural factors prone to affect behaviour at the individual level. Furthermore, the TPB was essentially developed to assist in predicting behaviours under complete volitional control leaving out other significant variables. The theory is primarily founded on the basis that human actions are directed by logical reasons and not by spontaneous actions as can be traced from TRA. Conversely, in developing Theory of Reasoned Action, the principle of aggregation was applied (Ajzen, 1991). This assumes that any measurement of a specific behaviour reflects the influence of various other factors depending on the specifics of the situation. By aggregating different behaviours, observed under different conditions, the sources of influence cancel each other out and result in an aggregate that is a more valid measure of the underlying behavioural disposition than any single behaviour (Ajzen, 1991). The TPB then postulates that all other variables, structural or personal, exert their influence indirectly through behavioural, normative and control beliefs and are not explicitly included or measured in the Model.

CHAPTER TWO

LITERATURE REVIEW

2.1 Socio-demographic characteristics associated with Smoking habits

According to available literature by WHO, tobacco consumption is the second leading cause of preventable deaths globally (WHO, 2017). In the US and Italy, tobacco contributed to 1in 5 and 1 in 8 deaths annually respectively (Armstrong et al., 2017). Tobacco consumption contributed to costly social, physical, mental and public health problems in the United States (Armstrong et al., 2017). Fejza, et al., (2018) suggested in a study conducted in the University of Prishtina that smoking is a common habit in Kosovo and it occurred mainly in public places, health and educational institutions despite being prohibited by law (Fejza et al., 2014). According to Jamal, et al., (2016), one factor that stands out clearly is that smoking related mortality, morbidity and health life expectancy are positively influenced by socio-economic variables, such as income, wealth and occupation. In the Europe and North America, male adults, from low income families, had double the risk of dying earlier than their peers in the high income families, with more than half of the cases arising from smoking related conditions (Jamal et al., 2016).

According to Gilreath, et al., (2016), youth represent a high risk group for engaging in behaviour such as tobacco smoking. The study found that these youths have a high risk of starting to smoke and become regular smokers through their smoking friends (Gilreath et al., 2016). Medical students fall within this age category and face emotional, social and educational challenges as they get into the new environment of the university (Georgiev, et al., 2019). The teenagers are likely to become regular smokers because they are vulnerable to make the right decision on adverse effects of tobacco but instead are influenced with other things such as peer influence (Georgiev, et al., 2019). According to WHO (2018), the prevalence rate for both sexes stood at 22% with 36.6% males and 7.5% females, the effort to mitigate on tobacco has only resulted in a 14% reduction. This is way below the 30% voluntary global target (WHO, 2018).

Age has been used by scholars have used as significant factor to predict the initiation and effect of smoking on a person. Globally, 186 million of the population is between 13 and 15 years of age and majority of these are reported to have started using tobacco while aged below ten years

(WHO, 2017). Jamal et al., (2016) reported that most adult smokers tried their first cigarette before the age of 18, while a study by Duxbury, et al., (2016) observed that less than half of all smokers successfully quit before the age of 60 (Duxbury et al.2016) in the study. The concurrence in several studies is that tobacco use begun during adolescence, and are more likely to become regular smokers after developing nicotine dependence coursing trouble to quit. Amrock et al (2014) on the same breadth established that the effect of tobacco remained the same whether one engaged in light or intermittent smoking. The adolescents are associated with the same level of difficulty quitting as regular smoking (Amrock et al., 2014).

According to Bhawna, (2013) there is a general consensus that males tend to use tobacco products more than women because it is normal for them and most of them have spending power unlike women who suffer stigma and lack of spending power (Bhawna, 2013). The study showed that although males smoke (16.7%) more than females (13.6%), the difference is small (Bhawna, 2013). Such differences could be due to cultural acceptance, and behavioural factors (Bhawna, 2013). The study further stated that there was a general consensus among researchers that tobacco related death is lower among females compared to males. However, this gap is seen to narrow down due to gradual increase in smoking-related death among women (Bhawna, 2013). According to WHO, 2018 report, cigarette craving was a major reason for difficulty in quitting. This strong urge to smoke is normally aroused by sensory cues and stress (WHO, 2018). Tobacco smoking is also perceived as a socially accepted way of life in several cultural settings (Brathwaite, et al.2015). It is a social norm practiced by old folks in their social interactions such us weddings, second burial in some communities and anniversaries (Kharma et al., 2020). Tobacco is acceptable in some communities for healing and spiritual purposes, in such culture, the health effects of tobacco is disregarded for the belief that it heals some illnesses (Kharma et al., 2020). Smoking in some parts of the world especially in Africa and some parts of Asia is considered “manly” activity and inappropriate for women to smoke (Brathwaite, et al.2015). According to Jankowski, et al., (2020) an inverse relationship between income and smoking in France and the UK is likely to determine the rate of smoking. Studies also opined that smoking was up to 2.5 times more likely among poorer men than the richest men (Jankowski et al., 2020).

Studies by Breslin, et al., (2018) revealed a contrast that an increase in the level of education reported a corresponding decrease in the prevalence of smoking in individual countries. Thus, educational attainment is a springboard equipping oneself with prior knowledge on the health effects of tobacco. Breslin et al (2018) suggested that medical students with knowledge of health effects of tobacco stood a better chance to avoid tobacco related mortality and morbidity as compared to young people low level of education. Findings of studies conducted by Eticha & Kidane (2014) in Ethiopia showed that the learned males were 43% less likely to have been smokers than unlearned males. The study shows that the smoking prevalence rates of male medical students is 14.2% higher than that of female which ranged between 0 to 44.7% (Eticha and Kidane 2014). Inversely a study by Reiss, et al., (2015), revealed that smoking was less prevalent in Asian medical schools than in European schools yet Asia is generally known with high rate of tobacco use. Turkish male students smoke more than others in European countries (Reiss et al., 2015). According to Sreeramareddy, et al., (2015), generally, smoking rates among females in Asia and Africa continents, was reported to be low compared to the US and UK, partly because smoking is considered socially unacceptable for women (Sreeramareddy, et al., 2015).Muslim faith regarded smoking among female as offensive to social customs and for women to smoke in public is shameful in its entirety (Fouad, et al., 2021). Matters of faith and cultural practices in some parts of the two continents have significantly contributed to the low prevalence of smoking among women. However, with increasing education and urban migration, the frequency of smoking among women is gradually rising but that of men is constant (Fouad, et al., 2021).

According to Armstrong et al. (2017), relevant knowledge about smoking health consequences and second hand smoking risk is not always synonymous with the reduction of tobacco use by those who choose to smoke (Armstrong et al., 2017). Mostly, young people seem to assume the knowledge on long term effects of tobacco and go for short time pleasure of smoking (Armstrong et al., 2017). When stress and pressure of life strike, a young person is likely to engage in smoking regardless of knowledge of health effects of tobacco. Medical students are predisposed to smoking as a result of academic pressure, secondary trauma from patients and pressure from friends (Armstrong et al., 2017). Tobacco is known to cause cancer, stroke, still

birth, heart diseases and lung diseases which sometimes are disregarded for short term pleasure (WHO, 2019).

The initiation age at to smoking, among the present young population is dramatically increasing (Chezhian et al., 2015). Subsequently, the current young adults are getting into smoking habit earlier in life than it was some decades ago. Consequently, it exacerbates the global smoking problem into the future as addiction takes place very early in life and translates to future increase in morbidity and mortality rates caused by long term smoking (Chezhian et al., 2015). From the foregoing, it is clear that a number of factors influence an individual's decision to engage in tobacco smoking. However, no known study has been carried out among medical students in Kenya to establish the social factors that influence smoking behaviour and this study sought to find out those factors. Similarly, a study by Gathecha et al. (2014) revealed that in Kenya over half of smokers started smoking before the age of 18 years (Gathecha et al., 2014). It is observed that the experimentation age with cigarettes is steadily coming down to as early as 5 years of age, while at the same time the age at which regular smoking begins was also found to have gone down from between 18-24 years, to between 12-17 years. This poses a worrying trend to public health and cessation interventions are necessary to stop the trend (Gathecha et al., 2014).

Religion inculcates good morals in the lives of young people. For Christians, they will start by attending Sunday schools where basic morals are taught while Muslim children attend madrassas for Islamic fundamental teachings (Azmi, et al.2021). It is believed that people who get involved in religious activities are less likely to have tobacco dependence (Azmi et al., 2021). Both Christianity and Islam teach abstinence to tobacco due to its potential to cause ill health. Comparatively, Christians smoke more that Muslims although both of them teach against it (Azmi et al., 2021). Religion shapes behaviour by discouraging bad habits and rewarding good deeds. This is likely to raise abstinence level from short-term pleasures for greater reward awaiting them in the afterlife (Balogh, et al., 2018). World religions understand what people go through and therefore have parachurch programmes that would offer teachings of good morals (Balogh, et al., 2018). Such programmes shall come with teachings that condemn tobacco smoking which is against Christian values of temperance and moderation (Balogh, et al., 2018). However, in general, there is an impression that people professing no religion will smoke more

than those who do profess. This may not be confirmed since tobacco is traced among religious individuals, an indication that there could be several factors associated with smoking habits (Balogh, et al., 2018).

A growing body of evidence suggests that medical students with both parents being smokers were more likely to smoke than students with single parent smoking or both parents not smoking (Shehab et al.2018). The according to Shehab et al. (2018) from a study conducted in Saudi Arabia indicated the connection between the smoking statuses of the parents with the smoking of their children. Medical students as young adults are likely to be influenced by smoking habits of parents. In cases where one or both parents are smokers, students tend to become smokers themselves (Shehab et al.2018). A study conducted in Ethiopia by Eticha et al. (2014) shows that parental smoking has an impact on smoking habits of medical students. Smoking fathers tend to influence their children to smoking especially male students than nonsmoking fathers (Eticha et al. 2014). Several studies have appreciated the role played by parent in modelling behaviour of their children (Farooq et al. 2021).Therefore, in cases where both parents behave in a particular where there is high probability that children will adopt that king of behaviour. In a family where both parents are smokers, children are likely to be influenced by the behaviour through imitation (Owusu, et al., 2016). This study showed that parental smoking among medical students was significant and any intervention should not leave parents behind (Owusu, et al., 2016).

2.2 The social referent groups and smoking habits

The role of WHO Framework Convention on Tobacco Control is to emphasize the reduction of tobacco consumption by professional healthcare providers and organizations since tobacco is a health problem that requires urgent attention (WHO, 2019). The WHO encourages HCPs, including medical students who are future doctors, to take a leadership role in reducing the use of tobacco to create an environment free of tobacco (WHO, 2019). Tobacco is a killer to most of its users which may overburden the already overstretched health budgetary allocation and cause subsequent loss in labour manpower (WHO, 2019). Social referent group is a powerful force in the perpetuation of social norm among youths. When smoking habit is started early in life, the chances of quitting is very slim because of addiction and the smoker will develop negative attitude towards any kind of interventions (Niederdeppe et al, 2018).

Smoking medical students are socially influenced by a number of factors ranging from parental smoking, sibling smoking, peer group, parental income, mass media and the environment (Shehab et al, 2018). Smoking parents are likely to influence their children into smoking habits, some are influenced more by mothers (maternal smoking) while others are influence by their fathers. However, fathers influence more than mothers depending on their strong relationships. Parental smoking therefore increases the risk of smoking initiation to begin early in life and its likelihood of continuing for a lifetime (Shehab et al, 2018). Where there is a cordial parent-child relationship, child tends to avoid smoking (Amrock et al., 2014). Positive feedback is a direct response of a parent spending time with their children as well as having and sharing secrets and other concerns (Shehab et al, 2018).

Parenting styles is basically how children are brought up in a family setting. Parenting style may shape behaviour of young adult depending on how a message is delivered within the family (Farooq et al., 2021). Adoption of habits depends on how parents play their roles in bringing them up their children. Authoritarian families would never have time to negotiate with the young person, they are there to be seen and not to be heard (Farooq et al., 2021). This kind of parenting style is likely to plunge young people into risky behaviour by looking for a listening ear away from home. Uninvolved families are likely to relax some rules at home, while some become too strict with their children leading to truancy by some children (Farooq et al., 2022). Strong authoritative parenting is associated with reduced risk of future adolescent smoking initiation. Lack of support and control is considered a risk because there is no emotional bond between parent and child. Lack of consistent behavioural control and supervision diminishes the possibility of keeping open channel of communication for parents to express their norms and values which then weaken the internalization of parental norms and values by their children (Shaid and Asmal, 2022). This was necessary to help unravel some of the risk factors to smoking habits as a result of parenting.

It is assumed that as knowledge of effects of smoking increases as medical students progress into the years of study, the less likely the students are likely to engage into smoking habits (Alzayani, et al., 2015). Interestingly, however, such knowledge did not translate to a lower rate of smoking, as students in the later years generally smoked more than those in the earlier years (Alzayani, et al., 2015). There is a worrying global trend whereby smoking rates increase during time at

medical school and more particularly among male students. For instance the prevalence rate among the final year medical students in Bahrain stood at 45.5% despite the knowledge of the health effects of tobacco (Alzayani, et al., 2015). Comparatively, prevalence rates across countries reveals that medical education alone does not adequately address the interventions to bring about a decrease in smoking rates. Studies have revealed that students seem engage in smoking at the medical school rather than stop it an indication that knowledge have relatively little impact on smoking (Gilreath et al., 2014). Typically, all medical students are in the adolescent stage and are trying to figure out roughly the same stage of life (Alzayani, et al., 2015). Finally, most premeds that make it to medical school are used to thinking of themselves as reasonably intelligent people. However, during the progression medical students are faced with academic pressure and stress which may influence them to indulge into smoking. Some colleagues will always be smarter than others in learning on cadavers, labour, data, statistics and interest to examine patients (Shehab et al., 2018). The above pressure may gradually lead medical students into tobacco consumption without much regard to knowledge of health effects of tobacco which this study sought to find out.

A number of studies concurred that practices and habits of tobacco smoking in most cases usually start during adolescence and early adulthood. Since medical students just like other students are more influenced by peers and stress, they are exposed to smoking (AlShehri, 2016). Stress is a significant risk factor for smoking affecting both genders differently. Medical students are likely to smoking for stress reduction. However, such practice may generate or worsen the negative emotional state and propagate negative coping strategies that will eventually lead to overall higher stress level (AlShehri, 2016). Peer pressure and an image of high-status lifestyle models have also been identified as factors that encourage smoking. A study conducted in India supported the notion that tobacco smoking by parents was more likely to influence adolescents to start use. The gullibility of adolescents to engage into smoking as a result of parental smoking is likely to be high since they develop a positive attitude towards tobacco (AlShehri, 2016).

Converging evidence in UK seems to lean towards the notion that perceived smoking norms are among the most influential factors for medical students since it is closely linked to the increased risk of smoking intention, experimentation and progression (Pérez-Pazos, et al., 2015). The study emphasized the importance of friends, family and social network in a person's life (Pérez-Pazos,

et al., 2015). It is undoubtedly clear that friends around someone have significant effects on many aspects of someone's life including health, happiness and satisfaction. The human beings, as social animals are intricately interconnected through networks and community through interpersonal interactions and in the sharing of information, norms and identity. Research has shown that where parents smoke, children are likely to start smoking as early as at five years and this is entrenched as family habitual practice where everyone in the family entertains the behaviour. Since early initiation into smoking is likely to continue into life time, the children under this condition are likely to become regular smokers (AlShehri, 2016). This showed that parents and friends have a key role in influencing smoking habits of students. On the flipside, the parents can also influence antismoking campaign messages by quitting smoking which, to some extent, will reduce both active and passive smoking habits of the young people and eventually reduces the risk of smoking related health hazards (Jimborean, et al., 2017). However, according to WHO, those students who defied parental influence by not initiating into smoking by age 20 years are not likely to smoke in life (Jimborean, et al., 2017). Students who for one reason or the other stopped smoking to preserve good health can be good change agents to other students who smoke if given requisite assistance (Jimborean, et al., 2017).

According to Maghram, (2018) on social factors influencing tobacco use among school students in Al-Quwayiyah Governorate, students who are susceptible to smoking begin to evaluate the risks and benefits of smoking before making the decision to experiment (Maghram, 2018). These perceived risks and benefits of smoking motivate them either to refuse cigarettes or to experiment with them (Maghram, 2018). They are likely to understand the risks of smoking in general terms but greatly underestimate the personal risks, largely because of the belief that they can quit before becoming addicted (Maghram, 2018). Despite having critical points for consideration, this study was conducted among the young adults in general and therefore did not adequately address the attitude problem of medical students towards tobacco consumption.

In Africa, social factors that influence tobacco consumption are peer and parental smoking (Dania et al., 2015). Further, minimal, parental monitoring and relaxed parental attitude towards smoking societal norms informed the kind of attitude a young person would have towards smoking. According to Mbatchou Ngahane, et al., (2013), the need to have a safe environment

for students is supported by this study to create a behaviour change towards smoking habits. Culturally, male students are more likely to be influenced by fathers, teachers and friends while female students are more influenced by mothers and sisters who smoke (Mbatchou Ngahane et al., 2013). That study contradicted the one done by Abdulaziz et al (2016) who reported insignificant gender differences in the perception of smoking among the students. Socio-cultural context in Africa is such that men are free to hang out with others with less supervision while ladies are disadvantaged by cultural practices which over protect the girl child. Medical students are therefore influenced by several factors to indulge in smoking habits regardless of the well documented effects of tobacco (WHO, 2019). The peer pressure may be twofold; direct and normative pressure. The former is where a person is asked, dared or persuaded to smoke while the latter is an indirect pressure on medical students arising from socialization with peers (Armstrong et al., 2016).

A survey in Kenya by GATS, (2014) reported that the high smoking prevalence rate is in Kenya is to a great extent caused by parental smoking compared to other sub-Saharan countries (Gathecha et al., 2014). This could be attributable to more time parents spent with the children and sometimes failure to punish them for wrong doing (Gathecha et al., 2014). Parents play a significant role in the life of a child that may influence smoking behaviour following the tie that binds them together (Gathecha et al., 2014). Some parents do not have issues with their children smoking and this encourages smoking behaviour among the youth. In some instances, young people initiate into smoking following the harsh environment at home such as gender-based violence and authoritarian parent who do not have time for children and punish them even for flimsy excuses. It is not clear whether the parental smoking, sibling or peer influence that promotes smoking habits among medical students in Kenya. This study intended to find out relevant factors.

The aim of WHO-FCTC is to ban all forms of tobacco advertisement, promotions and sponsorship globally. No country under WHO is allowed by the treaty to condone such practice within their borders (WHO, 2017). This is not possible without involving media as a tool to propagate the message of the health effects of tobacco. Mass media such as television, music, movies, newspapers, magazines and internet have been proven as powerful tools that influence smoking habits (Noland, et al., 2016). Media has been used to influence a positive view of

smoking, negative view of smoking, skills for refusing cigarettes and perception that most people of their own age do not smoke (Noland et al., 2016). Media target the youth since they fall in a critical age of transition coupled with rapidly changing needs and interests of this group (Noland et al., 2016).

In the US and UK, the rule is to have a constant widely examined antismoking advertisement in the media contrary to the practice in China where the close monitoring is relaxed (Niederdeppe, et al.,2018). This is relegated on the basis of collectivist culture where the virtue of filial piety is highly valued (Levy, et al., 2016). According to Noland et al., (2016), the primary agent of socialization is family unit where social, cultural and biological factors interact leading to different behavioural outcomes among the youth (Terig et al., 2013). Parental antismoking practices are presumed to be fundamental determinants of youth experiment with the use of tobacco. In their study, Jimborean, et al., (2017) found that youth initiated into smoking without regarding the warnings and concerns from the parents (Jimborean, et al., 2017). All forms of advertisement were banned in 1995 in China to reduce smoking prevalence. The ban was specifically on the publications of advertisement related to tobacco, or tobacco products through radio broadcasts, newspapers and magazines (Niederdeppe, et al., 2018).

However, there is paucity of data focusing on categorizing the theme of antismoking advertisement in China to examine the effect of those messages on youth smoking cognition and behaviour intention (Levy et al., 2016). According to a study by Terig & Mohamed (2013), intensive antismoking campaign through media is perceived as a tool to yield positive results. However, different components of media come into play with independent effects. It is therefore not clear the aspect of campaign had the most impact with which group and, in this case, medical students (Terig & Mohamed., 2013). In Florida, a counter marketing strategy is employed targeting the youth, with a calculated antismoking campaign message, to this high risk and special audience (Noland et al., 2016). A strong youth movement is built in the United State to promote a tobacco free society by distributing anti-tobacco gear to counter tobacco industry programmes (Noland et al., 2016).

According to Allen, et al., (2015), media messages are endemic in the society. The messages are spread through television, radio, movies, outdoor and point of sales advertising via newspapers

and magazine. It is also done on the internet and through books, brochures and posters (Allen, et al., 2015). Media is very critical because statistics show that an average person spends about three hours a day on television. Media has portrayed smoking as sexy and pleasurable rather than as addictive and problematic. The appeal according to Niederdeppe, et al., (2018) is always to whip the emotions of the young adults to the desire for acceptability, popularity and sexual allure. A young person on the other hand, spends between 16-20 hours a week of watching television, every week. Equal amount of time is also spent on listening to radio and music. With the spread of internet connectivity, young people are likely to access sites that expose them to a range of information that are not easily available (Niederdeppe et al., 2018). Antismoking campaigns are becoming more on television which positively encourages regular smokers to quit and nonsmokers not to attempt smoking (Niederdeppe et al., 2018).

Medical students are trusted with the knowledge of adverse effects of tobacco. However, studies have shown that they have limited knowledge of how to communicate messages that are likely to motivate behaviour change (Almutairi, et al. 2014). According to Kurgat, et al. (2019) on cigarette smoking and its challenges found that the biggest challenge to antismoking campaign is the inadequate funds to help in sensitizing young adults on the health effects of cigarette smoking (Kurgat et al., 2019). The poor mass media antismoking campaign has contributed to the steady growth trajectory. There are existing laws on the ban of tobacco such as the Tobacco Control Act of 2007. However, smoking still persists among the young people since there is lack of funds to launch a serious antismoking campaign to reduce the behaviour and insulate the nonsmokers around (Kurgat et al., 2019). Very little effort is employed to ensure total compliance to labeling of tobacco as a dangerous product for fear of losing revenue in the name of corporate tax. NACADA has been reduced to an administrative unit instead of playing its mandate to campaign against tobacco (NACADA, 2012). According to Mwenda, et al., (2018), mass media in Kenya faces several challenges of bringing antismoking campaign that will spur awareness to the masses on the health impact of tobacco due to poverty index among many youths as a result of unemployment, low level of education and cultural practices (Mwenda et al., 2018). Media plays minimal role in highlighting the effectiveness of smoking zones that will spur action and ensure compliance to insulate nonsmokers in public spaces (Mwenda et al., 2018).

A study by Gichuki, (2014) in Kiambu found mass media is able to expose some factors such as parental smoking which has a bearing in a student's life. It is imperative therefore that targeted antismoking campaign messages are likely to reduce the level of smoking among the youth (Gichuki. 2014). Some studies have however, contradicted the notion that mass media campaigns play significant role on smoking behaviour stating that the impact of such campaigns only target the knowledge and beliefs but not actual behaviour since the information seems be minimal. The paucity of data in Kenya on the effect of mass media as a social factor associated with smoking habits among medical students prompted the study.

2.3 Attitudes of medical students and smoking habit

Tobacco is the leading cause of preventable death and therefore its prevention is a critical component of a comprehensive control strategy (Terig & Mohamed. 2013). Young people below the age of 20 are more likely to fall in this trap of tobacco initiation depending on their attitude. Consequently, it should therefore be the main focus in the effort of prevention since they are likely to continue with the habit for the rest of their lives (Terig &Mohamed. 2013). Prevention or early intervention initiatives has an immense long term solution to tobacco consumption than cessation initiative since it becomes a challenge once one is addicted to nicotine in tobacco (WHO, 2017). However, the general perception is that effective prevention strategies have remained largely elusive and the fall in cessation activities is the fall of uptake rate (Terig & Mohamed. 2013).

The prevention strategy can always be two-fold; primary prevention, a concept used to stop people from ever trying to smoke tobacco. Its ultimate aim is to stop initiation into tobacco smoking by all means (Amrock et al., 2014). The second concept is secondary prevention where there is a calculated effort to prevent the move from initiation to becoming regular or user of tobacco products. This will assist in minimization and addiction prevention effort leading to a reduction in the overall prevalence rate that will largely reduce the adverse health effects of tobacco (Amrock et al., 2014).

The result of both prevention and cessation can be traced from prevention interventions. The prevention interventions that are likely to yield a positive result of reducing the advancement to regular smoking as well as discouraging trials should be embraced (Terig & Mohamed. 2013). Since a lot of emphasis has been put on the behavioural outcome rather than knowledge, attitude

and behavioural intentions, there is need to assess the efficacy of these interventions (WHO, 2017). The prevention strategies should target risk groups especially the youth. In UK, strategies have been rigorously evaluated despite the large number of possible strategies (WHO, 2019).

A study by Gashaw, Teshita, & Getachew (2016) showed that 10% of those who are affected by smoking at an early age would eventually die from second hand smoke (Gashaw et al., 2016). It was important that the smoking intervention programmes would target the young adults since once hooked it is likely to continue smoking through the life which is the target of the tobacco industry (Gashaw et al., 2016). However, it is not clear whether the emphasis targeting the youth are effectively implemented to reduce on the urge to start smoking at an early age and also discourage those who would want to smoke (Gashaw et al., 2016).

According to Gashaw et al. (2016) promoting a tobacco free environment is one of the possible ways of indirectly discouraging tobacco use among the youth (Gashaw et al., 2016). This includes initiative that will specifically target parents as well as significant others aim to sway the broader familial environment (Gashaw et al., 2016). The study revealed that most common sources of encouraging smoking within the family were high parental expectations to the children, lack to punish antisocial behaviour, entertaining smoking of children, sending children to buy cigarettes (Gashaw et al., 2016). Additionally, students also face other stressors of life that affect their academic performance which may result in tobacco use (Gashaw et al., 2016).

According to McKay, et al., (2015), the Government of India increasingly confronted tobacco menace by introducing relatively moderate preventative policies between 1975 and 2000 (McKay et al., 2015). It is through the engagement that a comprehensive policy such as Cigarette and Other Tobacco Products Act (COTPA) was formulated to totally address tobacco use in public places. This was done after the ratification of Framework Convention of Tobacco Control (FCTC) in 2005 committing member states to among other things implement a wide-range of measures to limit demand for tobacco, aid cessation of use, protect minors and non-users, and regulate tobacco products(McKay et al., 2015). The framework was fundamental in promoting a good number of control strategies through coming up with pieces of legislations and policies that will address issues of pricing and taxation measures on tobacco products. It also went ahead to ensure appropriate labeling of products (including health warnings), tobacco related education, prohibition of advertising and other promotion methods. Finally, it guaranteed provision of

cessation programmes, control of illicit tobacco product trade and control of tobacco sale to minors (McKay et al., 2015). This study intended to find out the impact of the attitude on cessation interventions among medical students.

In a study by Rezk-Hanna, et al., (2018), all tobacco cessation interventions have proven to be working the moment physicians' guidance on tobacco is taken seriously (WHO, 2019). However, the dissemination of these effective tobacco interventions to reach out to a greater mass of people has remained elusive (Rezk-Hanna et al., 2018). In developing counties such as Africa, tobacco cessation services, both in public and private sector are grossly inadequate. As a result, health care providers are limited to assist patients to quit smoking (Gichuki et al., 2014). Additionally, health care providers' smoking behaviour is to a great extent associated with the extent to which smoking cessation counselling to their patients will be provided (Armstrong et al., 2012). Health care providers play a crucial role in educating patients about good health practices, given that their behaviour can influence the smoking habits of the patients and even of the general population (Amrock et al., 2014). Consequently, health professionals have a key role to play in counselling their patients in tobacco cessation (Amrock et al., 2014).

According to Kathleen, et al., (2015), social networks and structures convey a positive impression of smoking among the young population. Young people always try to emulate what the parents and other old people do (Kathleen et al., 2015). Tobacco is likely to be initiated by students who conceive a negative attitude towards smoking in campus. Ban on smoking in public places and discouraging sales of tobacco within the campus have been proven as strategies to reduce smoking habits among students (Kathleen et al., 2015). In a comparative study conducted among smokers and non-smokers. Generally, "recreation" was identified as the main reason for smoking by most smokers, followed by "proving manhood", while non-smokers believed that their peers smoked mainly to prove their manhood and popularity. In another similar study, "curiosity" was believed to be the main reason for smoking (Amrock et al., 2014).

The number of tobacco consumers in Africa is growing at an alarming rate of 14% of the world's smokers. This implies that Africa is likely to be the second continent in the world with the highest rate of smoking by 2060 after Asia if antismoking campaign strategies are not effectively enforced. This is because there is still half of the continent that has reluctantly adopted the idea

towards tobacco control programs. Countries like Mozambique, Malawi, Sierra Leone, Eretria and South Sudan have not ratified the WHO-FCTC (WHO, 2017). In Nigeria, 46.1% of young adults were initiated into the smoking at age 16-20 when most of them were in secondary schools and universities this is attributable to personal attitude and beliefs towards cigarette smoking. This is the debuting age where experimentation occurs thus underestimating the health consequences of smoking, smoking-related mortality and year of life lost due to smoking (Dania et al., 2015).

Despite the evidence linking tobacco related illness and their attitude, there is more consistent information from studies investigating the link between smokers' attitudes and their beliefs and perception about the etiology of illnesses or symptoms from which they suffer (WHO, 2019). Thus, older smokers attributing their symptom to smoking rather than old age are motivated to stop smoking. The same is also witnessed with smokers with established respiratory symptoms (WHO, 2017). Most of the reviewed study on attitudes and perceptions on tobacco smoking were mainly generalized of study subjects (i.e. young adults in general).

According to Abdulateef, et al., (2016), knowledge about the effects of smoking is an important component for smoking cessation and prevention. Thus, changing behaviour one needs to acquire relevant knowledge, change related attitudes and, finally, alter practices which is essential in inculcating right attitude (Edwards, et al. 2015). Although increasing knowledge is strongly associated with a reduction in smoking and increase in the cessation behaviour and long-term abstinence from smoking, especially in developed countries this knowledge is not synonymous with effects of tobacco consumption rate among medical students (Abdulateef et al., 2016). In high income countries, tobacco smoking prevalence rate is on decline while highly variable in middle income countries. Among smokers, percentage of smokers tends to increase with education; therefore, there is need for improvement of knowledge and change of attitude toward smoking among healthcare students in order enhances the progress in the treatment of smokers (Abdulateef et al., 2016). The studies also showed that there was no significant difference between medical and non-medical students in smoking prevalence, smoking increased with education.

According to Edwards, et al. (2015), inadequate training on tobacco cessation interventions is a major impediment to support smokers willing to quit. Ideally, medical students should be fully equipped with relevant knowledge of complexities of nicotine addiction and effective ways of stopping smoking. Studies from various countries suggest that these issues are not adequately covered in many undergraduate curricula (Kharma, et al. 2020). It is this this reason that Canada has embarked on the training of health professionals to address tobacco use and dependence (WHO, 2019). Article 12 (a,d) and Article 14 of the WHO-FCTC clearly articulates health and addiction risks of tobacco consumption, as well as treatment of tobacco use and dependence within a comprehensive tobacco control strategy by developing a comprehensive education programs for health professionals (WHO, 2019). Tobacco dependence treatment is done through brief advice, counseling for smoking prevention, cessation and recommending approved cessation medications (Jha & Peto., 2014). Trained health professionals in smoking cessation counseling are more likely to offer clients smoking cessation interventions which will then increase client quit rates than when they are inadequately trained in the area of cessation and prevention (Kharma, et al. 2020). Lack of training among health care providers has remained an impediment to the provision of adequate advise to the client that may lead to successful cessation and prevention process (Kharma, et al. 2020).

Kenya consumes close to 8 billion sticks of tobacco annually, this has financial implication in the economy of the country (Gichuki, 2014). This money can be channeled to alleviate the poverty rate in the country by creating jobs that can improve the lives of people (MoPHS, 2010). Tobacco is a serious devastating product that causes disease, disability and death to a productive age of the society and should not be left to affect the society (MoPHS, 2010).

It is against this backdrop that the country ratified the WHO-FCTC in 2004 and later enacted Tobacco Control Act (2007) to cushion people from premature death and adverse effects of the tobacco (MoPHS, 2010). The TCA (2007) gave birth to tobacco control policy in 2012 which among other things was to ensure that children below age 18 years do not sell or buy tobacco (TCA, 2007). It was also formulated to provide protectives strategies that will guarantee children do not initiate tobacco consumption (MoPHS, 2010). This was premised on the fact that risk factors disposing children to tobacco use include home environment, community, peer influence, role model and media. (MoPHS, 2010).

Tobacco prices and tax are effective instruments to determine culture in a given society. The demand for tobacco products especially among the children and youth will to a great extent depend on the amount charged to purchase tobacco (MoPHS, 2010). The price intervention is by increased taxation of tobacco. To achieve this, the policy provides that taxations of tobacco product to be at 70% of the retail shop and that it must be across all products to prevent switching from one product to the other (MoPHS, 2010). However, price elasticity of demand should target the youth where medical students fall rather than focusing on the adults. This study intends to find out whether price changes are likely to reduce smoking initiation among medical students. Kenya banned all forms of advertisement, promotion and sponsorship since it was a tool to encourage the use of tobacco product (MoPHS, 2010). This was a welcome move by the community notwithstanding knowledge of its impact to reduce the consumption. However, tobacco is continued to be consumed regardless of the prices due to its high addiction dependence making tobacco industry to still thrive. This therefore calls for an intervention that will target attitude towards smoking.

The Kenyan constitution provides the right to information and therefore consumers of tobacco products should be fully informed about health risks of tobacco, consequences, addiction nature and mortal threats that come alongside tobacco use (MoPHS, 2010). It therefore a requirement that the tobacco packets bear health warning, display figures for emission and all packages shall bear both pictorial and text health warning as prescribed by the Tobacco Control Act (MoPHS, 2010).

Health professionals plays a very important role in tobacco control by either determine the success of failure of the effort to reduce the tobacco prevalence rate of any community (Jankowski, et al., 2020). In the UK medical students as future doctors play an exemplary role through the acquired knowledge of adverse effects of tobacco to discourage smoking among their patients (Jankowski, et al., 2020). However, despite doctors taking cost effective interventions to help patients quit smoking, only 20% embrace the advice. The attitude towards tobacco use considered health professionals as behavioural models. According to Levy et al., (2016), mentorship programmes have been identified as another community intervention that works well with the young adults (Levy et al. 2016). This involves the formation of pro social relationship in which adults acts as role models for young people (Levy et al., 2016). This is an

initiative that can be effectively used to motivate young people to refrain from using tobacco (Levy et al., 2016). However, there is little data found to have evaluated the impact of mentorship programmes on preventing medical student tobacco use thus making its potential role in tobacco control uncertain, this study intended to establish how training through mentorship impact on smoking habits.

Youth recreation program is also another intervention that is likely to promote smoke free messages encouraging healthy, active lifestyle (Edward et al. 2015). These may include sporting activities such as gyms health clubs and community youth clubs though may not yield better results if used alone as a single approach (Edward et al. 2015). Finally, employment and training has been raised as another setting in which programs delivered to young people could potentially incorporate health promotion, such as tobacco prevention however there is little research in this area to give empirical evidence on the effect (Levy et al., 2016).

In the UK the reason for quitting smoking may spur the development of interventions to be used targeting the youth. The intervention developed should be one that can bring about reinforce this motivation to stop smoking (Janskowski et al., 2020). Understanding barriers to quitting smoking by medical students can provide the kind of strategy needed to motivate the change behavior (Janskowski et al., 2020). Medical students who smoke much as they handle human health, are prompted with the thought of quitting smoking when the witness the way some of their relatives have suffered, died as a result of tobacco related illness (Janskowski et al., 2020). According to McKay et al., 2016, medical students have also some concerns about future health, addiction, unacceptability by the family and friends, smell of the cigarettes and morbidity and mortality of their family members. Medicals students with friends who smoke are likely to initiate or continue with the habit (McKay et al., 2016).

In Africa medical students have ignored the effects of tobacco by nursing the thought that quitting smoking is reasonably easy and therefore quitting smoking is not an urgent or a serious issue (Mbatchou-Ngahane, et al. 2013). Due to poverty index occasioned by lack of employment after graduating from college in Africa to some extent has promoted smoking habit. Medical students also cite factors such as stress/ relaxation and companionship are some of the factors that promote smoking uptake (Mbatchou-Ngahane et al., 2013). Other studies show that some

medical students initiate into smoking following social pressure, rebellion from the family and weight control (Mbatchou-Ngahane et al., 2013) the attitude therefore promote smoking habits among the youth who are likely to become regular smokers. According to Ngaruiya, et al., (2018), some medical students engage into smoking habit for lack of awareness of the existing pieces of the legislation and also developing negative attitude towards tobacco counseling. Medical students have time constraints to offer counseling while treating patients, lack of confidence in handling tobacco users (Ngaruiya et al., 2018). Article 12 of WHO-FCTC mandates the member states to offer appropriate training for HCP on tobacco control and encourage the access to low-cost pharmacology therapy (Ngaruiya et al., 2018)

In Kenya, tobacco use is on the rising trajectory occasioned by weak legislative policies, inadequate funding to help sensitize the general public on the health impacts of cigarette smoking and minimal use of mass media to campaign against cigarette smoking and tobacco abuse. Enforcement agencies mandated to ensure laws and regulations are followed do very little to compel tobacco companies to strictly adhere to the requirement of tobacco laws and regulations such as labelling tobacco as a dangerous substance (Kurgat et al., 2019). This is because the same companies are also source of income for the government to fund programmes. Closing them completely will result in slowed development because money collected in terms of tax may not be adequate to run all the government projects. Another important factor that influences tobacco use is the poverty index among the young people the less endowed a child is the more likely that he would engage in tobacco (Kurgat et al., 2019). For this reason, strict measures to deter tobacco use in the country are not fully enforced. However, the government has come up with some measures such as increase of taxes on tobacco products, encouraging people from tobacco growing areas to grow food instead of tobacco which is yielding some results.

To promote tobacco cessation and minimize its use among the young people, there is need to tighten tobacco laws. The legislative arm of the government should understand the gravity of the matter and rise to the occasion to save people from the fatal effect of tobacco (Gathecha et al. 2014). This is possible only if they lay aside their personal interests and formulate and pass legislative policies that will curb tobacco abuse. Tobacco Control Act (TCA) in 2007 is weak to

fight tobacco consumption because during its passage, big tobacco companies sponsored the political class to shoot down the bill (Mwenda et al. 2018).

Furthermore, the mass media if used positively can play a critical role of sensitizing the general population on the health impacts of cigarette smoking. To tap on the health benefits for both individual smokers and general public, media should come handy to propagate positive messages of smoking cessation (Kurgat et al., 2019). Male smokers in Kenya are known to lean towards sweet menthol cigarettes at an alarming rate. The flavour in the cigarette is likely to create a notion that it is less harmful to smoker; this may be against the fact that all tobacco products are harmful to (Kurgat et al., 2019). Significant steps were envisaged with the enactment of Tobacco Act 2007 to insulate the nonsmoking population from the health problems caused by second hand smoking. However, this has not yielded better results since the smoking zones for cigarette smokers intended to cushion nonsmokers from tobacco effects has not been optimally utilized, few learning institutions have warning signs and signage that would discourage smoking. Tobacco is still sold in sticks in local kiosks against the spirit of the law requiring that tobacco be sold in packets. Tobacco studies in Kenya are scarce in the literature primarily because the state has not invested adequately in tobacco research (Kurgat et al., 2019).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the following methodology that was used in the study: study design, study area, study population, sampling procedures, and methods of data collection. In addition, it explains the methods of data analysis and presentation. In addition, it presents the ethical considerations.

3.2 Study Design

The study adopted a correlational research design. The purpose of using this research design was to assist in describing the association between two or more naturally occurring variables and studied the degree to which the variables are related. The design was used because it was suitable to answer the research questions appropriately and adequately. Additionally, the design was also used to predict how the variables under study influenced the smoking habits of students since the focus was not only descriptive and explanatory. Therefore, this design enabled the researcher to establish whether and to what degree the association existed between the variables. It involved both quantitative and qualitative data collection methods and analysis. The quantitative method involved use of questionnaires with structured questions to 264 participants while the qualitative method utilized KIIs and FGD guides to collect data. The two methods were significant to detect valuable social factors associated with smoking habits of medical students.

3.3 Study Area

This study was purposively conducted in Maseno University located in Kisumu West Sub-County of Kisumu County in Western Kenya for a period three months. Maseno University, was purposively selected because drug abuse in general has been a concern in tertiary institutions and Maseno university was one of the institutions with both school of Medicine and Nursing. Both schools had a total population of 712 students (Academic Registrar, 2022). Both schools are academically and administratively under the supervision of deans. Maseno university is situated along Kisumu –Busia road which a potential conduit for smuggling of tobacco and other hard drugs. The prevalence rate among medical students in Maseno University is not clear since there is scanty information on their smoking habits in public universities. Kisumu County lies between

Latitude: 0.0917°S and Longitude 34.7680° E, at an elevation of between 1132 and 2664 m as in Figure 1. Maseno was the first public university in western part of Kenya to get medical board's approval to launch Medicine and Nursing programmes.

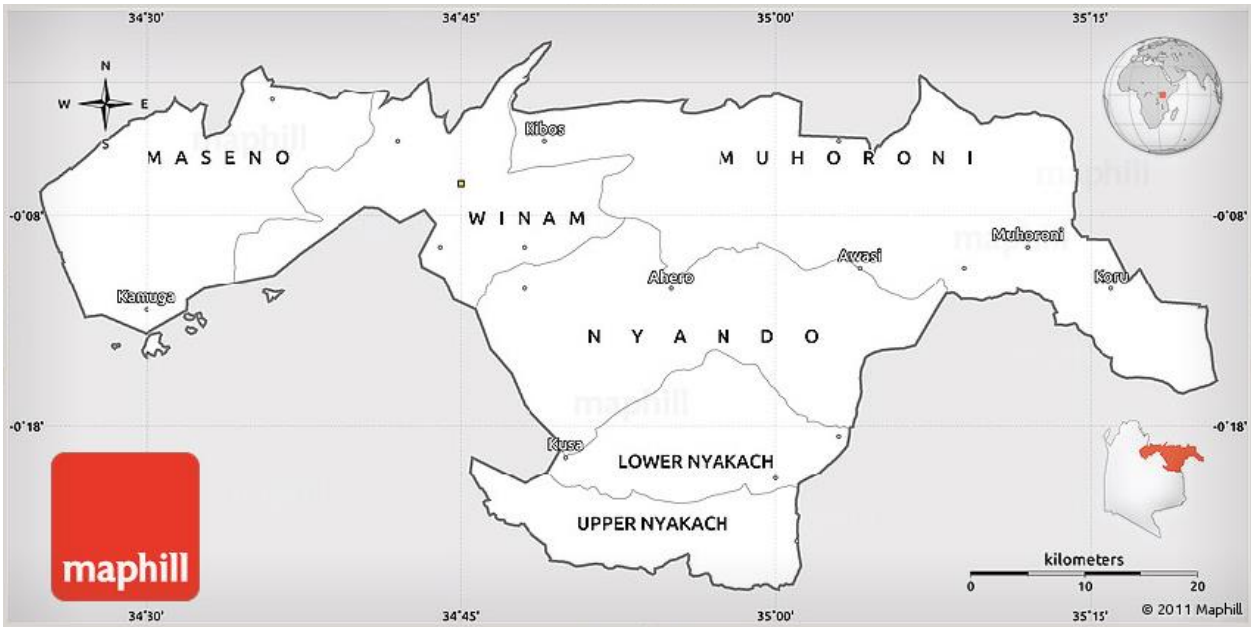


Figure 3.1 Map of Kisumu County
Source: (http://maps.maphill.com/kenya/nyanza/kisumu/simple-maps/blank-map/blank-simple-map-of-kisumu.jpg)

3.4 Study Population

The study population comprises undergraduate students of Maseno University from both School of Medicine and School of Nursing. The study sample was drawn from a student population of 712 students of which165 from School of Nursing and 547 from School of Medicine (Maseno University academic registry, 2022).

Table 3.1 Number of students as per the two medical schools.

	GENDER	SCHOOL OF MEDICINE	SCHOOL OF NURSING	TOTAL	YEAR TOTAL
YEAR 1	Male	75	31	106	**159**
	Female	33	20	53	
YEAR 2	Male	29	28	57	**98**
	Female	30	11	41	
YEAR 3	Male	61	20	81	**136**
	Female	35	20	55	
YEAR 4	Male	52	20	72	**139**
	Female	52	15	67	
YEAR 5	Male	73	0	73	**112**
	Female	39	0	39	
YEAR 6	Male	34	0	34	**68**
	Female	34	0	34	
TOTAL	Male	324	99	423	**712**
	Female	223	66	289	
GRAND TOTAL		**547**	**165**	**712**	

Source: Maseno University Academic Registry (2022)

3.5 Sampling Procedure and Sample Size

The sample size was calculated using Yamane (1967) formula at 95% confidence level. The calculation formula of Yamane is presented as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size required

N = number of people in the population

e = allowable error (%)

Substituting numbers in the formula:

$$n = \frac{712}{1 + 712(0.05)^2} = 264$$

Thus, a sample of 264 students was sufficient at 95% level of confidence. Further, the total sample was proportionately distributed among the 2 schools and for each gender. To get equal proportion of the students across years of study, the selection was done using the formula below as shown in Table 3.2 below. $$\mathrm{n} = \frac{\mathrm{Nxn}}{\mathrm{R}}$$

Where:

n = sample size required

N = population size

n = number of population sampled

R= number of gender in the population

For instance to arrive at the female students in Year 1 school of medicine

$$\mathrm{n} = \frac{33\mathrm{x}108}{289} = 12$$

Table 3.2 Stratified random sampling

	GENDER	SCHOOL OF MEDICINE	SCHOOL OF NURSING	TOTAL	YEAR TOTAL
YEAR 1	Male	28	12	40	**59**
	Female	12	7	19	
YEAR 2	Male	11	10	21	**36**
	Female	11	4	15	
YEAR 3	Male	23	7	30	**50**
	Female	13	7	20	
YEAR 4	Male	19	7	26	**51**
	Female	19	6	25	
YEAR 5	Male	27	0	27	**42**
	Female	15	0	15	
YEAR 6	Male	13	0	13	**26**
	Female	13	0	13	
TOTAL	Male	121	35	156	**264**
	Female	83	25	108	
GRAND TOTAL		**204**	**60**	**264**	

List of study population was generated from the office of the Registrar, Academic and Students Affairs. The respondents were stratified according to their respective schools and gender against their year of study to ensure that there was a fair representation of students in the study. To guarantee equal representation, systematic random sampling was used in the sample. The sampling interval was calculated by dividing the population size by the desired sample size. This was done for the two schools (Medicine and Nursing) and every 3rd number was picked for the survey. The sampling of participants was done using systematic sampling method to pick every 3rd number from the attendant lists which was accessed with the assistance of class representatives. The consent forms were issued to participants to read and sign after adequate explanation before questionnaires were distributed to the 264 respondents selected for the

survey. Purposive sampling was used to select 32 participants for the four FGDs consisting of 8 participants per FGD. This ensured that those who were active and willing to take part in the survey were not included.

3.6 Methods of Data Collection

The study used mixed methods of data collection. Qualitative data was obtained through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). This included Deans of the school of Medicine, School of Nursing and an officer from NACADA. Focus Group Discussions (FGDs) were conducted purposively with undergraduate students from both school of Medicine and school of Nursing. Quantitative data was generated using structured questionnaires which were collected from a sample of undergraduates from both School of Medicine and School of Nursing.

3.6.1 Structured Questionnaires

Structured questionnaires were used to collect quantitative data from medical students to explore their knowledge on the social factors associated with smoking among medical students. A total of 264 respondents were asked to answer to a set of questions that assessed their social factors associated with smoking. The administration of questionnaires was done by both the researcher and assistant at a place and time identified as convenient by the respondent. The questionnaire took between 20-45 minutes to complete. Socio-demographic characteristics associated with smoking habits, social referent groups associated with smoking habits and the relationship between attitude of medical students and smoking habits were collected.

3.6.2 Key Informant Interviews

The study organized interviews with three Key Informants purposively selected, comprising two males, one was Dean, school of Medicine and another one an officer from NACADA while a female was Dean, School of Nursing. The information collected from the experts included the impact of tobacco in higher learning institutions, tobacco effects within the university and available cessation interventions put in place. The equipment for recording the interviews was voice recorder while note taking was also used to capture information that might have been

missed while recording. An interview guide was used to ensure that every aspect of interest was adequately covered in line with the study objectives.

3.6.3 Focus Group Discussions

The study held four Focus Group Discussions with purposively selected students from selected strata and grouped in terms of year of study and gender to ensure fair representation of all categories of students. First and second years were met separately as males and females. Third and fourth years were combined per gender for the discussion. Similarly, fifth and sixth years were grouped. In every session, there were eight participants translating to 32 study participants for group discussions selected by year of study and gender. The aim of conducting this discussion was to explore views of discussants on social factors associated with smoking habits among medical students. Participants were guided to the topic of discussion with a moderator directing the conversation. These discussions were useful as they enriched the survey data by providing explanations on how students felt about their level of association and further explored the explanations related to smoking habits. The 4 FGDs were conducted in the student mess at the Main Campus and a hall of one private hostel within Kisumu city on weekends. The researcher moderated all the sessions with a research assistant assisting in taking notes. FGD participants were asked to choose pseudonyms for the purpose of maintaining confidentiality during the discussion. They were also asked not to share any information they were not comfortable with within the group as the researcher could not guarantee that other participants would keep the information confidential. The sessions took between 40-85 minutes and all FGDs were audio-recorded.

3.7 Data Analysis

The study used both qualitative and quantitative data analysis methods. The quantitative data obtained from questionnaires were coded then analyzed using Statistical Package for Social Sciences (SPSS) spreadsheet version 20. The independent variable in the study was smoking habits and dependent variables were age of the participants, year of study, programme, gender religion in the first objective, second objective were peer influence, parental smoking, parenting style and mass media. In the third objective attitude of medical students were analyzed using Likert scale. Chi square was used to analyze the relationship between social factors and the

smoking habits for the three objectives of the study where P-value of <0.05 were considered statistically significant. Analysis was subsequently done using descriptive and inferential statistics and presented in frequency tables and cross tabulations. Qualitative data obtained from both key informants interview and FGDs were analyzed using thematic analysis method. This involved identifying recurring themes. The recorded data was transcribed as a word document by first uploading it to the Expresscribe NCH transcription software. NVivo software was then used to code and analyze the responses from the transcription. The data were then organized into themes depending on the objectives of the study.

3.8 Ethical Considerations

Maseno University through School of Arts and Social Sciences granted permission to carry out data collection after consultations on adherence to ethical issues. Written informed consent was obtained from all study participants. All data were treated with utmost high levels of confidentiality and voluntary participation. The list of students obtained from the university was only used for sampling and data collection purposes, thus no student was identified by name in the report and the list was not included in the final report. The link between key informants and the facility they worked in were also concealed to protect their identity.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents findings with regard to the objectives about the social factors associated with smoking habits of medical students in Maseno University in Kenya. A total of 264 questionnaires were administered to study respondents and there was a 100% return rate. Four FGDs were conducted with students and three KIIs were conducted with the two deans of Schools of Medicine, School of Nursing and one NACADA officer based in Kisumu office respectively. The first section presents findings on the social demographic characteristics associated with smoking habits of medical students, the second section presents the association between social referent groups and smoking habits of medical students and lastly the third section presents the relationship between attitudes towards smoking of medical students.

4.2 Socio-demographic characteristics of the study participants

The study sought the following demographic information from the respondents, age, gender, religion, programme, year of study, smoking status and findings as summarized in Table1 below:

Table 1 Distribution of respondents with regard to socio-demographic characteristics			
Item		**Frequency**	**Percent**
Degree programme	Medicine	204	78
	Nursing	60	22
Year of study	First Year	59	22
	Second Year	36	14
	Third Year	50	19
	Fourth Year	51	19
	Fifth Year	42	16
	Sixth Year	26	10
Gender	Male	156	59
	Female	108	41
Age of respondents	18-20 Years	64	24
	21-23 Years	102	39
	24-25 Years	73	27
	Above 26 Years	26	10
Religion	Christians	249	94
	Muslims	15	6
	Hindu	0	0
	African Traditional Religion	0	0
Smoking status	Smokers	45	17
	Nonsmokers	210	80
	Ex-Smokers	9	3

4.2.1 Degree programme

A total of 204(78%) of the respondents were medicine students and 60(22%) were nursing students (Table1). This was essential to help know which degree programme had the highest number of smokers and the reasons behind the factors associated with the habit.

4.2.2 Year of study

From Table1, 59(22%) were first years, 36(14%) were second years, 50(19%) were third years, 51(19%) were fourth years, 42(16%) were fifth years, while the remaining 26(10%) were sixth years. Data on year of study was significant for understanding whether there are years when smoking is more rampant than others and what could be motivating the habit.

4.2.3 Gender

The result on Table1 shows the gender of participants, where out of the 264 respondents in the study, majority 156(64.3%) were males and 108(35.7%) were females. The element of gender was essential in the study to reveal whether differences in smoking habits existed amongst males and females.

4.2.4 Age

Majority 102(39%) of the study participants were in the ages of 21-23 years, 73(27%) in the age of 24-25 years, those at the ages of 18-20 years were 64(24%) while the remaining 26(10%) reported being above 26 years (Table1). The element of age was necessary to understand the smoking behaviour among the age groups.

4.2.5 Religion

Religious affiliation of the respondents was also examined. As illustrated in Table1 above, study participants were largely Christians 294(94%) and remaining 15(6%) were Muslims. The study revealed that most of the medical students in the university were largely Christians followed by Muslims

4.2.6 Smoking status

Table1above revealed that 210(80%) were nonsmokers; 45(17%) were smokers; while the remaining 9(3%) were ex-smokers. The study revealed that smoking could still be traced among medical students. The prevalence rate stood at 17% which is almost similar to the global prevalence rate of 19.1% among medical students

4.3 Relationship between socio-demographic characteristics and smoking habits of medical students

4.3.1 The relationship between degree programme and smoking habits

Table 2 below shows that a total of 204(78%) of the respondents were students of Medicine, out of which 33(16%) were smokers; 167(82%) nonsmokers and the remaining 4(2%) were ex-smokers. From the School of Nursing, out of 60(22%) study participants; of whom 12(20%) were smokers; 43(72%) were nonsmokers and the remaining 5(8%) were ex-smokers. A chi-square test was performed to examine the association between degree programme and smoking habits. The relationship between these variables was statistically significant $x^2(2, N=264) =2.1P=.042$. Smoking habit of medical students had relation with the programme. Despite the general assumption that medical students are knowledgeable on health effects of tobacco and would naturally desist from consuming the product, smoking still persisted among them. This suggested that the knowledge on the health effects of tobacco was not translating to facts on the ground. There could be other social factors that are predisposing medical students to using the product. It is generally known that university life is full of academic stress, new friends are acquired at the university and students acquire different coping mechanisms. This suggests that medical students are also vulnerable to the effects of tobacco and therefore need to develop specific interventions for them to quit smoking since they are equally vulnerable just like other students in other programmes. To some medical students, programmes could have presented some unforeseen experiences that would likely form part of the risk factors.

Table 2 Relationship between degree programme and smoking habits

Variables	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Programme					**.042**
Medicine	33(16)	167(82)	4(2)	204(59)	
Nursing	12(20)	43(72)	5(8)	60(41)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was also supported during FGD as one female participant from school of medicine noted that *"indeed as part of the study, medical programmes are stressful, we meet decomposed bodies, emaciated patients and victims of accidents causing secondary trauma and as a result I*

smoke to relax my mind." This sentiment is an indication that there are some factors within the programme which influence students indulge in smoking. This corroborates a study by Kathrine et al., (2015) which found that medical programmes are full of stress of passing examinations, intense research on methods of new ways to treat novel diseases that are likely to initiate students into smoking habits.

4.3.2 Relationship between year of study and smoking habits

Table 3 below illustrates that smoking was at its peak among 2nd years (33%) and 3rd years (24%). This finding revealed that smoking was a problem among medical students as it progressed into year of study. The statistics were spread into the years as follows; A total of 59 participants in year one, there were 8(14%) smokers and 51(86%) nonsmokers. In Year two, there was 12(33%) smokers; 24(67%) nonsmokers. In year three, out of 50 participants, there were 12(24%) smokers; 34(68%) nonsmokers and the remaining 4(8%) ex-smokers. In year four, we had a total of 51 participants out of whom 6(12%) smokers; 44(86%) nonsmokers and 1(2%) ex-smokers. In year five, a total of 42 participants of which 4(10%) were smokers; 36(85%) nonsmokers and the remaining 2(5%) were ex-smokers. In the sixth year there were 3(12%) smokers; 21(81%) nonsmokers and the remaining were 2(7%) ex-smokers. There was statistical significance $x^2(2, N =264) = 2.1, P=.048$ when chi-square test was run to observe the relationships. The study could not corroborate the study by Shehab et al., (2018) which found that smoking was a concern within medical schools since it progressed into the year of study (Shehab et al., 2018). However, there was an indication that there was high prevalence rate in years two and three and a gradual drop from year four to six. Most students are in the implementation and exploration stage during this time of progression. It is during this time that new friends are acquired at the campus and out of curiosity and peer pressure certain habits such as smoking are tried and acquired. Students at these years of study are largely believed to create more friends who are likely to influence their behaviour (Katherine et al., 2015). This could also be attributed to the belief that there is still more time on campus. The study also revealed that smoking habits decreased in year five and six. This could be attributed to embracing available cessation interventions and understanding the health effects of tobacco. More than five years in campus is fairly a long time to gain some experience of life. This may prompt staying away from social gathering that influence them to smoke and set a stage for exit. It is during this time that

they are perceived to have now matured up and focused on the exit (Alzyani et al., 2015). The study has also revealed that it is during this period that most of the smokers stopped smoking.

Table 3 Relationship between year of study and smoking habits

	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Year of Study					**0.048**
1st year	8(14)	51(86)	0(0.0)	59(17.6)	
2nd year	12(33)	24(67)	0(0.0)	36(26.7)	
3rd year	12(24)	34(68)	4(8)	50(28.1)	
4th year	6(12)	44(86)	1(2)	51(19.5)	
5th year	4(10)	36(85)	2(5)	42(2.9)	
6th year	3(12)	21(81)	2(7)	26(5.2)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This matched information obtained from the FGD where by one participant said that *"you know at first year we were coming into the new environment; we didn't have many friends and even the programme was still new with lots of introductory courses but as years advance we get many friends who have strong influence on our behaviour and to fit, one has to yield to the pressure."* This sentiment is an indication that peer pressure is also strong among medical students and is likely to shape a behaviour. This corroborates a study by Shehab et al. (2018), which opined that peer influence is very strong as students' progress into years of study. This fits in the tenet of the subjective norm of the theory of planned behaviour where peer influence becomes strong for a student to perform a given task which, in this case, is smoking.

4.3.3 Relationship between age of initiation and smoking habits

Table 4 below revealed that majority 33(61%) of the study participants started smoking between ages 10-14 years; 15(28%) were below 10 years; 2(4%) were between 15-19 years. The chi-square test of independence was run to examine the association between age and smoking habits. There was statistical significance $x^2(2, N = 264) = 2.1, P = 0.042$. There was a relationship between age and smoking habit among medical students. The findings revealed that most of the smokers-initiated smoking early in life. These were adolescents who were in the experimenting stage where behaviour is acquired and practiced into adulthood (Georgiev, et al., 2019). This is a critical age because those who started smoking at an early age in life are likely to become regular

smokers (Chen et al., 2021). This could be attributed to curiosity, parenting style, fun and peer pressure. It is during this period that social influence becomes so strong to influence behaviour. They tend to develop a strong bond with these friends that have a bearing on their behaviour. Peer influence is therefore very strong during this age and is the reason smoking progresses into the years (Chezhian et al., 2015).

Table 4 Relationship age of initiation and smoking habits

Variables	Smokers' n (%)	Ex-Smokers n (%)	P-value
Age of initiation			**0.042**
Below 10yr	15(32)	0(0.0)	
11-14yr	28(63)	5(56)	
15-19yr	2(4)	4(44)	
20 and above	0(0.0)	0(0.0)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was supported at one of the FGD where a male participant in first year said *"yes, I had many friends in high school years with different kinds of behaviour, I acquired some of the habits from them, some were positive while others were negative. Therefore, I was influenced to begin smoking because of friends."* This sentiment showed that students make more friends during adolescence stage which may lead them to adopt risky behaviour. In another FGD session, a female third year participant stated that *"I started smoking following parental style at home, I was just to be seen and parents are very harsh and could listen to me but got some friends who could accommodate me hence initiated smoking at an early age of 12 years."* This was also confirmed by one of the Deans of the schools who said: *"issue of smoking is so complicated because most of smokers are initiated into smoking long before getting into university programmes. This is a concern that needs comprehensive policies on cessation interventions."* The sentiments above indicated that family history could inform some of the causes of smoking before student got into the university. This corroborates a study by Shehab et al., (2018) who found that family is an integral part of the genesis of smoking habits among young adults. It also found that those habits and behaviours initiated at adolescence are likely to be consistent in future but those initiated after age 20 are likely to stop. This is also supported by Georgiev et al., (2019) who also brought up the issue of age stating that the element of age can be used in

understanding social factors associated with smoking among medical students (Georgiev, et al., 2019).

This fits in to the tenet of subjective norm in the TPB, where a group of people approve and support a given behaviour. This sentiment confirmed that the exploration stage of adolescence is a very critical one since behaviour that is acquired at this stage is likely to be practised into old age, these young people fear isolation and therefore will go with the dictates of the group.

4.3.4 Relationship between gender and smoking habits

The element of gender was essential in the study to reveal whether there was an association between smoking habits and gender. The result from Table 5 below revealed that gender of participants, where out of the 264 respondents in the study, majority 156(59%) were males of which 121(78%) were from medicine while 35(22%) from nursing. On the other hand, a total of 108(41%) were female of which 83(77%) were from medicine while the remaining 25(23%) were from nursing. There was no statistical significance $x^2(2, N = 264) = 4.1, P = .486$ when the chi-square test of independence was run to examine whether there was any relationship between gender and smoking habits. This corroborated a study by Al-Natour et al., (2021) which did not find any statistical significance between the two variables. However, the study revealed that male medical students smoked more than female medical students in the study. This could be attributed to how the community perceives the social life of both genders. For instance, in most African communities where masculinity is given preference to the female gender, tobacco smoking is socially acceptable for men and a taboo to women (Kang, et al., 2013).

Table 5 Relationship between gender and smoking habits

Variables	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Gender					**0.486**
Male	30(19)	121(78)	5(3)	156(59)	
Female	15(14)	89(82)	4(4)	108(41)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was confirmed at one of the FGDs where one female participant stated that *"you know it is not allowed by my community to smoke in public and therefore I will avoid smoking by all means*

not to be seen as outcast in the community." This sentiment suggests that both gender should be treated equally while coming up with cessation interventions that will take care of both genders. This supports a study by Shehab, et al., (2018) which found that smoking affects both gender but because of cultural practices, most women tend to smoke in secret because it is considered a taboo for woman to smoke in public. This study fits well into one of the tenets of the TPB which is perceived behavioural control that prevents one from performing a task.

4.3.5 Relationship between religion and smoking habits

Religious affiliations of the respondents were also examined as illustrated in Table 6 below. A total of 249(94%) reported being Christians out of which 40(16%) were smokers, 202(81%) were nonsmokers and the remaining 7(3%) were ex-smokers; as opposed to Muslims for whom out of 15(6%), 5(33%) were smokers, 8(54%) were nonsmokers and the remaining 2(13%) were ex-smokers. This study revealed that medical students were largely Christians. From the findings of the study, a chi-square test of independence that was done to examine the relationship between religion and smoking habits. The relationship between these two variables was not statistically significance $x^2(2, N = 264) = 2.1, P = 0.162$. According to a study by Azmi et al., (2021) strong followers of religious affiliations tend to align themselves with moral teachings that are offered at their places of worship thereby barring them from engage in risky behaviour such as smoking. Religion plays an important role in the life of many people. This includes students who always who aspire to have a good life in the afterlife (Balogh et al., 2018). Most people who are religiously engaged will hardly defy their religious leaders by going against their teaching and counsel. This is likely to set them apart from bad company and make them avoid risky behaviour such as tobacco smoking (Azmi et al., 2012). Students with negative attitude towards religion are likely to smoke than the faithful ones who are known as born again in Christian circles.

Table 6 Relationship between religion and smoking habits

Variables	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Religion					**0.162**
Christian	40(16)	202(81)	7(3)	249(94)	
Muslim	5(33)	8(54)	2(13)	15(6)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was supported by a second year female participant in one of the FGDs when she said that, *"my church rules are very strict on unhealthy behaviour, if it's confirmed that you don't subscribe to the set down rules then you get excommunicated, my religion has taught me about the harmful nature of tobacco and therefore can't smoke."* this was also confirmed at a KII where she said*: "religious groups inculcate good morals that shape behaviour among the young people though you won't miss delinquent in their midst."* This sentiment indicated that some students revered religious affiliations and would not wish to go against their teachings. This was supported by Azmi et al., (2021) who found that religion inculcates good morals among the followers. They always try to keep to the demands of religion and are likely to avoid anything that is contrary to the belief system of the religion. This fits to the theory of planned behaviour that the social norm created by religious group towards a given habit predicted the response to the habit.

4.4 The association between social referent groups of medical students and smoking habits

This section discusses the objective two of the study on the association between the social referent groups and smoking habits among medical students. Information regarding social networks of study participants in relation to smoking were gathered. Data related to those who smoke in their family, friends as well as media and their perceptions on tobacco were obtained.

4.4.1 Relationship between parental smoking and smoking habits

Results in Table 7 below revealed that there was an association between parental smoking and smoking habits. A total of 56(21%) had both parents as smokers, out of these 31(65%) were smokers, 16(33%) were nonsmokers and the remaining 1(2%) were ex-smokers. From families where only the father was a smoker, a total of 56(21%) of which 8(14%) were smokers, 46(82%) were nonsmokers and the remaining 2(4%) were ex-smokers. From where both parents were nonsmokers, a total of 104(40%) of which 2(2%) were smokers, 98(94%) were nonsmokers and the remaining 4(4%) were ex- smokers. Finally, from where only the mother was a smoker, a total of 56(21%) of which 5(9%) were smokers, 48(86%) were nonsmokers and the remaining 3(5%) were ex-smokers. In relationship between the parents and smoking habits, a chi-square test of independence showed statistically significant relationship between a parent smoking and smoking habits, $X^2(2, N=264) = 2.1, p = (0.038)$. These findings are an indication that medical students with smoking parents were more likely to smoke. Children are likely to acquire behaviour from their parent since they are the primary contact people in their lives from the time of birth. The acquisition of behaviour from parents is regardless of whether approved by most people or not since they also act as role models, lack of strict rules in smoking at home or becoming an addict as a result of second-hand smoke.

Table 7 Relationship between parental smoking and smoking habits

Variables	Smokers' n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Parental Smoking					**0.038**
Father	8(14)	46(82)	2(4)	56(21)	
Both parent	31(65)	16(33)	1(2)	48(18)	
Non	2(2)	98(94)	4(4)	104(40)	
Mother	5(9)	48(86)	3(5)	56(21)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was also seconded by qualitative information by a third year male respondent who said: "*Yes I smoke because my parents smoke, I initiated since I would be sent to buy cigarette from kiosk vendor and it's during that time that I used to imitate how he smoked*." This sentiment showed that parental smoking had some influence on the smoking habits of the young adults. Parental smoking is likely to exert its influence on adolescent smoking through various means, such as the accessibility of tobacco in the home environment, modeling, and parents' difficulty in stamping authority against smoking when they also smoke. This corroborates a study by Shahid et al., (2022) in Sudan which associated the smoking habits of the medical students with the smoking habits of their parents (Shahid et al., 2022). This was also supported by Farooq et al., (2021) who found that parental smoking is likely to influence smoking behaviour of a student especially if both parents are smokers (Farooq et al., 2021).It is also in agreement with Eticha et al, (2014) who found that parental attitudes towards smoking and parental advice were predictors of smoking frequency (Eticha et al., 2014). This study was consistent with the theory of planned behaviour, construct of subjective norms which suggested that among those who have tried smoking, there was a strong association with the parent smoking habit.

4.4.2 Relationship between parenting style and smoking habits

The results from Table 7 below revealed that 54(61%) of the respondents came from authoritative parents of which 10(18%) were smokers, 41(76%) nonsmokers and the remaining 3(6%) were ex-smokers. A total of 50(19%) participants were from uninvolved parenting of which 28(56%) were smokers, 21(42%) were nonsmokers while the remaining 1(2%) were ex-smoker. A total of 100(38%) participants were from authoritarian parenting of which 2(2%) were smokers, 94(92%) were nonsmokers while the remaining 4(4%) were ex-smokers. Lastly, out of 60(23%) study participants were from permissive parenting of which 5(8%) were smokers, 54(90%) nonsmokers and the remaining 1(2%) were ex-smoker. The study finding revealed that students from uninvolved parenting style were likely to smoke more because they had more development and attachment problems followed by lack of emotional and social skill, and delinquent behaviour Farooq et al., (2021). On the other hand, authoritarian parenting style is also likely to smoke because they become anxious, unhappy and hostile (Farooq et al., 2021). From the findings of a chi-square test of independence was performed to examine the relation between parenting style and smoking habits, the relationship was significant $x^2(N = 264) =$

11.25, P=.041. Parenting style was likely to be associated with smoking. The closer the parent is to the child the less likely of the child to engage in some anti-social behaviour. The close supervision of the child should remain a cardinal role of the parent to dissuade their children the latitude of joining groups that are likely to initiate them into smoking. Students from disengaged homes were likely to exhibit the highest levels of problem behaviour including smoking (Farooq et al., 2021).

Table 8 Relationship between parenting style and smoking habits

Variables	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Parenting Style					**0.041**
Authoritarian	10(18)	41(76)	3(6)	54(20)	
Uninvolved	28(56)	21(42)	1(2)	50(19)	
Authoritative	2(2)	94(92)	4(4)	100(38)	
Permissive	5(8)	54(90)	1(2)	60(23)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was also confirmed by one of the KIIs in one of the interviews when he said that;

"Some parents who spend little time to monitor the behaviour of their children, consistently supervise and administer discipline on their children's are likely to raise children with problem behaviour of initiating in drug abuse such as tobacco consumption. Some parents spend most of their time looking for how to fend the family exposing their children to some bad behaviour including consuming tobacco. Such parents would hardly supervise and find time to interact with the children. He also said that there are also authoritarian families where children are just to be seen and not to be heard hence resort to smoking"

These sentiments indicated that behaviour can be formed depending on parenting styles. This was confirmed by a study finding by (Shahid, &Asmat, 2022) who said that families have an influence on their children's behaviour. The behaviour is likely to be developed following the priorities of the family and set out rules (Shahid, &Asmat, 2022). This corresponds to TPB construct of subjective norms which talks about the belief of whether most people approve or disapprove a behavior. This to some extent is likely to predict behaviour of medical students towards smoking. The people we care about are likely to influence our behavior by their actions towards a particular behaviour (e.g. parents who are important to their children smoking). According to the theories of planned behaviour, it is believed that important people in a person's life are likely to influence behavior. One is therefore, less likely to engage into smoking cigarettes if significant others do not approve the behaviour. Subjective norms therefore focus

exclusively on important others as the reference group and the behaviour of relevance is on the perceiver's behaviour rather than the behaviour in general.

4.4.3 Association between friends/peers and smoking habits

As shown in Table 8 below, 30(67%) of the participants stated that they smoked because of the sense of belonging to the group of which 26(87%) were smokers and 4(13%) were ex-smokers. 10(22%) reported that friends introduced them to smoking of which 7(70%) were smokers, 3(30%) were ex-smokers. Out of 5(11%) who were attracted by the habits of friends of which 3(60%) were smokers and the remaining 2(40%) were ex-smokers. The study revealed that peer pressure was a risk factor for initiation of tobacco use. From the findings of a chi-square test of independence that was performed to examine the relation between patenting style and smoking habits, the relationship was significant $x^2(N = 264) = 75.62, P = .001$. Friends/peers were likely to be associated with smoking habits.

Table 9 Association between friends/peers and smoking habits

Variables	Smokers n (%)	Ex-Smokers n (%)	Total n (%)	P-value
Influence				**0.001**
Friend introduced me	7(70)	3(30)	10(22)	
Feeling of belonging	26(87)	4(13)	30(67)	
Habits of friends	3(60)	2(40)	5(11)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

This was also reinforced by information gathered from KIIs as one participant said:

Friends have very strong influence and they will always shape your thoughts and perspective, it's very difficult to be a nonsmoker if all your friends are smokers. To feel a sense of belonging especial while away on social events, you must also smoke no matter the health effects

This sentiment indicated that peer influence had strong influence on the smoking habits of medical students. This corroborates a study by Dania, et al., (2015) which found that friends/peer influence was likely to initiate young people into smoking habits (Dania, et al., 2015). According to Pérez-Pazos, et al., (2015), it is undoubtedly clear that friends around someone had significant effects on many aspects of someone's life including health, happiness and satisfaction. Human beings, as social animals are intricately interconnected through networks and community through interpersonal interactions and in the sharing of information, norms and identity (Pérez-Pazos, et

al., 2015). This matches TPB theory that looks at constructs of to be based on beliefs and information held by an individual. As per subjective norms, demonstrates social pressure as a factor determining whether one can perform or not perform a given behaviour. It is possible that students develop a subjective norm by merging normative beliefs and motivation from peers to engage in smoking habits.

4.4.4 Relationship between media and smoking habits

The study found that the source of information about tobacco smoking as per medical students is as follows: Television, radio, movies, newspaper, magazine and social media. Although majority of the respondents 135(51%) displayed social media to be promoting tobacco of which 30(67%) were smokers, 100(48%) nonsmokers and the remaining 5(56%) were ex-smokers 92(35%) reported TV/radio as promoting tobacco use, 37(14%) mentioned newspapers/magazines as media that often promote tobacco. Majority 100(88%) of the respondents said that they received anti-smoking messages through social media every week were nonsmokers, 80(87%) monthly, 20(47%) none and 10(67%) daily. 5(33%) smokers received the antismoking messages daily, 7(6) weekly, 10(11%) every month and the remaining 23(53%) had not seen any anti-smoking messages from any media. For ex-smokers, 7(78%) saw the message every week and 2(22%) monthly. From the findings of a chi-square test of independence, there was statistical significance on the relationship between media and smoking habits $x^2(N = 264) = 6.67, P = (0.006)$. The study revealed that medical students who got the antismoking messages through media were likely to refrain from smoking. The study also revealed that media was likely to influence smoking habits if used to send a negative messages to students.

Table 10 Relationship between media and smoking habit

Variables	Smokers n (%)	Non-Smokers n (%)	Ex-Smokers n (%)	P-value
Media				**0.006**
TV/radio	10(22)	80(38)	2(22)	
Newspaper/Magazine	5(11)	30(14)	2(22)	
Social media	30(67)	100(48)	5(56)	
Promoting anti-smoking				
Daily	5(33)	10(67)	0(0.0)	
Weekly	7(6)	100(88)	7(78)	
Monthly	10(11)	80(87)	2(22)	
None	23(53)	20(47)	0(0.0)	

*Pearson's chi-square test (where P<0.05 is considered statistically significant)

The findings revealed that media is a very important component in the fight against tobacco consumption among medical students as participants in the FGDs mentioned media as a catalyst to smoking habits. A participant said, *"I have seen warning signs on the packets but always ignored them. Because whenever I watch some TV series and movies and see how smoking makes some characters in the play bold, quitting is just impossible*." This sentiment indicated that media can influence behaviour. This matches the contributions of Allen et al (2015) who mentions that the media is a primary factor that influences human behaviour. Allen et al (2015) posit that most students are aware of the warning risks of tobacco through various media but do not translate this knowledge into change of smoking behaviour. According to the tenets of TPB, sustainability of behaviour to a situation can be determined by the kind of knowledge they receive.

4.5 Association between attitudes of medical students and smoking habits

This section examined at the association between several variables such as attitude on health hazard, need for cessation training, ban on tobacco products, sales of tobacco in sticks, increase in taxes and enhanced peer counseling. The data was collected using an ordinal scale of between 1 and 5 where 1 represented strongly disagreed and 5 represented strongly agreed. The following table (Table 11) gives the overview of the respondents for each of the question on attitude that was asked.

Table 11 A summary of the respondent's attitudes towards tobacco

	N	Strongly Disagreed	Disagreed	Neutral	Agreed	Strongly Agreed	Mean
24. Belief that tobacco is a serious health hazard	264	5.7 %	8.7 %	.8 %	40.9 %	43.9 %	4.09
25. Need to have cessation training in medical school	264	1.1 %	1.5 %	4.9 %	38.3 %	54.2 %	4.43
26. All tobacco products should be banned in enclosed public spaces	262	6.5 %	10.3 %	0.0 %	31.3 %	51.9 %	4.12
27. tobacco should not be sold in sticks but packets	262	6.5 %	10.3 %	0.0 %	27.5 %	55.7 %	4.16
28. Tobacco taxes should be increased	264	3.4 %	4.9 %	1.9 %	35.2 %	54.5 %	4.33
29. Peer counseling and group therapy should be enhanced to reduce the prevalence	264	10.2 %	6.8 %	1.5 %	31.1 %	50.4 %	4.05
30. There will be greater chances of quitting if laws and policies are strictly followed	264	3.4 %	15.5 %	3.8 %	30.3 %	47.0 %	4.02

The general attitude towards tobacco is negative. The respondents thus strongly supported use of taxation as a means of reducing its use.

The Chi-Square test results shows that when the responses from two questions on attitude are tested for association. The null hypothesis is that there is no association between responses to the two questions, while the alternative hypothesis is that there is some association in response to the two questions. By having the chi-square value statistically significant, we reject the null

hypothesis in favour of the alternative. The results shows that there were associations between responses to any two paired questions. This means that the responses were not independent. Someone who "strongly agreed" with one statement, tended to also "strongly agreed" with another statement on attitude towards tobacco. From the formula, the chi-square value becomes large when the difference between the expected and observed counts is big. In this case, one is more likely to reject the null hypothesis. In our case, all values were very large. In addition, they had statistical significance.

4.5.1 Relationship between attitude on tobacco health hazards and smoking habits

Results from the finding in Table 10 below revealed that 112(44%) of the respondents strongly agreed that tobacco was a serious health hazard of which 110(52%) were nonsmokers and the remaining 2(22%) were ex-smoker. Nonsmokers strongly agreed that tobacco health hazard had relationship with their smoking habits. Tobacco is a global health concern because it leads to premature death of its users by causing non communicable diseases such as lung cancers, throat cancer, stroke and still birth among many illnesses (WHO, 2017). The study finding also revealed that nonsmokers were likely to restrain themselves from smoking with the knowledge on the health hazards of tobacco while smokers were likely to ignore health hazard of tobacco and continue smoking. This suggests that smokers are likely to disregard health hazards of tobacco and go ahead with smoking habits. This could also suggest that, after initiating smoking, other factors come into play that sustain smoking habits among the young adults including medical students (Jankowski et al., 2020).

Table 11 Attitude towards tobacco is a health hazard and smoking habit

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
Tobacco is a health hazard						**4.09**
Smokers	0(0.0)	10(22)	0(0.0)	18(40)	17(38)	
Nonsmokers	110(52)	100(48)	0(0.0)	0(0.0)	0(0.0)	
Ex-Smokers	2(22)	5(56)	2(22)	0(0.0)	0(0.0)	

This is confirmed by the information obtained from a male medical student from second year of study in one of the FGDs where a male third year participant said: *"it's true have knowledge of health hazards of tobacco but I will continue smoking because of the peer influence and academic pressure."* This sentiment is an indication that medical students go through stress and secondary trauma which influence to smoke despite the knowledge of health effects of tobacco. This supports a study by WHO, (2017) which has elaborated on the health hazard of tobacco. Tobacco use is a threat to the health of medical students by negatively affecting their credibility to deliver anti-tobacco interventions to the patients (WHO, 2017). This fits into the theory of planned behaviour construct of attitude, which is likely to either encourage or discourage someone to perform a given act like smoking. This matches the TPB behavioural belief where attitude predicts behaviour.

4.5.2 Relationship between attitude on the need for cessation training and smoking habits

Results from the finding in Table 11 below revealed that majority consisting of 121(44%) of respondents strongly agreed that cessation training was likely to enhance their capacity to handle tobacco issues effectively. The study revealed that a disproportionate number of students who strongly agreed to have cessation training were likely to apply cessation interventions. A total of 6(13%) disagreed with the belief. The training should provide educative materials such as posters and banners within the university focusing on the cessation plan. It should also be integrated into other health programmes and activities of the university involving students. The study revealed that such trainings are likely to encourage cessation among medical students. The training is also likely to equip medical students to offer advice to patients (Baig et al., 2016).

Table 12 Attitude towards need for cessation training and smoking habit

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
						4.43
Need for Training						
Smokers	6(13)	30(67)	3(7)	4(9)	2(4)	
Nonsmokers	110(52)	90(43)	10(5)	0(0.0)	0(0.0)	
Ex-Smokers	5(56)	3(33)	1(11)	0(0.0)	0(0.0)	

This was also confirmed at a KII meeting where one officer said that "*there is need to have a training targeting medical students to enable them the capacity to offer effective advice to smokers."* This sentiment indicated that through training positive attitude towards cessation hence reduce tobacco use among medical students and the general public. This supported the finding by (Jankowski et al., 2020) which revealed that such trainings are necessary not only to increase the knowledge on tobacco but also influence their attitude towards smoking. This fits the TPB, the construct of behavioural belief which supports that attitude is important in predicting behaviour

4.5.3 Relationship between attitude on ban of tobacco products and smoking habits

Results from the finding in the Table 12 below revealed that 210(44%) of respondents strongly agreed that all tobacco products should be banned 110(11%) nonsmokers strongly agreed that tobacco should be banned, 100(48%) agreed. Out of 45(17%) smokers of which 27(60%) disagreed and the remaining 18(7%) strongly disagreed with the notion that tobacco should be banned. 1(11%) ex-smoker strongly agreed, 4(45%) agreed, 2(22%) were neutral and 2(22%) disagreed. The study revealed that majority who strongly agreed with the notion were nonsmokers while those who strongly disagreed with the notion were smokers. The study revealed that most medical students supported the belief that all tobacco products should be banned. The study also revealed that smokers did not support the belief. This could be due to the fear of withdrawal syndrome or fear of losing friends. A further 5(65%) ex-smokers also supported the notion that it should be banned. This could be as a result of experiences they got from smoking.

Table 13 Relationship between attitude towards ban on tobacco products and smoking habit

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
Ban on tobacco products						**4.12**
Smokers	0(0.0)	0(0.0)	0(0.0)	27(60)	18(40)	
Nonsmokers	110(52)	100(48)	0(0.0)	0(0.0)	0(0.0)	
Ex-Smokers	1(11)	4(45)	2(22)	2(22)	0(0.0)	

This was confirmed at an FGD when one participant said that *"you know smoking is like a cough, you can't hide it once the craving attacks the next thing is to look for a puff anywhere around, where will we cool the temperature? when you ban smoking in public places yet we can leave classes to go back to halls of residence."* This sentiments suggests that smokers would not support ban on tobacco due to addictive nature tobacco and nicotine dependence than nonsmokers would do. The current smokers generally have a less favourable attitude towards some aspect of tobacco free policies. This corroborates the finding by Do, et al., (2013) which supports the ban of all forms of advertisement, sponsorship and promotion of tobacco. The finding further revealed that ban on smoking should be imposed in all public places and set designated areas for smoking. Tobacco has over 50 chemicals that are carcinogenic thus causing various types of cancers that lead to premature deaths and any training to discourage its use should be welcome. Ban on tobacco products in public spaces will provide a safe and clean environment to non-tobacco users. However, it revealed that, due to conflicting interest, laws and policies that are in place are weak and difficult to enforce (Do, et al., 2013). This fits in the theory through the tenet of behavioural belief where attitude plays a role in taking up smoking.

4.5.4 Relationship between attitude on sale of tobacco in sticks and smoking habits

Results from the finding in Table 13 below revealed that 111(42%) of respondents strongly agreed that tobacco should not be sold in sticks, 104(39%) agreed; 29(11%) disagree and the remaining 18(7%) strongly disagreed. The study revealed that all smokers either strongly disagreed or disagreed with the notion. This could be attributed to lack of enough money to spend both on food and cigarettes. This could mean that most smokers find it cheap to buy tobacco in sticks to quench the craving. Students from low-income families may not afford a packet, since the little money they have should also be used on food and other things therefore buying packets of tobacco may not favour them financially (Dania et al., 2015). Selling tobacco in sticks will make it easily available and accessible to students. If sold in packets, it will make it hard for students to easily access it because the price of getting tobacco will be high which, in turn, will discourage smoking. On the other hand, the students disagreeing with the notion could be aware of the law that restricts sale of tobacco in packets but they do not want the law to stop them from enjoying cigarettes (Dania et al., 2015).

Table 14 Attitude towards sale of tobacco in sticks and smoking habit

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
Sales of tobacco in sticks						**4.12**
Smokers	0(0.0)	0(0.0)	0(0.0)	27(60)	18(40)	
Nonsmokers	110(52)	100(48)	0(0.0)	0(0.0)	0(0.0)	
Ex-Smokers	1(11)	4(45)	2(22)	2(22)	0(0.0)	

This was confirmed with the information obtained from FGD when one participant said *"regardless of the law that tobacco be sold in packets, we as students, we have serious issues with money and we can't afford a packet of cigarette, we are mostly occasional smokers."* This sentiment is an indication that smoking can also be an attitude problem and smokers would not support that tobacco should not be sold in sticks since it may be difficult to get a stick when cue for a puff strikes. This corroborates a study finding by Dania et al., (2015) which established that tobacco is abused because of its easy availability and cheap accessibility. Selling tobacco in packets will be a deterrent to many students against smoking. This fit the tenet of behavioural belief where attitude plays a role in predicting behaviour

4.5.5 Relationship between attitude on increase of taxes and smoking habits

Results from the finding in the Table 14 below revealed that 110(42%) of respondents strongly agreed that taxes on tobacco should be increased, 105(40%) agreed 18(7%) disagreed, and the remaining 27(10%) strongly disagreed. The study revealed that smokers would not wish that taxes on tobacco be increased while nonsmokers supported the notion that tobacco taxes should be increased. The increase on tax is also an increase on the revenue for the government to achieve her budgetary plan but punitive to students who have become dependent on cigarettes (Balogh et al., 2018). The increase may also influence students to think of other alternatives to smoking which is likely to reduce on the fragile health sector in the developing countries. An increase in tax will therefore be one of the control measures applied to reduce prevalence rate among medical students (Jha & Peto, 2014).

Table 15 Attitude towards increase in taxes on tobacco products

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
						4.33
Increase in taxes						
Smokers	0(0.0)	0(0.0)	0(0.0)	18(40)	27(22)	
Nonsmokers	110(52)	100(48)	0(0.0)	0(0.0)	0(0.0)	
Ex-Smokers	0(0.0)	5(56)	0(0.0)	0(0.0)	4(44)	

This was confirmed through KII when he stated that *"one of our control measures on tobacco is to increase tax on tobacco which is also one of the ways governments gets resources, tobacco is the cheapest and available drug in kiosks around our campuses."* This sentiment is an indication that tobacco is abused because it is easily available and cheap. To discourage smoking, taxes need to be increased to make it difficult for the smokers to buy cigarettes. This is consistent with a study finding by Balogh et al., (2018) who found that an increase in taxes reduced the prevalence rate and should be consistently used to discourage tobacco use. This fits the tenet of behavioural belief where attitude on taxes dictates smoking habits.

4.5.6 Relationship between attitude on enhanced peer counseling and smoking habits

Results from the finding in Table 15 below revealed that 250(95%) of respondents strongly agreed that there was need to enhance peer counseling to reduce the prevalence among medical students. This revealed that peers have a strong influence and can make good change if positively utilized. While in campus, students tend to spend most of their time together and therefore peer counseling is likely to do magic on the prevalence.

Table 16 Attitudes towards enhanced peer counseling

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
Enhanced peer counseling						**4.05**
Smokers	8(18)	17(38)	0(0.0)	10(22)	10(22)	
Nonsmokers	100(48)	110(52)	0(0.0)	0(0.0)	0(0.0)	
Ex-Smokers	0(0.0)	5(56)	4(44)	0(0.0)	0(0.0)	

This was confirmed at one of the FGDs when one of the participants said that *"you know at the campus friends are very close to each other and we believe so much on the comradeship, peers have a lot of influence in a student life and therefore if we have a strong peer counseling group with specific skills on cessation then a big stride will be made on the cessation plan."* This sentiment is an indication that students are likely to listen and take advise of their fellow students more than other people, this is a very strong attribute towards shaping behaviour. This is consistent with a study by (Edwards, et al. 2015) who found that university period is full of both positive and negative health behaviour acquired from friends. Students therefore need to be assisted to gain positive behaviour and one of the ways to do it is by creating a strong peer counseling system to infuse positive behaviour among peers. This is supported TPB, construct of behavioural belief where attitude plays an important in predicting behaviour.

4.5.7 Relationship between attitudes on enhanced laws and smoking habits

Results from the finding in Table 18 below revealed that 121(46%) of respondents strongly agreed with the notion that laws and policies should be enhanced 84(32%) agreed 40(15%) disagreed while 9(3%) strongly disagreed. The finding revealed that those who did not support the notion were largely smokers and ex-smokers. This could be attributed to what enhanced laws may cause on the smokers. Majority of the students had a positive attitude towards laws and policies which is likely to enhance the quitting process. This finding would suggest that, although there are adequate laws governing tobacco, its implementation has ever remained weak. The possible reason could be due to the interest which government has on the taxes they collect from tobacco sales. WHO-FCTC mandated member states to formulate laws and policies towards tobacco use and cessation programs (WHO, 2013).

Table 17 Attitudes towards enhanced laws and policies and smoking habits

Factors	SA=n (%)	A= n (%)	N= n (%)	D= n (%)	SD= n (%)	Mean
Enhance laws and policies						**4.02**
Smokers	9(20)	12(27)	0(0.0)	15(33)	9(20)	
Nonsmokers	110(52)	70(33)	10(5)	20(10)	0(0.0)	
Ex-Smokers	2(22)	2(22)	0(0.0)	5(56)	0(0.0)	

This was confirmed at an FGD by a female sixth year participant who said that *"there are adequate pieces of legislation on tobacco but they are very weak and implementing them is not possible due to conflicting interests by the government and other stakeholders who still fell that tobacco consumption should still continue."* This sentiment is an indication that there are enough laws the only problem is enforcement. This was consistent with the study finding by Almutairi, (2014) who found that policies were poorly enforced. For instance, the display on cigarette packets is not legally enforced. There is therefore need to integrate effective tobacco control policies and cessation support into the curricular of medical students. The presence of tobacco control provisions in legislation or regulations does not mean that the measure is enforced to the full extent of the law. The construct of behavioural belief where attitude predicts intention to perform a task.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The main objective of this study was to establish the social factors associated with smoking among medical students of Maseno University. The first specific objective was to examine the association between socio-demographic characteristics and smoking habits. The study found that medical students of Maseno University were predominantly Christians followed by few Muslims. For the majority from the school of medicine, study the revealed that religious affiliation was likely to influence smoking habits of medical students. In comparison, male students smoked more than female students. This habit could be attributed to social acceptability and cultural practices in the students' homes. University age was critical for smoking habits hence the need to understand the age of initiation. This was, an indication that some students joined medical school after they had already been initiated into smoking. The study also established that most students smoked in years two, three and four of their studies which indicate that some factors contributed to sustained smoking among medical students such as peer influence, academic stress, curiosity and social gatherings. The decrease in smoking in years five and six because most of the students have by then matured up and focused on their studies to exit. It could also be as a result of health experiences during the study period hence decision to quit smoking.

In relation to social referent groups, majority of the participants mentioned friends as the first people to have introduced them to smoking through curiosity. Nevertheless, fathers were also reported to introduce their children to smoking. This means that students who had smoking parents and siblings were recorded as likely smoke. This was also said to be instigated by parental attitude and advice towards the habit. Friends and peers were also found to promote smoking habits of medical students. This was said to be enhanced by the influence of pressure from smoking peers. The findings also revealed that many families had regulations that did not allow members to smoke. Although there are regulations on smoking enacted by the government in 2007, they are said to be limited thus forcing parents to set their own family rules on smoking to control the habit. The findings also presented media as a suitable tool for promoting smoking

and anti-smoking information at varied frequencies. It was revealed that some students were involved in smoking due to the bold nature of smoking characters in TV series. Similarly, the media was found to pass persuasive information on the disadvantages of smoking thereby impacting the decisions of the students not to engage in smoking.

Lastly the third objective of the study revealed that attitude was significant for predicting smoking habits. Attitude can either be positive or negative depending on the intention of a person. Some of the motivating factors towards smoking are that the assumptions that people who smoke are great and have more friends than nonsmokers. Attitudes towards smoking is capable of keeping you away from smoking due to its health hazards on an individual. However, smokers would ignore such grave information either because of nicotine addiction or to keep the company of friends. Nonsmokers embraced tobacco cessation training either for personal health or to assist in the cessation intervention for quit process. Smokers did not support the notion that all tobacco products be banned. This could be as a result of withdrawal symptoms or because of nicotine dependency. Nonsmokers strongly supported every intervention to stop smoking such as increase on taxes, enhanced peer counseling and enhanced laws and policies. Smokers were significantly against every effort that could stop them from smoking. An increase in taxes and enhanced laws and policies would strongly be opposed by the smokers.

5.2 Conclusions

Tobacco use can still be traced among medical students of Maseno University. This is a worrying trend since it affects personal health of the students their future professional obligation and safety of future patients. The prevalence of tobacco smoking among medical students could translate to increased morbidity and mortality if nothing is done to mitigate the situation. Future of health healthcare providers is at risk with increased tobacco use among medical students. It's expensive to train one medical doctor and the already overburden health care is likely to suffer from enough personnel and spending more to treat them. Peer and family influence are very strong in shaping the life of young adult. This could worsen if nothing is done to curb tobacco increasing habit. The smokers have significantly higher chances of increasing the risks of ill health in the future posed by tobacco consumption. Medical students' specific health education and quitting programmes are essential to stop the rising prevalence of tobacco among medical students. This

helps in achieving the WHO-FCTC when it is started as early as possible during basic education. Awareness arising from campaigns and anti-tobacco efforts should target medical students to prevent this epidemic from spreading further. Results revealed that multiple factors influence smoking habits among medical students in the universities. Both individual level and social (family, friends, media and religion) factors are important in coming up with targeted tobacco control measures for medical students. The findings also revealed that attitude of medical students shape behaviour, positive attitude towards smoking would encourage smoking habits and have friends who smoke while those who entertain negative attitude towards smoking would remain nonsmokers and those because of some health effects would stop smoking. There is need to activate campaigns in the universities to increase smoking cessation awareness and smoking clinics be introduced in the universities.

5.3 Recommendations

There should also be integrated programmes involving students and parents of the addicted students.

The study also recommended that peer education should be prioritized as a method of disseminating information on tobacco smoking.

There is need for diverse mechanisms on management of stress and pressure to be explored by the students with the help of counseling professionals.

Similarly, other attitudes enhancing smoking that can be managed through counseling practices need to be considered to prevent medical students from endangering their health.

5.4 Suggestions for further research

i. Research needs to be done to understand the environment under which the students are raised that could cause stress leading medical students to engage in smoking.

ii. This study suggests further studies on how students in other disciplines engage in smoking habits. This opens a domain for further research on the smoking habits of students in non-medical fields

REFERENCES

Abdulateef, D. S., Ali, A. J., Abdulateef, D. S., & Mohesh, M. G. (2016). Smoking knowledge, attitude, and practices among health care professionals from Sulaymaniyah City/Iraq. *Tobacco use insights*, *9*, TUI-S38171.

Abdulaziz F, Kaabba A, Abdala, A, & Ali A, (2022) prevalence and associated factors of cigarette smoking among medical students at king Fahad Medical City in Riyadh, Saudi Arabia; Vol 29- issue 2 ISSN: 2230-8229; journal of Family and community.

Ajzen, I, (1991) The Theory of Planned Behaviour. Organizational behaviour and human decision processes, 50, pp 179-211.

Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, *82*(2), 261.

Allen, J. A., Duke, J. C., Davis, K. C., Kim, A. E., Nonnemaker, J. M., &Farrelly, M. C. (2015). Using mass media campaigns to reduce youth tobacco use: a review. *American Journal of Health Promotion*, *30*(2), e71-e82.

Al-Natour, A., Gillespie, G. L., &Alzoubi, F. (2021). "We cannot stop smoking": Female university students' experiences and perceptions. *Applied Nursing Research*, *61*, 151477.

Almutairi, K. M. (2014). Prevalence of tobacco use and exposure to environmental tobacco smoke among Saudi medical students in Riyadh, Saudi Arabia. *Journal of community health*, *39*, 668-673.

Alzayani, S., & Hamadeh, R. R. (2015). Tobacco smoking among medical students in the Middle East: identifying areas for intervention. *Int J InnovEduc Res*, *3*(2), 72-8.

Amrock S, M, Zakhar J, Zhou S, &Weitzman M. (2014). Perception of e-cigarettes' harm and its correlation with use among US adolescents [published online ahead of print August 14, 2014]. *Nicotine Tob Res*. PMID 25125321

Armstrong, G. W., Veronese, G., George, P. F., Montroni, I., &Ugolini, G. (2017). Assessment Of tobacco habits, attitudes, and education among medical students in the United States and Italy: A cross-sectional survey. *Journal of Preventive Medicine and Public Health*, *50*(3), 177.

Azmi, J., Munirah, S., Nurumal, M. S., & Hani, H. (2021). Religiosity and its Relationship with Smoking Cessation: A Systematic Review. *IIUM Medical Journal Malaysia*, *20*(4).

AlShehri, F. M. (2016). Reasons and motivations for cigarette smoking and barriers against quitting among a sample of young people in Jeddah, Saudi Arabia. *Asian Pacific Journal of Cancer Prevention*, *17*(7), 3483-3487.

Balogh, E., Faubl, N., Riemenschneider, H., Balázs, P., Bergmann, A., Cseh, K., & Kiss, I. (2018). Cigarette, water pipe and e-cigarette use among an international sample of medical students. Cross-sectional multicenter study in Germany and Hungary. *BMC Public Health*, *18*(1), 1-10.

Bhawna, G. (2013). Burden of smoked and smokeless tobacco consumption in India-results from the global adult tobacco survey India (GATS-India)-2009-2010. *Asian Pacific Journal of Cancer Prevention*, *14*(5), 3323-3329.

Brathwaite, R., Addo, J., Smeeth, L., & Lock, K. (2015). A systematic review of tobacco smoking prevalence and description of tobacco control strategies in sub-Saharan African countries; 2007 to 2014. *PloS one*, *10*(7), e0132401.

Breslin, E., Hanafin, J., & Clancy, L., (2018). It is not all about price: Factors associated with roll-your- own tobacco use among young people- a qualitative study. *BMC public health, 18, article number 991*

Bugaj, T. J., Cranz, A., Junne, F., Erschens, R., Herzog, W., &Nikendei, C. (2016). Psychosocial burden in medical students and specific prevention strategies. *Mental Health & Prevention*, *4*(1), 24-30.

Chen, K. L., Hsu, Y. C., Li, Y. H., Guo, F. R., Tsai, J. S., Cheng, S. Y., & Huang, H. L. (2021). Shared Decision-Making Model for Adolescent Smoking Cessation: Pilot Cohort Study. *International Journal of Environmental Research and Public Health*, *18*(20), 10970.

Chezhian, C., Murthy, S., PraSad, S., KaSav, J. B., Mohan, S. K., Sharma, S., & Joshi, A. (2015). Exploring factors that influence smoking initiation and cessation among current smokers. *Journal of clinical and diagnostic research: JCDR*, *9*(5), LC08.

Dania, M. G., Ozoh, O. B., &Bandele, E. O. (2015). Smoking habits, awareness of risks, and attitude towards tobacco control policies among medical students in Lagos, Nigeria. *Annals of African medicine*, *14*(1), 1.

Duxbury, T., Rath, S., Maraj, P., Bosman, S. J., & Srinivas, S. (2016). Controlling the use of tobacco for sustainable development: A focus on India and South Africa. *Indian Journal of Pharmacy Practice*, *9*(2).

Edwards, E. J., Stapleton, P., Williams, K., & Ball, L. (2015). Building skills, knowledge and confidence in eating and exercise behaviour change: Brief motivational interviewing training for healthcare providers. *Patient Education and Counseling*, *98*(5), 674-676.

Eticha, T, &Kidane F (2014). The Prevalence of and Factors Associated with Current Smoking among College of Health Sciences Students, Mekelle University in Northern Ethiopia. PLoS One 9(10): e111033

Farooq, A., Javed, S., Nasrullah, I., & Ghazal, S. (2021). Familial predictors of smoking in adolescents; a comparison of smokers and non-smokers. *ASEAN Journal of Psychiatry*, *22*(4).

Fejza, A., Maraj, F., &Fejza, H. (2018). Smoking habits among medical students: a survey at the University of Prishtina Faculty of Medicine. *International Journal of Medical Students*, *6*(1), 18-20.

Fernández-García, D., Ordás, B., Fernández-Peña, R., Bárcena-Calvo, C., Ordoñez, C., Amo-Setién, F. J.,&Martínez-Isasi, S. (2020). Smoking in nursing students: A prevalence multicenter study. *Medicine*, *99*(14).

Fouad, H., Commar, A., Hamadeh, R., El-Awa, F., Shen, Z., & Fraser, C. (2021). Estimated and projected prevalence of tobacco smoking in males, Eastern Mediterranean Region, 2000-2025. *Eastern Mediterranean Health Journal*, *27*(1), 76-82.

Gashaw, A., Teshita, A., & Getachew, T. (2016). Environmental tobacco smoke exposure and its health impacts: a review. *International Journal of Biological and Chemical Sciences*, *10*(3), 1371-1381.

Gathecha, G. K. (2014). Tobacco control research in Kenya: the existing body of knowledge. *The Pan African Medical Journal*, *17*.

Georgiev, A. M., Kotur-Stevuljević, J., &Krajnović, D. (2019). Socio-demographic factors associated with smoking habits among university students in Belgrade, Serbia. *Slovenian Journal of Public Health*, *58*(1), 11-20.

Gichuki, J, W, (2014). *Healthcare Providers knowledge, Attitude and practice of smoking cessation intervention in public health facilities in Kiambu County, Kenya,* unpublished thesis

Gilreath T, D., Leventhal A. & Barrington-Trimis J.L. (2016). Patterns of Alternative Tobacco Product Use: Emergence of Hookah and E-cigarettes as Preferred Products Amongst Youth. *J Adolesc Health Off Publ Soc Adolesc Med.* 2016; 58(2):181-185. doi: 10.1016/j. jado health.

GoK (2007). Tobacco Control Act; 2007.http//www.government of kenya.go.ke.

GoK (2012). Tobacco Control Policy. Available at http//www.government of kenya.go.ke.

http://maps.maphill.com/kenya/nyanza/kisumu/simple-maps/blank-map/blank-simple-map-of- kisumu.jpg.https://softkenya.com/kenya/kisumu/retrieved on 20/12/2018

http://www.standardmedia.co.ke/Maseno/university/exposed-the/standard/retrieved/on 13/04/2017

Jamal A, King B.A, Neff L, J, Whitmill J, Babb S, D, &Graffunder C, M. (2016). Current Cigarette Smoking Among Adults—United States, 2005-2015. MMWR Morb Mortal Wkly Rep. 65(44):1205-1211. doi:10.15585/mmwr.mm6544a2.

Jankowski, M., Lawson, J. A., Shpakou, A., Poznański, M., Zielonka, T. M., Klimatckaia, L., & Brożek, G. M. (2020). Smoking cessation and vaping cessation attempts among cigarette smokers and E-cigarette users in Central and Eastern Europe. *International Journal of Environmental Research and Public Health*, *17*(1), 28.

Jha, P., & Peto, R. (2014). Global effects of smoking, of quitting, and of taxing tobacco. *New England Journal of Medicine*, *370*(1), 60-68.

Jimborean, G., Ianosi, E. S., Csipor, A., &Postolache, P. (2017). Training the future trainers-Intensifying anti-smoking education for a better community health. *Rev Chim*, *68*(9), 2129-2131.

Karimy, M., Zareban, I., Araban, M., & Montazeri, A. (2015). An extended theory of planned behaviour (TPB) used to predict smoking behaviour among a sample of Iranian medical students. *International journal of high risk behaviours & addiction*, *4*(3).

Kathrine, R. Y., Setiawati, E. P., &Saputra, L. (2015). Barriers to Smoking Cessation among Medical Students 2012–2013 Academic Year in the Faculty of Medicine, University as Padjadjaran. *Althea Medical Journal*, *2*(3), 352-358.

Kharma, M, Y, Alqahtani, W, Albishi,W,W, Bakhsh, A, K, Abram, M, A (2020). Effect of smoking on academic performance among dental students. Int Dent Res; 8(1): 18-21

Kisumu Site Analysis Report (2014). Site Analysis: Climatic Analysis http://architecture.uonbi.ac.ke/sites/default/files/cae/builtenviron/architecture/Project%204.pdf. Accessed on 21st June 2018

Kurgat, C., Kibet, J., Mosonik, B., &Opuru, F. (2019). Trends in Cigarette Smoking in Kenya and the Challenges Impeding Cessation. *American Journal of Biological and Environmental Statistics*, *5*(1), 7-15.

LaPiere, R. T. (1934). Attitudes vs. actions. *Social forces*, *13*(2), 230-237.

Levy, D., Rodríguez-Buño, R. L., Hu, T. W., & Moran, A. E. (2016). The potential effects of tobacco control in China: projections from the China Sim Smoke simulation model. In *Economics of Tobacco Control in China: From Policy Research to Practice* (pp. 189-213).

Maghram, A., (2018). Social factors influencing tobacco use among school students in Al-Quwayiyah Governorate; Saudi Arabia, international journal of current research and review

MoPH&S, (2010). *National Tobacco Control Action Plan 2010-2015*; Nairobi, Kenya; government press,

Mbatchou Ngahane, B. H., Luma, H., Mapoure, Y. N., Fotso, Z. M., &AfaneZe, E. (2013). Correlates of cigarette smoking among university students in Cameroon. *The International Journal of Tuberculosis and Lung Disease*, *17*(2), 270-274.

McKay, A. J., Patel, R. K., &Majeed, A. (2015). Strategies for tobacco control in India: a systematic review. *PLoS One*, *10*(4), e0122610.

Mwenda, V., Gathecha, G., Kendagor, A., Kibichio, J., &Macharia, E., (2018). Characteristics and factors associated with tobacco use finding of Kenya Global Adult Tobacco Survey 2014.

Niederdeppe, J., Kellogg, M., Skurka, C., & Avery, R. J. (2018). Market-level exposure to state antismoking media campaigns and public support for tobacco control policy in the United States, 2001–2002. *Tobacco Control*, *27*(2), 177-184.

Noland, M., Ickes, M. J., Rayens, M. K., Butler, K., Wiggins, A. T., & Hahn, E. J. (2016). Social influences on use of cigarettes, e-cigarettes, and hookah by college students. *Journal of American College Health*, *64*(4), 319-328.

NACADA (2012). Rapid Situation Assessment – Drug and Substance Abuse in Kenya. National Campaign against Drug Abuse Authority.

NACADA (2020). Drug abuse among the youth in Kenya. *International journal of scientific & technology research*, *2*(6), 126-131.

Ngaruiya, C., Abubakar, H., Kiptui, D., Kendagor, A., Ntakuka, M. W., Nyakundi, P., & Gathecha, G. (2018). Tobacco use and its determinants in the 2015 Kenya WHO STEPS survey. *BMC Public Health*, *18*(3), 1-13.

Osman, M., Dautzenberg, B., Birkui, P., Noël, M., Dorsett, J. & Dautzenberg, M. D. (2013). E-cigarette: a new tobacco product for schoolchildren in Paris. *Open J Respir Dis*, *3*(1), 21-4.

Owili, P. O., Muga, M. A., Pan, W. C., &Kuo, H. W. (2017). Indoor secondhand tobacco smoke and risk of under-five mortality in 23 sub-Saharan Africa countries: A population based study and meta-analysis. *PLoS One*, *12*(5), e0177271.

Owusu, D., Mamudu, H. M., John, R. M., Ibrahim, A., Ouma, A. E., &Veeranki, S. P. (2016). Never-smoking adolescents' exposure to secondhand smoke in Africa. *American journal of preventive medicine*, *51*(6), 983-998.

Pérez-Pazos, J., Collazos, F., & Casas, M. (2015). Substance use among medical students: a literature review 1988-2013. *Act as Esp Psiquiatr*, *43*(3), 109-21.

Reiss, K., Schunck, R., &Razum, O. (2015). Effect of length of stay on smoking among Turkish and Eastern European immigrants in Germany—interpretation in the light of the smoking epidemic model and the acculturation theory. *International Journal of Environmental Research and Public Health*, *12*(12), 15925-15936.

Rezk-Hanna, M., Sarna, L., Petersen, A. B., Wells, M., Nohavova, I., &Bialous, S. (2018). Attitudes, barriers and facilitators to smoking cessation among Central and Eastern European nurses: A focus group study. *European Journal of Oncology Nursing*, *35*, 39-46.

Shahid, A., & Asmat, A. (2022). Exposure to smoking and general health problems among university students: mediating role of positive affect and moderating role of parenting. *Journal of Substance Use*, 1-6.

Shehab, M, Abd, E, L, Kader, E, L, & Ahmed, A, (2018). Smoking prevalence, Attitude, Knowledge and practice among applied medical sciences Saudi Students in King Abdalaziz University, *International health J;* 55: 212-248.

Sreeramareddy, C. T., & Pradhan, P. M. S. (2015). Prevalence and social determinants of Smoking in 15 countries from North Africa, Central and Western Asia, Latin America and Caribbean: secondary data analyses of demographic and health surveys. *PLoS One*, *10*(7), e0130104.

Terig O, & Mohamed O., (2013). Tobacco Use among health Professional students in a private Univerity: *Sudan Medical and Scientific research institute journal* pp256-257

Tetsuro, k, Donna, C, Nobuki, N, &Saloshi, S, (2019). Relationship between self-esteem and Smoking behaviour among Japanese early adolescents; Journal of health 69(7) 280-284

Tumuti, S., Wangeri, T., Waweru, E., &Rono, A. (2014). Prevalence, Drug used, Sources & Awareness of curative and Preventive measures among Kenyatta University Students, Nairobi County, 104 African Journal of Alcohol & Drug Abuse: Volume 6 Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies 5(3), 352-361*.

WHO (2019). Impact of the WHO Framework Convention on Tobacco Control on global Cigarette consumption: quasi-experimental evaluations using interrupted time series analysis and in-sample forecast event modelling, *BMJ 2019; 365 doi;365: l2287*

World Health Organization. (2017). *WHO report on the global tobacco epidemic, 2017: monitoring tobacco use and prevention policies*.

World Health Organization. World Health Organization. (2021). *WHO Report on the Global Tobacco Epidemic, 2021: Addressing new and emerging products*.

World Health Organization. (2013). *WHO report on the global tobacco epidemic, 2013: enforcing bans on tobacco advertising, promotion and sponsorship*. World Health Organization.

Worsley, A. (2002). Nutrition knowledge and food consumption: can nutrition knowledge change food behaviour? *Asia Pacific journal of clinical nutrition*, *11*, S579-S585.

Zhao, X., White, K. M., & McD Young, R. (2019). A TPB-based smoking intervention among Chinese high school students. *Substance use & misuse*, *54*(3), 459-472.

APPENDICES

Appendix I: Consent Form

I STEPHEN ODHIAMBO ONGALO, a Postgraduate student in the School of Arts and Social Sciences, Department of Sociology and Anthropology, pursuing a Master's degree in Social Development and Management, in partial fulfillment of the requirement for award of a degree of masters in Social Development and Management, am required to write a proposal and my research topic is:

SOCIAL FACTORS ASSOCIATED WITH TOBACCO SMOKING AMONG MEDICAL STUDENTS OF MASENO UNIVERSITY, KENYA

The purpose of this study is to identify social factors associated with tobacco smoking among medical students of Maseno University, Kenya. The findings of this study will inform the policy makers on what policies to be formulated to help in cessation intervention of tobacco products.

I have well understood the purpose and the benefits of this study. I am ready to participate in the study.

Therefore, I hereby:

- ○ Consent to participate in this study
- ○ Do not Consent Participate in this study

SIGNATURES

Participant……Date…….

Researcher……Date…….

Appendix II: Questionnaire for medical students

1. DEMOGRAPHIC INFORMATION

Kindly Tick (√) where appropriate

1. Please indicate your degree programme.
   - Medicine
   - Nursing
2. Please indicate your current year of study.
   - 1st Year
   - 2nd Year
   - 3rd Year
   - 4th Year
   - 5th Year
   - 6th Year
3. Please indicate your Gender.
   - Male
   - Female.
4. Please indicate your age in years_____
5. Please indicate your religion.
   - Christian
   - Islam
   - Hindu
   - Traditionalist
6. What is your tobacco smoking status?
   - Smoker
   - Non smoker
   - Ex-smoker
7. How old were you when you smoked your first cigarette? _____
8. What was the reason for taking the first puff?
   - Curiosity
   - Encouraged by friends
   - Parents/sibling

- Fun

9. What kind of a relationship are you in currently?

- Single
- Married
- Dating
- Engaged

- Others, specify_____

2. SOCIAL REFERENTS GROUPS AND SMOKING HABITS

10. What is the smoking status of your parents?

- Nonsmokers
- Ex- smoker
- Smoker

11. Kindly indicate smoking habits of your parents?

- Father smoke
- Both parents smoke
- None of them smoke
- Mother smoke

12. How do you rate the parenting style at home?

- Authoritative
- Uninvolved
- Authoritarian
- Permissive

13. Which one best explains how you started smoking?

- Friends introduced me to smoking
- To satisfy feeling of belonging
- Habits of my friends

14. Which media often promotes tobacco use?

- TV/Radio
- Newspaper/magazine
- Social media
- Non

15. Which media is frequently promoting anti-tobacco advertisement?

- TV/radio
- Newspaper/magazine
- Social media
- Non

16. How frequently have you received anti-tobacco information through media?

- Daily
- Weekly
- Monthly
- Never

(3) Attitudes of medical students and smoking habits

Please tick (√) one number for each statement that suits you

17. Belief that tobacco is a serious health hazard? [strongly agreed1: 2: 3: 4: 5: strongly disagreed]
18. Need to have cessation training in medical school[strongly agreed1: 2: 3: 4: 5: strongly disagreed]
19. All tobacco products should be banned in enclosed public spaces [strongly agreed1: 2: 3: 4: 5: strongly disagreed]
20. tobacco should not be sold in sticks but packets [strongly agreed1: 2: 3: 4: 5: strongly disagreed]
21. tobacco taxes should be increased [strongly agreed1: 2: 3: 4: 5: strongly disagreed]
22. Peer counseling and group therapy should be enhanced to reduce the prevalence [strongly agreed1: 2: 3: 4: 5: strongly disagreed]
23. There will be greater chances of quitting if laws and policies are strictly followed [strongly agreed1: 2: 3: 4: 5: strongly disagreed]

THANK FOR YOUR TIME AND COOPERATION

Appendix III Focus Group Discussion Guide: for medical students

(a) Where did you learn about tobacco use and its health effects? Prompt for

I. Medical school
II. Family
III. Significant others
IV. Media
V. NACADA programs

(b) What are some of the reasons that are likely to influence smoking habits among students? Prompt for:

i. Probe Age
ii. Gender
iii. Programme
iv. Religion
v. Socioeconomic status

(c) What are some of the sources of information on tobacco? Prompt for:

i. Your degree programme
ii. Peers
iii. Media
iv. Parents
v. Others, please specify_____

(d) How can peers influence your behaviour? Prompt for tobacco smoking

(e) How many ways has media been used to propagate tobacco messages? Probe for positive and negative ways

(f) In your opinion how significant has the ban on all forms of advertisement, promotion and sponsorship of tobacco affected smoking habits? probe

(g) What are some of the steps you would suggest as measures for control tobacco? probe

(h) Are the nonsmokers at risk? How can they be prevented from the harmful effects of tobacco? Prompt for more information

THANK YOU FOR YOUR TIME AND COOPERATION

Appendix IV Interview Guide For Deans

I. Knowledge, social referent groups and attitudes of medical students

a. How is tobacco consumption a concern to the University management
b. What do you think are factors influencing students to initiate smoking? Prompt for
    i. Age
    ii. Gender
    iii. Peer influence
c. Are your students taught about the harmful effects of tobacco? Please explain
d. Are there ways in which media has been instrumental in propagating messages of tobacco use and cessation? probe
e. What are some of measures in place to encourage nonsmokers not to initiate and dissuade smokers to quit? probe

THANK YOU FOR YOUR TIME AND COOPERATION

Appendix V Interview Guide NACADA Officer

I. Knowledge, social referent groups and attitudes of medical students on tobacco use

a) Briefly tell me what NACADA is and some of the objectives tailored for students in the higher learning institutions? probe
b) What are some of the factors attracting young people into smoking? prompt
c) How is your organization targeting families with tobacco use and cessation messages? probe
d) How do you involve media in disseminating information on the health effects of tobacco among young people? probe
e) What are some of the tobacco initiatives targeting university students? probe
f) To what extent is your organization partnering with university to spread the awareness messages of tobacco? Prompt for more information

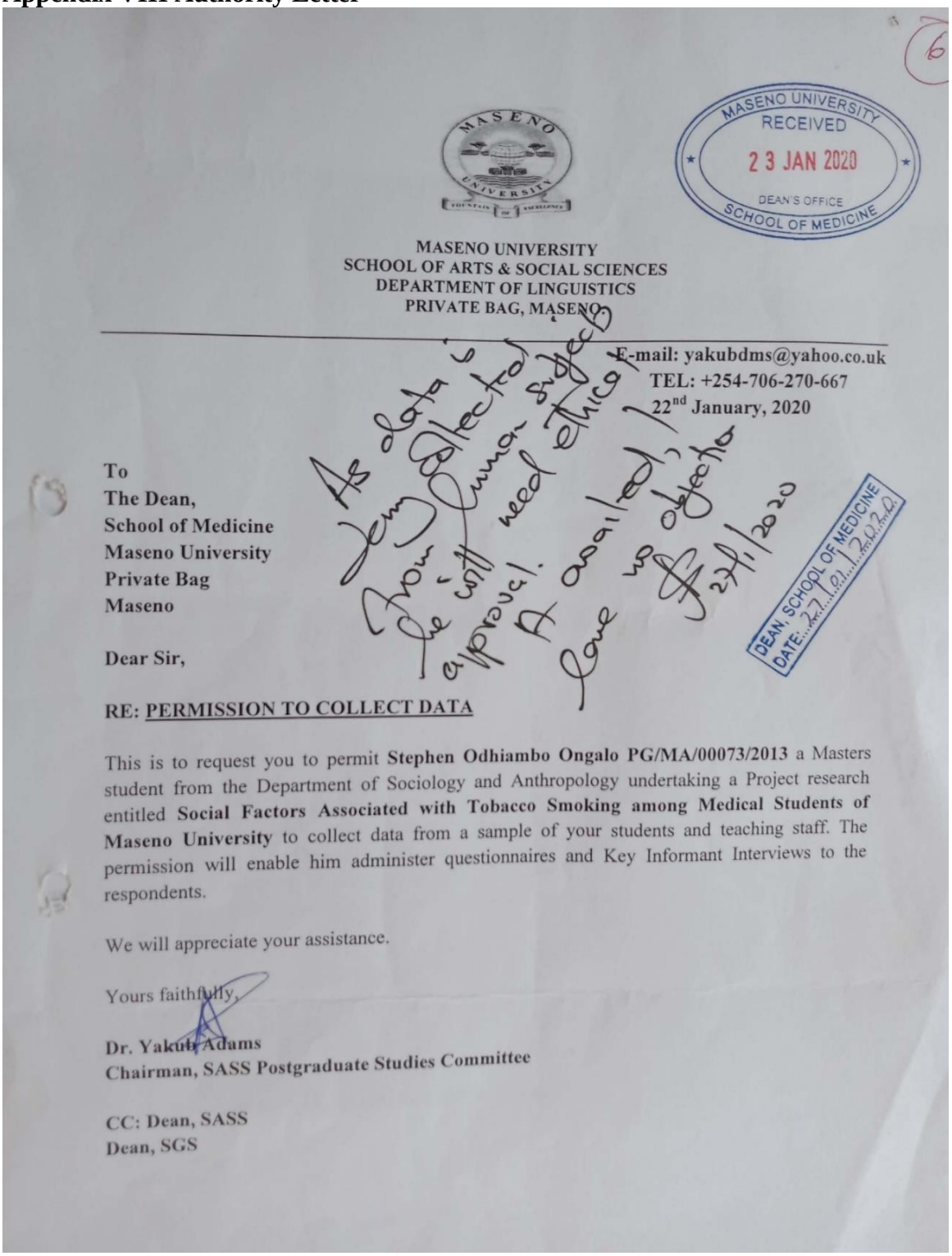
THANK YOU FOR YOUR TIME AND COOPERATION

Appendix VI Projected Budget

SN	ITEM	QTY	AMOUNT(KSHS)
1	Laptop	1	60,000
2	Secretarial expenses		30,000
3	Transport expenses	30 days	30,000
4	Subsistence	30 days	30,000
5	Photocopying expenses		25,000
6	Stationery/equipment		30,000
7	Contingency		10,000
	TOTAL		**215,000**

Appendix VII Project Plan		
1	Writing of Project Proposal	June 2022–August 2022
2	Data Collection	August 2022–September 2022
3	Data entry and Analysis	October 2022
4	Writing Project	October 2022
5	Correction and Presentation of Final Report	November 2022
6	Defence of Project Paper	November 2022
TOTAL		**6 MONTHS**

Appendix VIII Authority Letter



MASENO UNIVERSITY
RECEIVED
23 JAN 2020
DEAN'S OFFICE
SCHOOL OF MEDICINE

MASENO UNIVERSITY
SCHOOL OF ARTS & SOCIAL SCIENCES
DEPARTMENT OF LINGUISTICS
PRIVATE BAG, MASENO

E-mail: yakubdms@yahoo.co.uk
TEL: +254-706-270-667
22nd January, 2020

As data is to be collected from human subjects they will need ethical approval. I availed, I have no objection 23/1/2020

DEAN, SCHOOL OF MEDICINE
DATE: 27/1/2020

To
The Dean,
School of Medicine
Maseno University
Private Bag
Maseno

Dear Sir,

RE: PERMISSION TO COLLECT DATA

This is to request you to permit **Stephen Odhiambo Ongalo PG/MA/00073/2013** a Masters student from the Department of Sociology and Anthropology undertaking a Project research entitled **Social Factors Associated with Tobacco Smoking among Medical Students of Maseno University** to collect data from a sample of your students and teaching staff. The permission will enable him administer questionnaires and Key Informant Interviews to the respondents.

We will appreciate your assistance.

Yours faithfully,

Dr. Yakub Adams
Chairman, SASS Postgraduate Studies Committee

CC: Dean, SASS
Dean, SGS

MASENO UNIVERSITY
SCHOOL OF ARTS & SOCIAL SCIENCES
DEPARTMENT OF LINGUISTICS
PRIVATE BAG, MASENO.

E-mail: yakubdms@yahoo.co.uk
TEL: +254-706-270-667
27th January, 2020

To
The Dean,
School of Nursing,
Maseno University,
Private Bag,
Maseno.

Dear Sir,

RE: PERMISSION TO COLLECT DATA

This is to request you to permit **Stephen Odhiambo Ongalo PG/MA/00073/2013** a Masters student from the Department of Sociology and Anthropology undertaking a Project research entitled **Social Factors Associated with Tobacco Smoking among Medical Students of Maseno University** to collect data from a sample of your students and teaching staff. The permission will enable him administer questionnaires and Key Informant Interviews to the respondents.

We will appreciate your assistance.

The School of Nursing has given Mr. Ongalo ago ahead 27/1/2020

Yours faithfully,

Dr. Yakub Adams
Chairman, SASS Postgraduate Studies Committee

MASENO UNIVERSITY
27 JAN 2020
DEAN'S OFFICE
SCHOOL OF NURSING

CC: Dean, SASS
Dean, SGS