T.C.
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INSTITUTE OF HEALTH SCIENCE
DEPARTMENT OF PUBLIC HEALTH

THE PREVALENCE OF TOBACCO USE AMONG LAST YEAR HIGH SCHOOL STUDENTS IN MOGADISHU, SOMALIA.

MASTER OF SCIENCE, THESIS

SUMAIO HAIDAR ALI

SUPERVISOR

PROF. DR. RECEP EROL SEZER

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	Unvanı, Adı-Soyadı (Kurumu)
Jüri Başkanı:	Prof. Dr. Güldal İzbırak
Tez danışmanı:	Prof. Dr. Recep Erol Sezer
Üye:	Dr. Öğr. Üyesi Hale Arık Taşyıkan
Üye:	Dr. Öğr. Üyesi Nevzat Bilgin
Üye:	Prof. Dr. Güldal İzbırak

ONAY
Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun ...../...../..... tarih ve ..... sayılı kararı ile onaylanmıştır.

Prof. Dr. Bayram YILMAZ
Sağlık Bilimleri Enstitüsü Müdürü

DECLARATION

I hereby declare that this thesis is my original work and that, to the best of my knowledge and belief, it does not contain any previously published or written works by other authors, nor does it contain any works that have been approved for the award of any other degree, with the exception of those where appropriate citation has been made in the text.

Date: 12 July 2023

Name and Surname: Sumaio Ali

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

WHO	World Health Organization
GYTS	Global Youth Tobacco Survey
FCTC	Framework Convection on Tobacco Control
SPSS	Statistical Software for Social Sciences
SOS	Somali Shillings
US.	United States
E-CIGARETTES	Electronic Cigarettes
DSM-5	Diagnostic and Statistical Manual of Mental Disorders- 5th edition.
COPD	Chronic Obstructive Pulmonary Disease
NNK	Nicotine-derived Nitrosamine Ketone
NNN	N-Nitrosonornicotine
CO	Carbon Monoxide
COVID-19	Corona virus disease 2019

ABSTRACT

ALI, S (2023). PREVALENCE OF TOBACCO USE AMONG LAST YEAR HIGH SCHOOL STUDENTS IN MOGADISHU-SOMALIA. YEDITEPE UNIVERSITY, INSTITUTE OF HEALTH SCIENCE, DEPRTMENT OF PUBLIC HEALTH, MASTER OF SCIENCE THESIS, ISTANBUL.

This study was conducted to determine the prevalence of tobacco use among last year high school students in Mogadishu, Somalia. The approval of the ethical committee of Somalia's Ministry of Health and permission of the Benadir regional Education Directorate were obtained before the research was conducted. This study is cross-sectional in nature. The sample of the study initially consisted of 860 students and 363 students of which, 55.4% are male and 44.6% are female who study at five different high school students in Mogadishu, Somalia in the 2021-2022 academic year gave the consent to be part of the study. Data were collected by using a questionnaire that consists of relevant questions from the Global Youth Tobacco Survey. The questionnaire consists of 35 questions which includes the sociodemographic characteristics of the students, their characteristics related to cigarette smoking and tobacco use and perception towards tobacco use and tobacco barn in public indoor and outdoor places. The study's data were assessed using the SPSS 26.0 package Programme. There were descriptive tests utilized, as well as tests of association. According to the study's findings, 27.3% of the students smoked cigarettes in their lives, and 5.8% of them are still active smokers. According to the research, 31.3% of males and 17.9% of women of the students consume shisha. It was determined that there was a statistically significant relation between gender and smoking status of the students. The study's conclusions showed that young individuals who used hookah and cigarettes had less knowledge about the health consequences than those who did not. In order to avoid tobacco addiction, primary health care providers, particularly public health workers have essential duties and responsibilities. Public health workers must educate children, families, and the community about the harms of shisha and raise their knowledge of the problem.

Keywords: Tobacco, Shisha, Cigarette, Students, Prevalence of tobacco use, and Health

ABSTRACT (TURKISH)

ALI, S (2023). MOGADİŞU-SOMALİ'DE SON SINIF LİSE ÖĞRENCİLERİ ARASINDA TÜTÜN KULLANIMIN YAYGINLIĞI, YEDİTEPE ÜNİVERSİTESİ, SAĞLIK BİLİMLERİ ENSTİTÜSÜ, HALK SAĞLIĞI ANABİLİM DALI, YÜKSEK LİSANS TEZİ, İSTANBUL.

Bu çalışma, Somali Mogadişu'da lise son sınıf öğrencilerinde tütün kullanım yaygınlığını belirlemek amacıyla yapılmıştır. Araştırma yapılmadan önce Somali Sağlık Bakanlığı etik kurulu onayı ve Benadir Bölge Eğitim Müdürlüğü izni alındı. Bu çalışma doğası gereği kesitseldir. Araştırmanın örneklemini %55,4'ü erkek, %44,6'sı kız olmak üzere 363 öğrenci oluşturmuştur.

. Veriler, Küresel Gençlik Tütün Araştırması'ndan ilgili sorulardan oluşan bir anket kullanılarak toplanmıştır. Anket, öğrencilerin sosyodemografik özelliklerini, sigara içme ve tütün kullanımına ilişkin özelliklerini ve kamuya açık kapalı ve açık alanlarda tütün kullanımına ve tütün ambarına yönelik algılarını içeren 35 sorudan oluşmaktadır. Çalışmanın verileri SPSS 26.0 paket programı kullanılarak değerlendirilmiştir. İlişkilendirme testlerinin yanı sıra tanımlayıcı testler de kullanılmıştır. Araştırmanın bulgularına göre öğrencilerin %27,3'ü hayatları boyunca sigara içmiş ve %5,8'i halen aktif olarak sigara içmektedir. Ayrıca araştırmaya göre öğrencilerin erkeklerin %31,3'ü, kadınların ise %17,9'u nargile tüketmektedir. Öğrencilerin cinsiyetleri ile sigara içme durumları arasında istatistiksel olarak anlamlı bir ilişki olduğu belirlendi. Çalışmanın sonuçları, nargile ve sigara kullanan genç bireylerin sağlık sonuçları hakkında kullanmayanlara göre daha az bilgiye sahip olduğunu gösterdi. Halk sağlığı çalışanlarının tütün bağımlılığından korunmak için çocukları, aileleri ve toplumu tütünün zararları konusunda eğitmesi ve sorunla ilgili bilgilerini artırması gerekmektedir.

Anahtar Kelimeler: Tütün, Nargile, Sigara, Öğrenciler, Tütün kullanım yaygınlığı ve Sağlık

1. INTRODUCTION

1.1 problem statement

On an annual basis, millions of individuals are sickened and killed by tobacco in various manners (1). Its smoking is one of the largest public health issues the world has ever witnessed (2). In worldwide, the adult smoking prevalence in 2020 was 32.6% for men and 6.5% for women, demonstrating that 1.18 billion individuals globally smoke tobacco, and that number is expected to be fairly steady until at least 2025 (3,4). It is the main contributor of preventable morbidity and mortality worldwide. Approximately 8.3 million fatalities per year worldwide are attributed to tobacco usage (5). Around 1.3 million fatalities are associated with secondhand smoking, leaving 7 million deaths linked to direct or firsthand tobacco use. (5)

The most widely used method of tobacco use globally is cigarette smoking (8). However, hookah, a scented tobacco product that is used by pouring it through a bottle, is currently being acknowledged as a major public health issue and a contributor to the worldwide tobacco pandemic (9). In restaurants and coffee shops frequented by young people, promotional activities are carried out to make hookah usage appealing. The industry's efforts in this area to promote and advertise had a big influence on how common hookah smoking became among young people. In addition, hookah tobacco is being made more appealing to young people and is growing in popularity simply by incorporating tastes like vanilla, chocolate, and fruit to it (9).

According to research by the Centers for Disease Control and Prevention (CDC) in 2020, 3.65 million high school students worldwide (or 23.65%) reported consuming tobacco products in the previous 30 days. It was additionally discovered that electronic cigarettes were the most popular type of tobacco usage among US middle school students (4.7% - 550,000) and high school students (19.6% - 3.02 million) (10).

According to a Somali Health and Demographic Survey (SHDS) study from the year 2020, 4% of Somali households smoked cigarettes or used tobacco products (11). Additionally, it shows that just 0.8% of women smoke cigarettes or use any other tobacco products, compared to 8% of men who do so, and that tobacco usage tends to rise with age. According to data broken down by place of residence, 6% of members of nomadic

households and 4% of those in urban and rural households, respectively, smoke or use tobacco. As household wealth rises, smoking rates decline (12).

There has never been any research done in Somalia on the prevalence of tobacco usage among high school and university students. Therefore, the goal of this study is to describe the current smoking prevalence of tobacco use among high school students. Based on the results of this research, it can be guaranteed that in the medium- to long-term, it will contribute to the creation of content for research studies aimed at students and that it will establish a reliable, up-to-date data source for future research on the topic.

1.2 Purpose of the study

The aim of this study is to reveal the prevalence of tobacco use among last year high school students in Mogadishu, Somalia and to evaluate the attitude of the students towards tobacco use, passive smoking, and tobacco cessation. In this context answer were sought the following subobjectives to determine the prevalence of tobacco use among last year high school students in Mogadishu, Somalia.

1. To determine the present status and the age in which students started using tobacco.
2. To evaluate the perceptions of the students towards the harm of tobacco use.
3. To assess the thoughts of the students about quitting tobacco use.
4. To determine the tobacco use status of the student's family.

2. GENERAL INFORMATION

2.1 General characteristics of tobacco

Tobacco is an annual plant of the genus Tabacum that may be cultivated all over the world. It is a member of the nightshade (Solanaceae) family of plants, which includes both recreational and industrial plants. (13-16).

The plant's leaves contain nicotine; an organic nitrogenous alkaloid, which is gratifying and addictive and is frequently used recreationally as a stimulant and anxiolytic. (17-19).

Tobacco has a very wide cultivation are in the world and that being reasoned with the advantages that it a very compatible agriculture in terms of climate change and that it is not dependent on the width of land during the operation, even in small-scale enterprises can be cultivated.

Additionally, while creating a selection of poor soils, infertile, inactive, and dry soils in terms of assessment, it also offers the manufacturer tremendous convenience. Because of all this capacity to quickly adjust, tobacco products come in more than 60 distinct variations and are made in various geographical locations. (20-22).

2.2. Types of tobacco in the world

There are 128 nations in the world where tobacco is cultivated. Per year production of tobacco totals 6,665,713 tons worldwide. China leads all other countries in tobacco production with 2,806,770 tons production per year, India ranking in second with 761,318 tons. Brazil and the United States follow them with annual production volumes of 675,545 and 285,181 tons, respectively. (23) Once mature, tobacco leaves are harvested using one of two techniques. Priming is the initial type of harvesting, which involves plucking the individual leaves off the developing plant as they ripen and mature in the field. The second technique is known as "stalk-cut harvesting," and it involves cutting the mature plant's whole stalk at ground level while the stalk's leaves are still attached. (24- 26). When tobacco is harvested, it must go through a process known as curing, which gets the leaves ready for further processing by allowing the naturally existing excess moisture to be drawn out. Because of its extreme wetness, raw, newly harvested tobacco is not easily flammable or smokable and it is often green in color. The process of curing tobacco is commonly referred to as "color curing" because, as the tobacco goes through it, the color of the leaf will unavoidably change because its chlorophyll content is being altered and it gradually

becomes more yellow to brown in color (24- 26 9-11). Air curing, sun curing, fire curing, and flue curing are the four main tobacco curing techniques (27). Each technique is utilized for various tobacco varieties and has unique benefits of its own. Tobaccos are divided into four categories based on the techniques of curing:

2.2.1. Flue-cured tobacco (Virginia)

Flue-cured tobacco is also known as 'bright tobacco' because of the deep orange to golden-yellow shade it acquires upon curing. It often has a light, bright scent, and flavor after being cured for a week in heated barns. The barns used for flue curing are frequently compact and densely constructed, with metal pipes, or flues, running all over or beneath the barn's floor from furnaces. The fuels used include wood, coal, oil, and liquefied petroleum gas. When utilizing heaters that operate on gas or oil, flues are not necessary. The leaves are gently warmed while being closely watched for alterations in their physical and chemical composition. Virginia tobacco, which has a high sugar content and a medium to high nicotine level, is primarily grown in Argentina, Brazil, China, India, Tanzania, and the United States. (28,29).

2.2.2. Air-cured tobacco (Burley)

Air-cured tobacco is pale to dark brow in color. The major method of air curing Is accomplished within buildings by mechanical ventilation. When the need calls for it, heat can be produced by burning coke, charcoal, or petroleum gas. Air curing takes one to two months and causes the product to lose the majority of its natural sugars, thus its low in sugar but has high nicotine level and it has a strong almost cigar-like flavor. The majority of air-cured tobacco is cultivated in Argentina, Brazil, Italy, Malawi, and the United States (30, 31).

2.2.3. Fire-cured tobacco

Fire-cured tobacco is similar to air-cured tobacco, with the exception that after the tobacco has been hanging for two to six days, open wood fires are lit on the floor of the curing barn. The smoke gives the tobacco a distinctive creosote smell. To cure the leaf to the required finish, it may take anything between three days and ten weeks of burning, either continuously or intermittently. A tobacco that has undergone fire curing is strong in nicotine and low in sugar (32-34).

2.2.4. Sun-cured tobacco (Oriental)

Sun-cured tobacco has a strong scent. Tobacco is simply cured by air-drying the leaves until they are brown and wilted. This kind of tobacco is low in both sugar and nicotine yet aromatic, herbal, and spicy. It's mostly produced in Turkey, Greece, Bulgaria, North Macedonia, Romania, and the entire Mediterranean basin (35,36)

2.3. Most common tobacco products

2.3.1. Cigarettes and E-Cigarettes

The most popular way to consume tobacco is through cigarettes. Additionally, they are to blame for the great majority of tobacco-related illnesses and fatalities worldwide (37).

Cigarettes are thin papers that are rolled into a narrow cylinder and filled with a flammable substance, usually tobacco plus chemical additives, to be smoked. It is set on fire at one end, causing it to smolder, and the smoke that results is swallowed orally via the other end (38). When people inhale cigarette smoke, a hazardous combination of approximately 7,000 chemical components, including arsenic, formaldehyde, hydrogen cyanide, lead, carbon monoxide, acrolein, and other deadly toxins, are exposed to the Smokers. more than 70 of these are carcinogenic and can result in cancer (39).

In 21st century, a product called Electronic cigarettes (also known as vapes) was developed. They are a modern invention in which the material within is vaporized rather than burnt by a battery-powered heating element. The substance inside is commonly a liquid solution containing nicotine. Even while using such products has certain health concerns, their producers frequently advertise them as safer alternatives to traditional cigarettes. Because they are relatively new products, scientists lack information on the potential long-term health implications of e-cigarettes(40-42).

2.3.2. Hookah

Water pipes called hookahs are used to consume tobacco that has been carefully formulated and available in a variety of aromas, including apple, mint, cherry, chocolate, coconut, licorice, cappuccino, and watermelon. A head, body water bowl, and hose make up a hookah. Typically, they function by circulating charcoal heated air through a tobacco mixture before ending up in a bowl filled with water. After that, the user inhales the smoke

via a mouthpiece and tube (43,44). Users of hookah usually think that smoking it is safer than smoking cigarettes. However, a typical hour of hookah smoking exposes the user to 100 to 200 times the amount of smoke inhaled from one cigarette, according to World Health Organization guidelines. Hookah smoke still contains considerable levels of dangerous compounds, such as carbon monoxide, heavy metals, and chemicals that may cause cancer (carcinogens), even after passing through water. (45). The addictive chemical found in tobacco, nicotine, is also present in large amounts while using a hookah (46). Hookah smoking has been linked to lung, mouth and other cancers, heart problems, and respiratory infections among others. Sharing the hookah's mouthpiece has also been linked to other infections including hepatitis, oral herpes, tuberculosis, and Covid-19. (47,48).

2.3.3. Pipe

Pipe is an instrument built exclusively for smoking tobacco. It is the oldest traditional tobacco smoking method. In England, which is renowned for its customs, fathers of wealthy families used to give their children a sword and a pipe set when they reached puberty. Like other tobacco products, smoking using a pipe has become common in the Americas. This trend was sparked by ancient priests' religious rituals in the Mexican region. They feature a chamber or bowl, stem, and mouthpiece and are frequently reusable. The bowl is filled with tobacco and lighted. After that, the smoke is pulled via the mouthpiece and stem and inhaled (49-51).

2.3.4. Puro

Puro is a tobacco product made by wrapping cigars made of shredded, chopped, or whole tobacco leaves with the use of a machine or by hand. Cigar manufacture and smoking are as ancient as tobacco. The Caribbean Sea, Mexico, and South America are the cigar's native lands. In terms of the harm they do to human health, it can be argued that the danger of illness is equal to or even higher than that posed by cigar cigarettes (52).

2.4. Tobacco addiction and withdrawal

Molecular mechanisms to social connections can all play a role in the origins and effects of addiction, which is a complicated behavioral phenomenon. Tobacco addiction's psychopharmacology is intricate and yet poorly understood (53). Beginning with molecular interactions that change the activity and metabolism of the neurons that are susceptible to the drug, drug addiction develops. This causes individual neurons and neural circuits to change over time, which results in complex behaviors including dependency, tolerance, sensitization, and desire (54). The main addictive substance in tobacco is nicotine, which may be just as addictive as narcotics like alcohol, cocaine, and morphine. An arterial bolus of nicotine, including an average of 1 mg of nicotine per cigarette, is delivered to the brain in 7 to 30 seconds after being inhaled. It sufficiently mimics the naturally occurring neurotransmitter acetylcholine to bind to a subset of this neurotransmitter's neuronal receptors in the brain. They are Nicotinic Acetylcholine Receptors (nAChRs) (55). When it accomplishes this with receptors in the midbrain's Ventral Tegmental Area (VTA), it speeds up the firing of the neurons that extend forward from that region to the Nucleus Accumbens (NAcc). Another neurotransmitter called dopamine is released as a result in the nucleus Accumbens. All addictive behaviors are thought to be largely dependent on the release and absorption of dopamine by neurons in the nucleus Accumbens. It serves as a neuronal "teaching signal," causing the brain to connect the perceived state of affairs with the want to do whatever action came just before this release. This makes it more difficult to resist the impulse to smoke when it occurs frequently, as in the case of smoking. These are sometimes referred to as "cue-driven smoking urges" or "situational cravings," which explains why even occasional smokers frequently struggle to completely quit (56). The Ventral tegmental area and nucleus Accumbens are altered in how they function as a result of repeated nicotine ingestion from cigarettes, so that when brain nicotine concentrations are lower than usual, there is abnormally little neural activity in these areas. This causes feelings of need for behaviors that have in the past restored normal functioning, usually smoking. The time between waking up and smoking the initial cigarette of the day is probably a good indicator of how difficult it will be to quit smoking. As a consequence, "cue-driven smoking urges" and "nicotine hunger" are significant factors influencing smoking behavior and are believed to be the main mechanisms underlying cigarette

addiction. Although symptoms differ from person to person, they often peak within the first week and may lessen in a few weeks (57) when smokers cut down or stop smoking, many of them begin to feel nicotine withdrawal symptoms within 30 minutes after their last cigarette consumption. The symptoms are the result of the central nervous system's receptors adapting neutrally to the drug's presence. You will desire to keep smoking because of the enlarged receptors caused by one's prior nicotine usage. The withdrawal symptoms result from ignoring such receptors. But as you ignore them, they start to fade. Although withdrawal symptoms frequently subside in two to four weeks, they can last for up to six months. The severity of your symptoms, however, is going to depend on a number of variables, including how much tobacco you consume each day and for how long (58). According to DSM 5 diagnostic criteria, the presence of 2-3 withdrawal symptoms is considered mild, 4-5 is moderate, the presence of 6 or more symptoms is recognized an indication of severe addiction, (59). The early stages of the withdrawal period are when these symptoms are most noticeable, and the symptoms can be:

- Intense cravings for nicotine
- Restlessness and difficult concentrating
- Sleeping difficult and sleeping disturbance
- Tingling in the hands and feet
- Sweating
- Irritability, anger, anxiety, sadness and depression
- Dizziness and light headedness
- Nausea and abdominal cramps
- Constipation and gas
- Headaches
- Coughing
- Sore throat
- Mouth ulcer

2.5. Health effects of tobacco

In accordance with evidence-based medicine, tobacco and tobacco products are unhealthy (60). In retrospect, the scientific proof of the harm caused by smoking has been mounting for 200 years, primarily through an association with vascular disease and lung cancer before moving on to illnesses like cancer of the lip and mouth. The information was widely overlooked until the 1950 release of five case-control studies connecting smoking to the development of lung cancer. These results inspired more research, including cohort studies, which by the late 1950s began to reveal that smoking was also connected to the formation of a wide range of other disorders. Before it was generally accepted in relation to lung cancer by the late 1950s and in regard to many other health conditions over the course of the next two decades, the theory that smoking caused these numerous illnesses was actively debated for a while. Smoking has currently been proven to be associated positively with about 40 diseases or causes fatalities and negatively correlated with another eight to nine. Even though the vast majority of positive connections have been demonstrated to be causal in nature, certain positive associations have been proven to be partly or entirely attributable to confounding (61). Over eight million human beings are believed to have perished prematurely as a consequence of tobacco use globally. An individual who passes away from a disease caused by smoking before they would have otherwise passed away from another cause is deemed to have died "prematurely from smoking." On average a decade of lifespan is forfeited as a result of these early deaths. Numerous of these fatalities include smokers who have given up smoking but whose health has already been compromised by it. Furthermore, smokers who do not give up shorten their life expectancy by an average of 10 years compared to never-smokers, and they start falling victim to age-related diseases about 10 years earlier than non-smokers. (62). Cancer (mostly lung cancer), respiratory conditions (primarily chronic obstructive pulmonary disease, or COPD), and cardiovascular diseases (especially coronary heart disease) account for the bulk of smoking-related fatalities. Smoking also substantially raises the risk of peripheral vascular disease, which can lead to amputation, as well as stroke, glaucoma, hearing loss, back pain, and osteoporosis. After the age of 40, smokers typically experience more discomfort and suffer from disabilities than non-smokers. Both men and women smokers suffer from fertility issues. Smoking during pregnancy affects the development of the fetus, increases the risk of

pregnancy termination, neonatal death, and childhood respiratory illnesses, and is probably a factor in the psychological issues of the child who is born. (63). Smoking is now recognized as a significant risk factor for both Alzheimer's and vascular dementia, which is the contrary of what many once believed smoking to be protective against (64). Smoking at low levels carries greater hazards than would be anticipated by a simple linear relationship since the risk of smoking-related illnesses is positively connected with average daily cigarette consumption, but this correlation is not linear in the case of cardiovascular disease (65). Smoke from tobacco products contains known carcinogens in physiologically relevant concentrations along with a number of other hazardous substances. Due to the way tobacco is processed, some of them, most notably the tobacco-specific nitrosamines (particularly NNK and NNN), are naturally present in tobacco, while others, like benzopyrene, are created when tobacco is burnt. The particulate matter of the smoke contains these chemicals. Smoke from cigarettes also contains another gas called carbon monoxide (CO). Strong poisons like CO deplete hemoglobin molecules from oxygen. Smoking doesn't however produce enough CO to induce hypoxia instantly, so the body produces additional red blood cells enough to compensate for it. (66,67). Adults and children are both seriously at risk from secondhand smoke exposure. Therefore, exposure to smoke increases the risk of cancer, heart disease, and respiratory conditions among non-smokers who get exposed to tobacco smoke. (68).

2.6. Tobacco control policy

2.6.1. World Health Organizations' Framework Convection on Tobacco Control (WHO FCTC).

WHO FCTC is an international treaty that safeguards everyone's right to the highest degree of health. It provides a framework for the implementation of tobacco control measures by its parties in order to consistently and significantly diminish the prevalence of tobacco use and the exposure to tobacco smoke. It was accepted by WHO Member States in 2003. It is one of the most widely embraced agreements in the history of the UN, being unanimously approved by 182 Parties, or more than 90% of the world's population. Since it came into force in 2005, the WHO FCTC has been a resounding success and continues to act as the compass for progress and cooperation in tobacco control on a local, national, regional, and international level. When a country joins the WHO FCTC as a Party, it makes a mutually

beneficial commitment to reduce both the supply and demand for tobacco products (69). The Conference of the Parties (COP), which supervises the WHO FCTC, is comprised of representatives from each Party to the Convention. The following are the sections of the Convention:

- Articles 1-2 define the acronyms used in the text (Article 1) and describe how the Convention relates to previous agreements and legal documents.
- Articles 3-5 establish the goal, guiding principles, and general obligations engendered by the treaty.
- Articles 6 to 14 discusses the demand-side reduction measures.
- Articles 15 to 17 manage supply-side reduction measures.
- Article 18 focuses on the protection of the environment and health of persons.
- Article 19 questions liability.
- Articles 20 and 22 addresses cooperation and communication of information
- Articles 23 and 26 deals with institutional arrangements and financial resources.
- Articles 27 calls for dispute resolution.
- Article 28 and 29 encourages development of convention
- Articles 30-38: "final provisions," which deal with legal issues including how to join/ withdraw the Convention, when it enters into effect, protocols, and other related issues

2.6.2. M-POWER

The WHO FCTC and its recommendations give nations the framework they need to govern and implement tobacco control. The MPOWER measures were announced by WHO on February 7, 2008, in an effort to make this a reality. These steps are meant to help countries implement the WHO FCTC's efficient actions to lower tobacco demand at the national level (70,71). The six evidence-based elements of MPOWER include:

2.6.2.1. Monitor tobacco use

Objective: Systems in place for effective surveillance, monitoring, and assessment of tobacco use. In order to deploy tobacco control policies and interventions where they are required, assess their effectiveness, and make necessary adjustments to assure success, countries need reliable estimates of tobacco use. Accurate data enable effective intervention

execution, accurate impact assessment, and prompt correction when required, all of which significantly increase the chance of success. Any system for surveillance, monitoring, and evaluation must include procedures for data collection and analysis that are standardized and supported by science. Population surveys that employ a sufficiently large, representative, randomly chosen sample can give accurate estimates of tobacco usage trends with a manageable margin of error. In order to ensure that the results are comparable across multiple survey years, surveys should be performed on a regular basis using the same questions, sampling, data analysis, and reporting methodologies. This make it possible to accurately assess the effects of tobacco control measures over time.

2.6.2.2. Protect people from tobacco smoke

Objective: All indoor public areas and workplaces, including bars and restaurants, must be smoke-free. Heart disease, lung cancer, and other respiratory conditions are only a few of the many problems that second-hand smoking causes. There is no proven safe threshold for exposure to secondhand smoking. The only method that has been shown to effectively shield individuals from second-hand smoke's detrimental effects is a smoke-free workplace. Smoke-free settings aid smokers who wish to stop smoking as well as safeguard those who don't smoke.

2.6.2.3. Offer help to quit tobacco use

Objective: All primary healthcare centers offer easily accessible therapeutic treatments to treat tobacco dependency. The majority of smokers struggle to stop even when they make a conscious attempt to do so because they are addicted to nicotine. When smokers are aware of the diseases and early deaths caused by tobacco, they are more inclined to try to stop. After making the choice to stop, 90–95% of daily smokers who try to give up on their own relapse.

The government, social security, NGOs, and private clinical services in a nation are all part of the health-care system, which is largely responsible for managing tobacco use. However, clinical management treatments are less cost-effective than other MPOWER strategies in lowering overall tobacco use since they concentrate on the activities of specific individuals. To help people quit tobacco, there are two major approaches. The first is counseling, which includes telephone quit lines and community programs as well as in-person counseling

from doctors and other medical professionals as part of routine medical treatment. The other approach is having access to affordable medical treatment.

2.6.2.4. Warn about the dangers of tobacco

Objective: High levels of knowledge about the health effects of tobacco use among all age groups, genders, and geographic regions, such that everyone is aware that smoking causes misery, deformity, and early death. Despite the overwhelming evidence of tobacco's harmful effects, just a small percentage of smokers globally are aware of all the potential health consequences. Most individuals are aware that smoking is bad in general, but most are not aware of the vast range of specific diseases that tobacco use causes, the possibility of disability and death from long-term smoking, the speed or degree of nicotine addiction, or the dangers of secondhand smoke. Most people also vastly overestimate their ability to stop when they choose.

The choice to start or continue smoking can be influenced by public education campaigns in the media regarding the health risks of tobacco use and secondhand smoke.

Intervention 1. Require effective pack warning labels

A cost-effective way to raise awareness of the risks of tobacco use is by printing warning labels on the packages themselves. These labels deliver clear health warnings to both tobacco users and non-users who come into contact with the packs. Legislation should require that the text and visuals on pack warning labels be readable and clear, and ideally, they should cover at least half of the main pack display areas. Additionally, to further draw the public's attention, particular health impacts and diseases brought on by tobacco use should be included on warning labels, which should be changed on a regular basis. Warnings through pictures are effective for all smokers and are particularly important for persons who cannot read.

Intervention 2. Implement counter-advertising

Government and civil society groups, especially NGOs, must collaborate together to coordinate public education campaigns and action campaigns against tobacco consumption. The same level of clarity and persuasiveness should be used to the presentation of information concerning the health dangers of tobacco smoking as is used in tobacco industry marketing and advertising. To modify or design and put materials that can

compete for the public's attention with intensive, ubiquitous, and significantly better financed tobacco industry ads, it is vital to engage the services of professional advertising companies. Adult smokers who are exposed to anti-tobacco advertisements are more likely to give up smoking, and young teenagers who are exposed to effective television anti-tobacco messages are likely to become established smokers.

Intervention 3. Obtain free media coverage of anti-tobacco activities

In addition to paid advertising, anti-tobacco educational programs can reach the media through public relations programs that support television and radio coverage, stories in print, broadcast, and internet media, letters to the editor, and opinion pieces. This procedure, also known as "earned media," may be a very efficient and affordable means to teach the public about the dangers of tobacco use, raise awareness of tobacco control programs, and dispel false information spread by the tobacco industry. Any time there is a change in tobacco control, such as when legislation is presented or approved or new research findings are published, press releases outlining anti-tobacco policy stances should be made.

2.6.2.5. Enforce bans on tobacco advertising, promotion, and sponsorship

Objective: Absence of all tobacco-related sponsorship, marketing, and advertising.

Partially banning advertising has little to no impact on the prevalence of smoking. A thorough prohibition on all forms of tobacco product marketing is essential for tobacco control since the tobacco industry spends tens of billions of dollars annually on sponsorship, advertising, and promotion. Comprehensive restrictions on sponsorship, promotion, and advertising are quite successful in lowering smoking rates among people of all socioeconomic backgrounds.

2.6.2.6. Raise taxes on tobacco

Objective: gradually less affordable tobacco product.

The best strategy to reduce smoking is to raise the cost of tobacco and tobacco products through tax hikes. Higher cigarette prices discourage smokers from starting new smokes and encourage those who do to smoke less frequently. According to estimates, consumption declines by roughly 4% in high-income nations and by about 8% in low- and middle-income countries with every 10% increase in retail prices. These rates are lowered by

roughly half, with variances due to differences in income, age, and other demographic characteristics. cigarette use among youths and the impoverished can be prevented or reduced most effectively by raising cigarette taxes. Due to their greater economic sensitivity to increasing cigarette pricing, young individuals and low-income smokers are two to three times more likely to stop smoking or reduce their smoking after price rises than other smokers.

3. METHODOLOGY

3.1. Study Design

This is a questionnaire based cross-sectional study design. The cross-sectional research design is used because of the nature of data collection will conduct at one point in time design to determine the prevalence of tobacco use among last year school's students in Mogadishu, Somalia. In this study, literature was reviewed, the importance of the research, purpose and limitations were determined. Then, the data collection method was determined, the data collection tool was prepared, sample was determined, and questionnaires were applied, and the data was filled in SPSS (Statistical Packages for the Social Sciences) package program. Necessary analyzes were carried out, research findings were presented and evaluated using it as the final stage of the thesis work.

3.2. Study Population and Sampling Procedure

The final-year students from five specifically chosen schools in Mogadishu, the capital of Somalia, will be the focus of this study.

In order to create a nationally representative sample of schools in Mogadishu, Somalia, a multi-stage cluster sampling approach was applied. In the first stage, we formed a sample frame consisting of all school districts where students are clustered in districts then we randomly selected a small number of school districts. In the second stage we selected schools randomly from the districts that had been previously determined. At the third stage, Last year classes were selected from the pre-selected schools. Furthermore, no other sample groups were selected, so instead, the research tried to contact every student who attends the schools that were selected. The chosen schools are: Abuu Xaniifa, Al Fajri, Dhame Yasiin Cartan, Imam Shaafici, and Axmed Gurey.

3.3. Inclusion criteria of the study

All of the last year high school students that study the five selected schools of Axmed Gurey, Imam Shaafici, Al fajri, Dhame Yasiin Cartan and Abuu Xaniifa, who signed a consent form to

be part of the study are included in the study.

3.4. Exclusion criteria

All of the students who go to the above five mentioned schools who did not sign the voluntary consent form and those who were absent at the time of study were excluded from the study.

3.5. Study Variables

- Dependent Variables of the Study: perception, attitude, and behaviors of students towards tobacco use and exposure to second-hand smoke.
- Independent Variables of the Study**:** sociodemographic variables like age, gender, marital status, and use of tobacco and tobacco products.

3.6. Data Collection Tools and Techniques

The data have been collected using a modified version of the Global Youth Tobacco Survey (GYTS) questionnaire. The questionnaire was evaluated among students in a pilot study after being translated into the regional Somali language. After the pretest, a few minor wording changes were made to the original questionnaire. The self-administered questionnaire asked about demographic information (age, sex, marital status, and income levels), tobacco use tendencies (type, frequency, age of starting point, and duration), perceptions of the negative consequences of tobacco use on health, and attitudes towards quitting. Personnel private information such as name, surname, phone number, address, etc. were not included in the study, and it was assessed in a blind way.

3.7. Measurement

For determining the prevalence of tobacco use, we used the standard GYTS. Three questions yielded two measures of tobacco use for our measurements: ever smoker and present smoker. A smoker is someone who currently uses one or more tobacco products (such as cigarettes or water pipes). In the 30 days before to the poll, those who were currently smoking comprised those who smoked daily, nondaily, and sometimes. A person is considered an ever smoker if they have ever smoked at least one tobacco product (such as cigarettes or water pipes). We also inquired about the participants' usage of khat, both presently and in the past.

3.7. Data Analysis

The questionnaire's quantitative raw data was cleaned, arranged, and coded. Using the statistical package for social sciences (SPSS) software programme, the coded data was entered into the computer, verified, and statistically analysed to create descriptive and inferential statistics. For categorical variables, including cross tabulations, descriptive statistics comprised simple tabulation, frequencies, and proportions. The chi-square test was used to determine the significance of proportional difference. Tables and charts are used to display the results. After analysis and interpretation, a conclusion and suggestions were made. Bivariate analysis between dependent and independent variables will conducted to assess for possible associations with corresponding confidence intervals and p-values calculated at 95% confidence level, P-values < 0.05 will be considered statistically significant.

3.8. Ethical Consideration

This study was carried out in compliance with the constitutional framework of the government of Somalia. The ethical clearance for conducting this study was submitted to the Somalia's Ministry of Health's Reseach and Ethical Committee and approval was obtained (8 February 2022 appemdix x). Also necessary permission for the study was obtaianed from Banadir Regional Education Directorate to conduct the study in the schools(2 March 2022 appendix x).

A written consent form has been read, understood, and signed by each participant in this study. In the consent form, students were informed their rights to refuse to participate, skip any question they don't want to answer and/or terminate participation in the study any time. The participants were assured of the confidentiality of their information and all benefits involved in the study were elaborated to the participants. Participation was totally voluntary.

3.9. Limitations of the study

Considering the methodology applied, this study has several drawbacks. First, self-administered questionnaires were used to gather the data although this method cuts down on the time and effort needed to collect the data, there is a larger risk of data missing or being biased as a result of misunderstood questions. To reduce the likelihood of this taking

place, data collection was carried out in the presence of the principal investigator, and a brief explanation of the research as a whole and especially the questionnaire questions was made right before the data collection. At the conclusion of data collection, a quick review of the questionnaire was done for each student to check for any missing data. The student was required to fill in any gaps in the data if there were any. Second, the sole factor used to categorize individuals as smokers or non-smokers was their smoking history. No other factor was used. As a result, there is a potential that recollection bias will lead to participant misclassification. Additionally, the study involved last year high students of few schools in Mogadishu, because of this, the results cannot be generalized to all students or persons of the same age bracket throughout the whole nation. However we do think that the figures provide a decent indication of how common smoking is among last year high school students, at least in Mogadishu city.

3.10. Dissemination plan

This thesis will be submitted to Yeditepe University's institute of public health as an obligatory requirement for the master's degree. The findings of the study will also be provided to the government of Somalia, who will be able to use it as a helpful framework for additional studies on the prevalence of tobacco use among Somali students, as well as for planning interventions and health policies aimed at reducing tobacco use and assessing the effectiveness of current tobacco cessation programs.

4. RESULTS

4.1. Information on study participation

42.2% (n: 363) of the 709 students determined as the study sample has joined. 54% (n: 187) of the 346 students who did not join refused to participate the study due to culture sensitivity, 28.3% (n:98) were ignorant of health research, 12.7%(n:44) were not at the school at the time of data collection, and 5%(n:17) did not participate due to poor timing. Status of participation in the study and the reason for non-participation is distributed in the below figure 1.and figure 2.

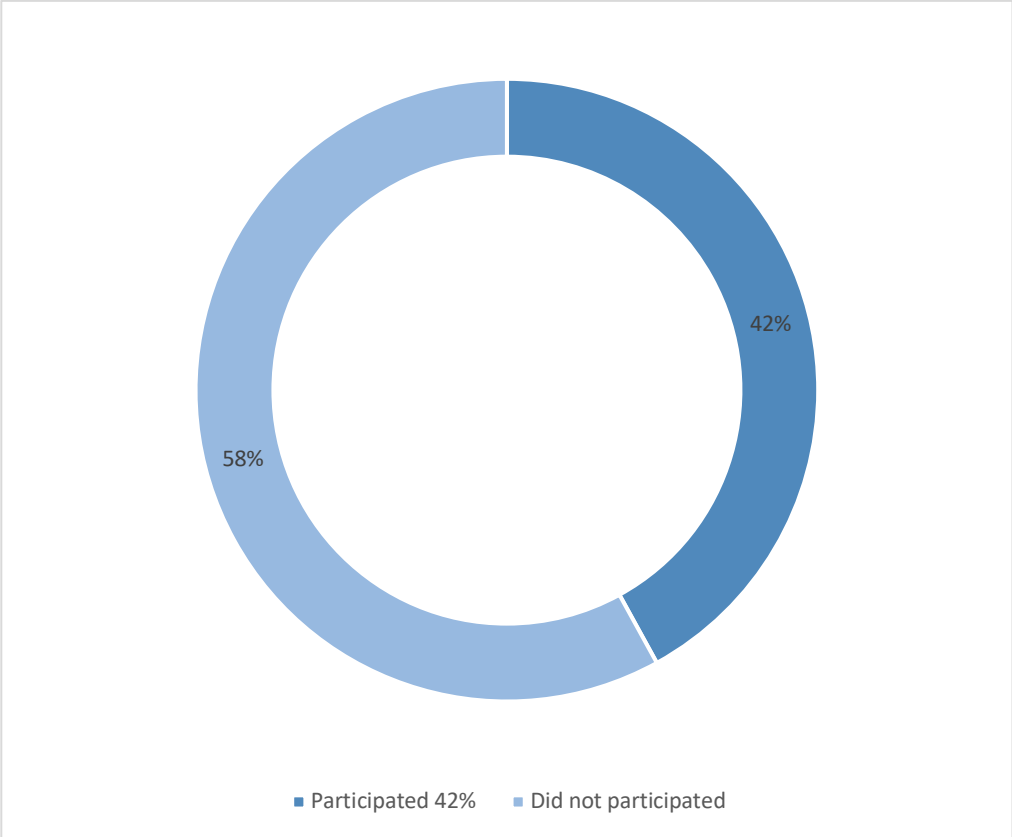

Figure 1 Status of Participation

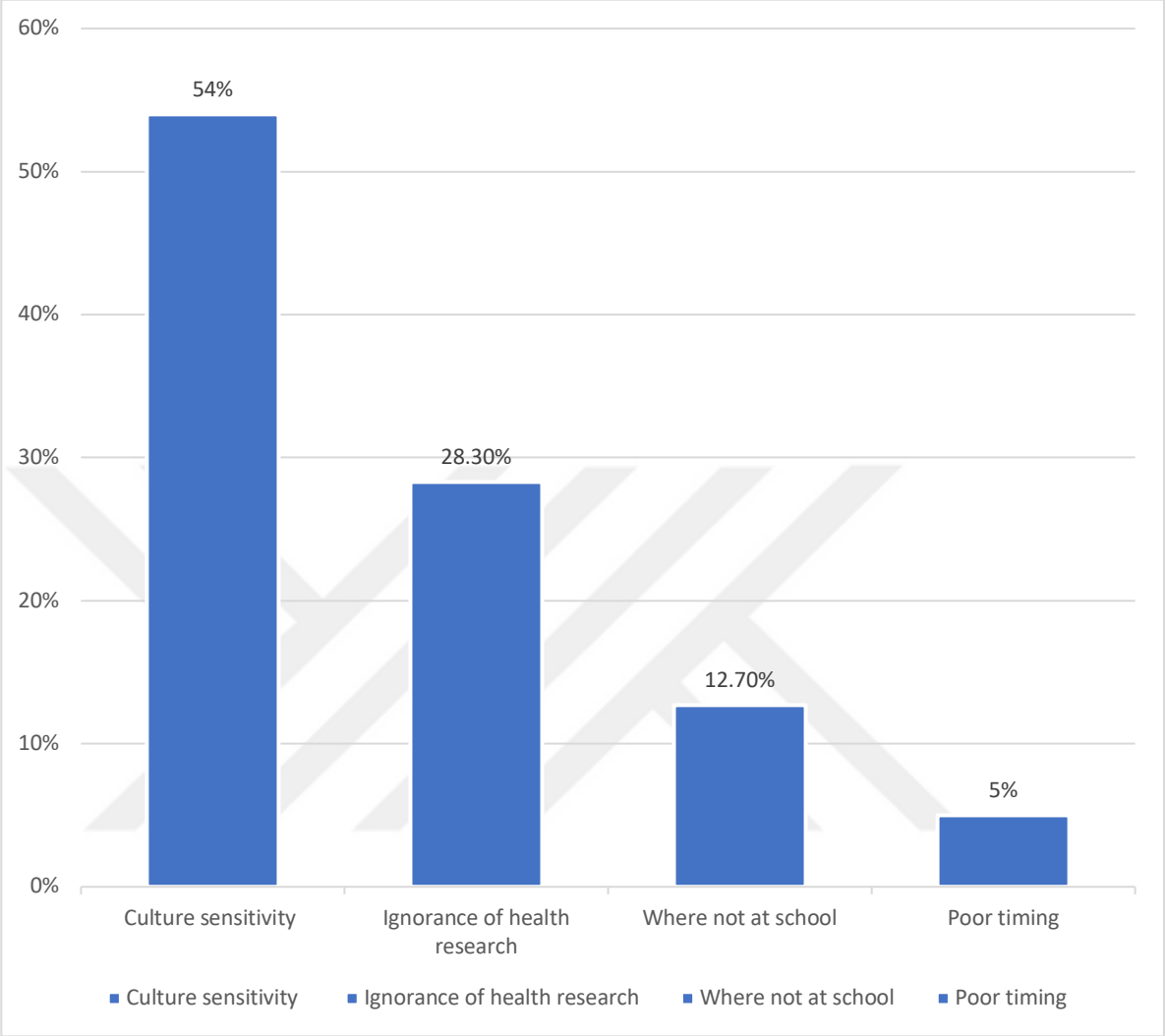

Figure 2 Reason of non-participation

4.2. Sociodemographic characteristics and related findings of the students

According to the findings of the study, 51.2 % of the students are the age of 19 and older, 6.3%of them are married, 55.4% are male and 44.6% are female. The income of 50.1% is between 125,00-25,000 Somali shillings when 5.5% of the students receive no income that they can spend on themselves during the week. (Table 1.)

Table 1 Sociodemographic characteristics and the related findings.

Demographic characteristics		**N**	**%**
What is your sex/gender?	Male	201	55.4%
	Female	162	44.6%
How old are you?	18 and younger	177	48.8%
	19 and older	186	51.2%
What is your current marital status?	Single	340	93.7%
	Married	23	6.3%
During an average week, how much money do you have that you can spend on yourself?	No income	20	5.5%
	Less than 125,000 SOS	98	27.0%
	125,000 -250,000 SOS	182	50.1%
	More than 250,000 SOS	63	17.4%

4.3 Results of students' cigarette use information

As in table.2, the first question asked to the students was if they ever smoked cigarette or not, 27.3% of the students answered that they experimented with cigarette smoking, 58.5% percent of them who smoked cigarette mentioned that they started at the age between 16 and 17, and among those 27.3% students who tried cigarettes, 78.8% gave up smoking while 21.2% are current cigarette smokers. 71.4% of current smoker students smoked less than 10days in the past 30 days and when asked how they got them, 81% mentioned that they bought it from the shop (Table 2).

Table 2 Findings of Students' cigarette use information

		N	%
Have you ever tried cigarette smoking, even one or two puffs?	yes	99	27.3%
	no	264	72.7%
How old were you when you first tried a cigarette?	I never smoked	264	72.7%
	15 and younger	26	7.2%
	16-17 years old	58	16.0%
	18 and older	15	4.1%
What is your current smoking status?	I never smoked	264	72.7%
	I gave up smoking	78	21.5%
	İ am a current smoker	21	5.8%
Thinking of the past 30days, how many days did you smoke cigarette?	I did not smoke	342	94.2%
	Less than 10 days	15	4.1%
	More than 10 days	6	1.7%
Thinking of the past 30 days, how many cigarettes did you usually smoke per day?	I did not smoke	342	94.2%
	Less than 5 cigarettes	18	5.0%
	6-10 cigarettes	2	0.6%
	More than 10 cigarettes	1	0.3%
The last time you smoked cigarettes during the past 30 days, how did you get them?	Did not smoke any cigarettes during the past 30 days	342	89.5%
	I bought them in a store or shop	17	9.4%
	I got them from someone else	4	1.1%

4.4 Results of students' shisha use information

When examined, 45.5% of the students participating in the study smoked shisha once in their life, 49% of them started smoking shisha at the age between 16-17 years, 55.7% of those who tried shisha are still smoking shisha and only 7.6% of the current shisha smoker smoked shisha for a frequency of more than 10 days in the past 30 days and home was the most common place students smoked shisha in those past 30 days. (Table 3)

Table 3 Findings of Students' Shisha use information

		N	%
Have you ever tried or experimented with shisha smoking, even one or two puffs?	yes	165	45.5%
	No	198	54.5%
How old were you when you first tried shisha?	I never tried shisha	198	54.5%
	15 years and younger	28	7.7%
	16-17 years	81	22.3%
	18 years and older	56	15.4%
What is your current shisha smoking status?	I never smoked shisha	198	54.5%
	I gave up smoking shisha	73	20.1%
	I am a current shisha smoker	92	25.3%
During the last 30 days, on how many days did you smoke shisha?	I did not smoke	271	74.7%
	Less than 10 days	85	23.4%
	More than 10 days	7	1.9%
The last time you smoked shisha during the past 30 days, where did you smoke it?	I did not smoke shisha during the past 30 days	271	74.7%
	At home	59	16.3%
	At a coffee shop	25	6.9%
	At a restaurant	8	2.2%

4.5 Student's Khat use information

20 of the participants stated that they tried Khat in their life. Of those twenty participants only 2 are current khat users. Most of the participants who tried using khat; (n=16) tried at age 18 and younger. (Table 4).

Table 4 Students' Khat use information

		N	%
In your lifetime, have you ever tried using khat?	Yes, I tried using khat	20	5.5%
	No, I have not tried using khat	343	94.5%
How old were you when you first tried Khat?	I have never tried Khat	343	94.5%
	Younger than 18 years	14	3.9%
	Older than 18 years	6	1.7%
Do you currently use khat?	No, I never used khat	343	94.5%
	No, I gave up using khat	18	5.0%
	Yes, I use khat	2	0.6%

4.6 Attitude toward future tobacco use.

To assess the attitude towards future tobacco use questions like; if one of your best friends offers you a tobacco product, would you use it? at any time during the next 12 months do you think you will use any form of tobacco? And the given answers are distributed in the below figure 3 and figure 4 respectively.

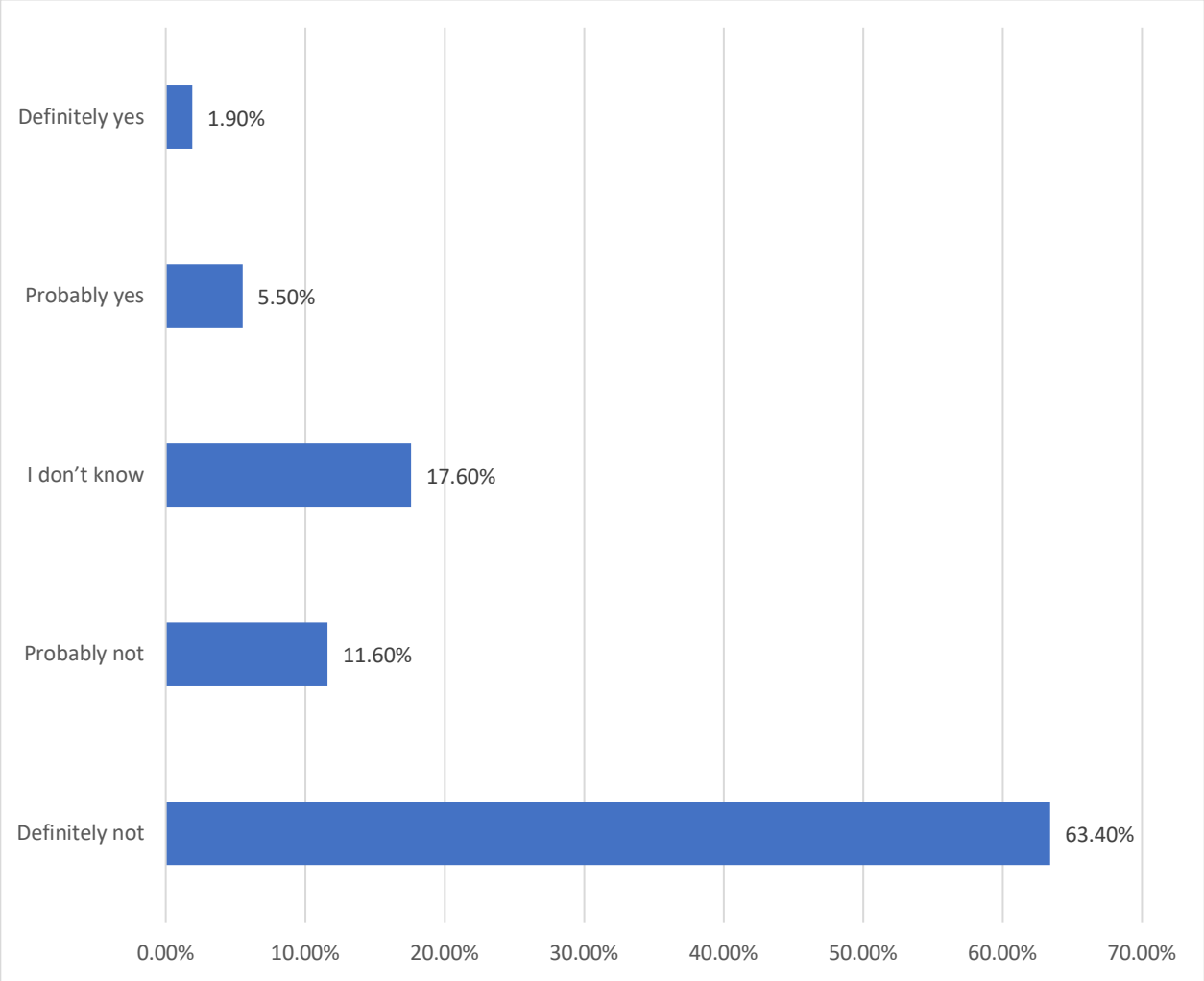

Figure 3 Attitude of tobacco use in the future

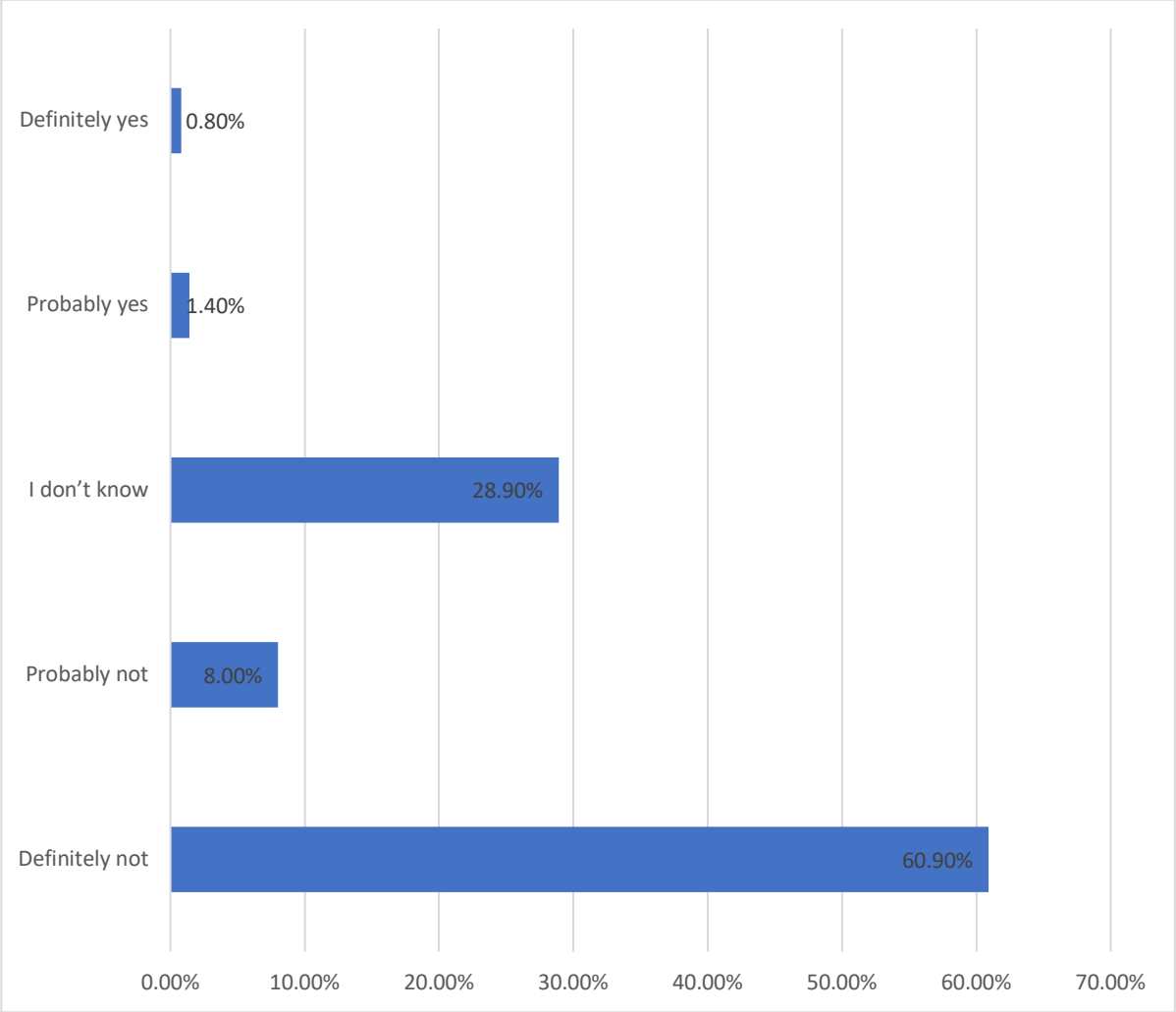

Figure 4 Attitude of tobacco use in the next 12 months

4.7 Exposure to passive/second-hand smoke.

Data on environmental tobacco smoke exposure are presented in table 5. The frequency of those who stated that they exposed to tobacco at home was 28.6% (n=104); 26% (n=96) at school in the last thirty days; exposure to tobacco smoke was reported with frequency of 37.2%(n=135) in closed public areas such as shops, restaurants, cinemas, and shopping malls in the last seven days. (Table 5).

Table 5 Exposure to passive/second-hand smoke.

		N	%
Considering your family, how often do you see any family member smoking at home?	I see them about everyday	24	6.6%
	I see them Sometimes	80	22.0%
	I Never see them	259	71.3%
During the past 7 days, on how many days has anyone smoked in your present, inside any enclosed public places, other than your home?	0 days	228	62.8%
	1 to 2 days	78	21.5%
	3 to 4 days	41	11.3%
	5 to 6 days	6	1.7%
	7 days	10	2.8%
During the past 30 days, did you see anyone smoke inside the school building or outside on school property?	Yes, inside the school building on school property	10	2.8%
	Yes, outside the school building on school property	67	18.5%
	Both	19	5.2%
	No	267	73.6%

4.8 Believe of passive smoke harms.

32.8% (n=119) of the students stated that shisha is not harmful, 35.3% (n= 128) believe that shisha is harmful. However, 32.0% (n=116) were found that they don't know if shisha Is harmful or harmless. Results are distributed in Figure 5.

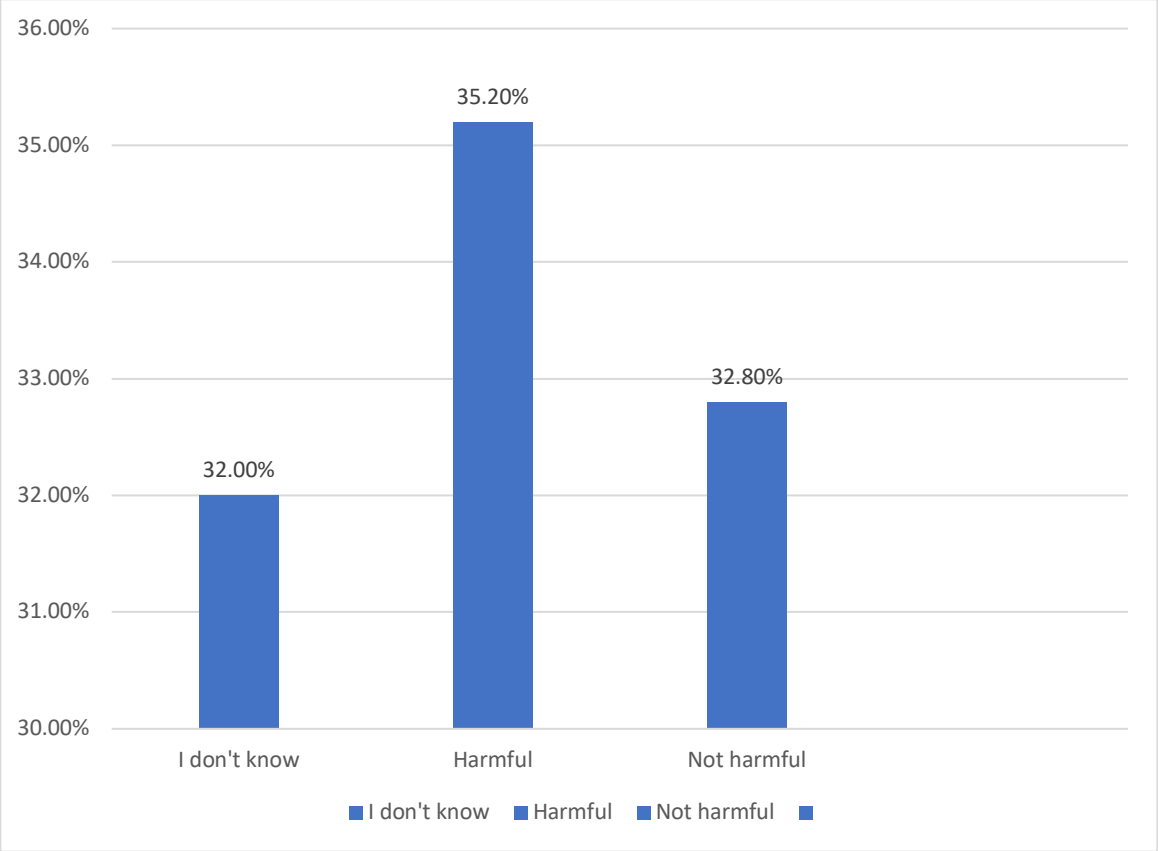

Figure 5 Believe of passive smoke

4.9 Comfortability of tobacco use in social gatherings.

While almost 50% of participants think that smoking tobacco makes people feel less comfortable, 20% think that it makes them feel comfortable; and 30% chose the option no difference. The result is distributed in the figure 6.

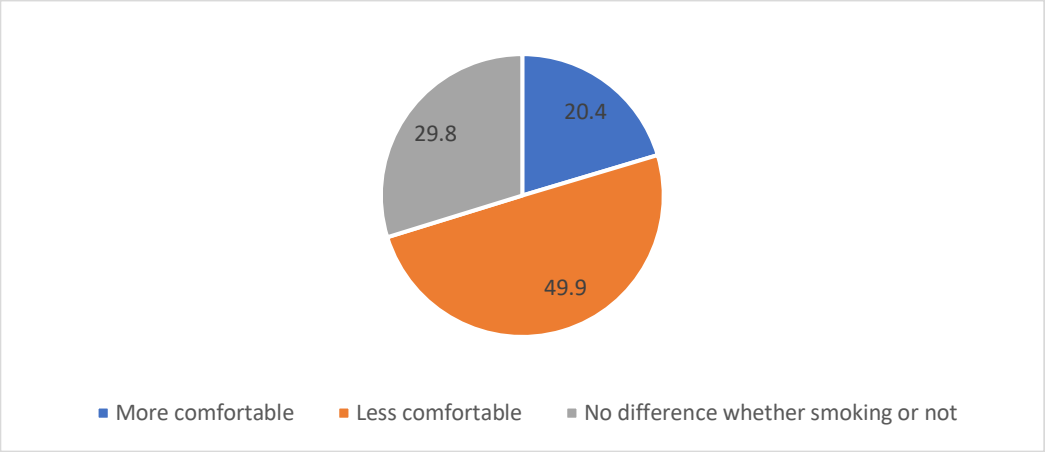

Figure 6 Comfortability of tobacco use in social gatherings.

4.10 Perception of Tobacco Addiction

To assess the knowledge of participants about tobacco addiction, a question; Once someone has started smoking tobacco, do you think it would be difficult for them to quit? were asked and the answers is the distributed in the figure7 below.

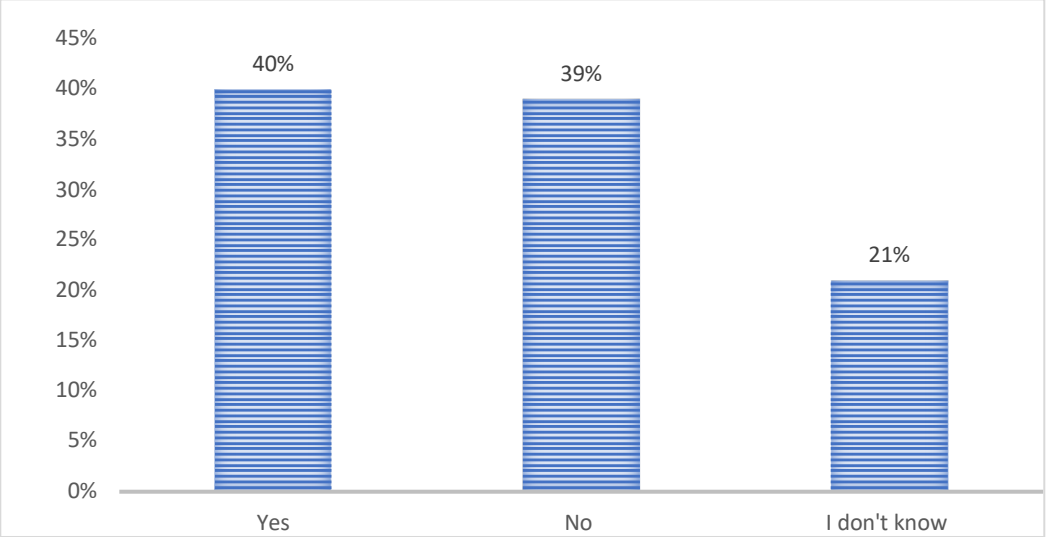

Figure 7 Perception of Tobacco Addiction

4.11 Receivers of help to quit tobacco use.

Only 4% of the participants stated that they never received help to quit tobacco use and 96% of the participants said they received help. Of those received help, 51% received the help from their family; 39% from friends and only 10% from a professional/program as distributed in figure 8 and Figure 9 respectively.

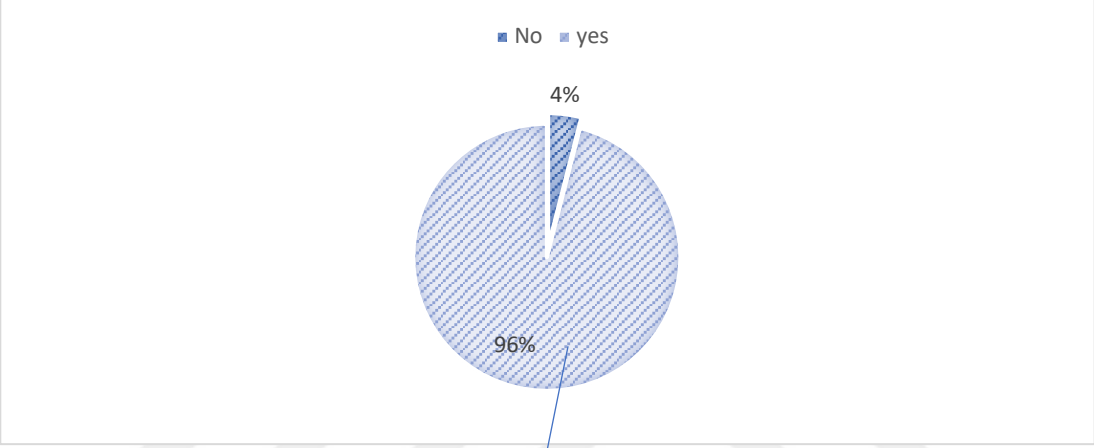

Figure 8 Answers of students ever received help to quit

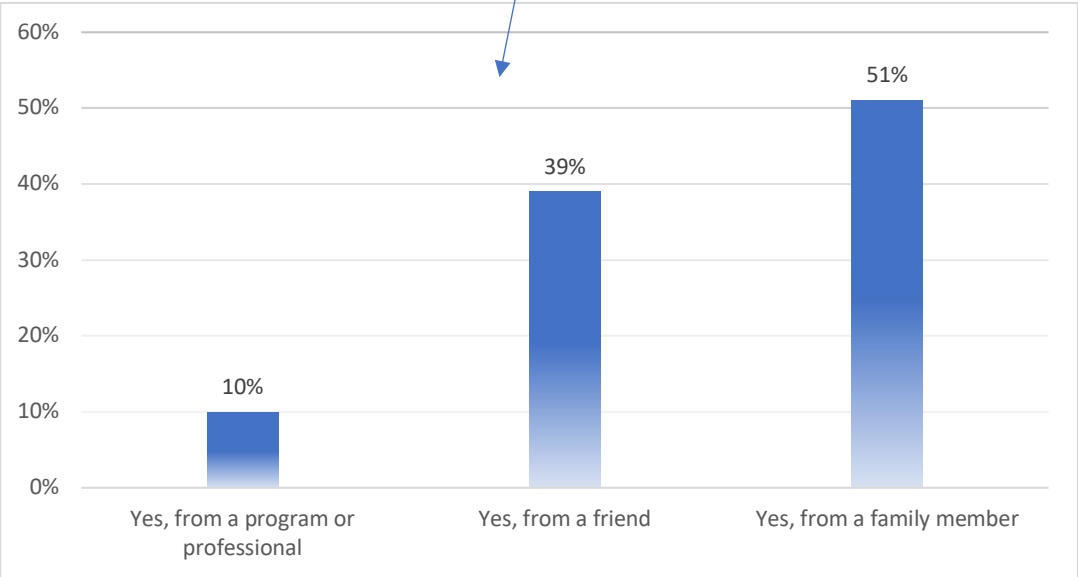

Figure 9 Answers of help receivers from where they received help

4.12 Attitude towards quitting tobacco.

Information about whether tobacco users are considering quitting it or not is showing in figure 10, and data on whether they have tried to quit in the past 12 months is shown in figure11. 4% (n=4) of tobacco users never thought of quitting tobacco use, and 56% (n=54) never tried to quit tobacco use. The date results are distributed in below figure 10 and figure 11.

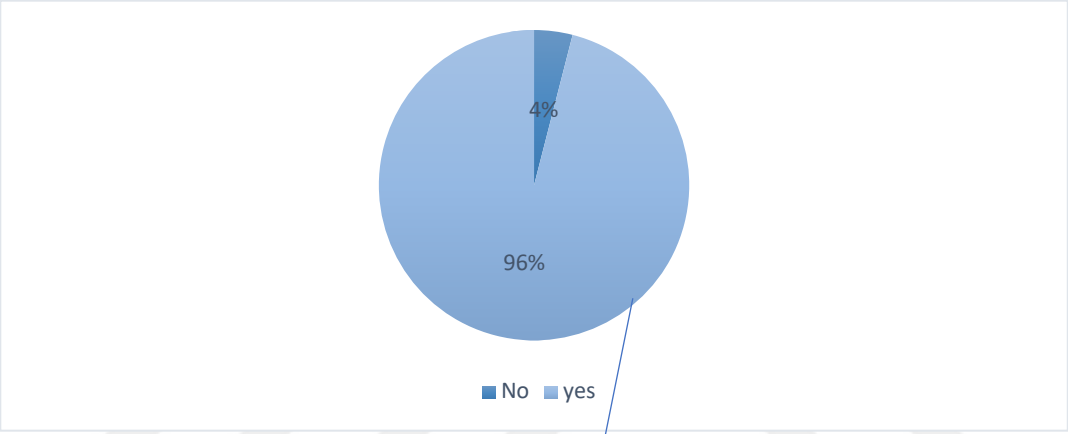

Figure 10 Attitude towards quitting tobacco use.

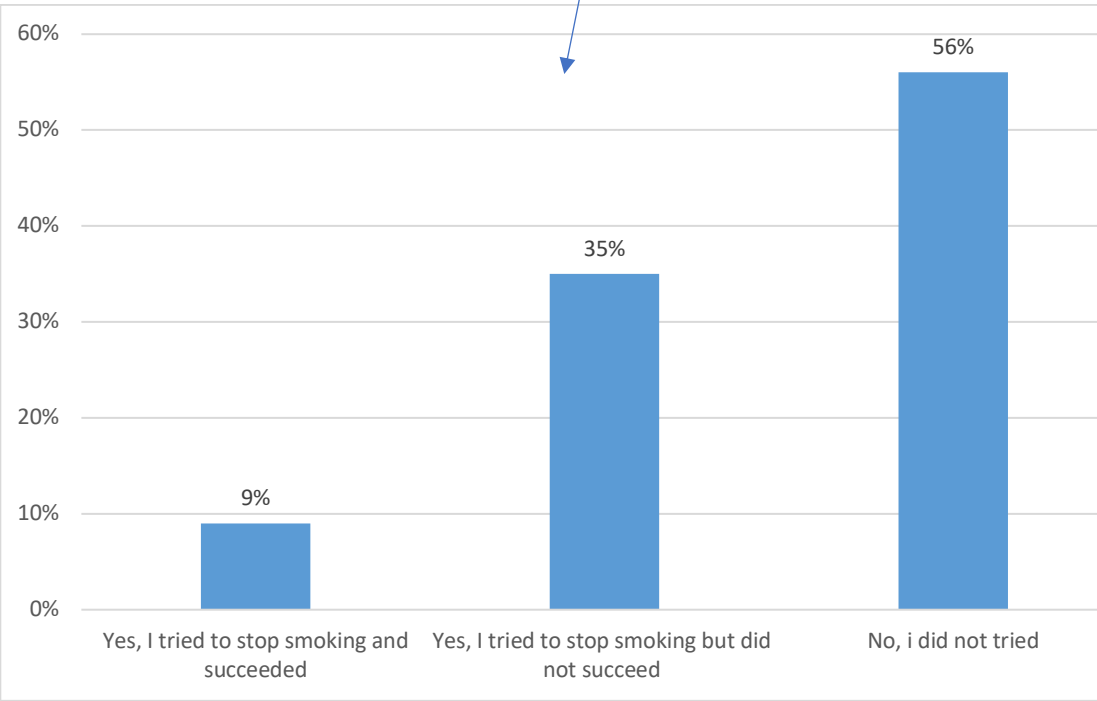

Figure 11 Answer of students who tried to quit tobacco use

4.13 Students' Attitude towards tobacco barns in Indoor and outdoor places.

To evaluate the attitude of participants towards tobacco barn in both indoor and outdoor places, questions were asked, and 81% answered that they are in favor of banning tobacco smoking inside enclosed public places such as shops, restaurants, and shopping mall; and 80% are in favors of banning tobacco smoking at outdoor public places such as playgrounds, sidewalks, and beaches. (Table 6).

Table 6 Students' Attitude towards tobacco barns in Indoor and outdoor places.

		N	%
Are you in favor of banning smoking inside enclosed public places (such as: schools, shops, restaurants, shopping malls?	Definitely not	2	0.6%
	Probably not	7	1.9%
	I don't know	60	16.5%
	Probably yes	63	17.4%
	Definitely yes	231	63.6%
Are you in favor of banning smoking at outdoor public places (such as: playgrounds, sidewalks, entrances to buildings, parks, beaches)?	Definitely not	4	1.1%
	Probably not	7	1.9%
	I don't know	60	16.5%
	Probably yes	64	17.6%
	Definitely yes	228	62.8%

4.14 Sociodemographic in relation to current cigarette smoking status

When smoking and demographics were compared, there was significant association between smoking status, gender, age, marital status, and weekly income. [p<0.05]. (Table 7).

Table 7 Sociodemographic in relation to current cigarette smoking status.

Variables		What is your current smoking status? İ never smoked	İ gave up smoking	İ am a current smoker	Total	Statistics
Gender	Male	127 63%	54 27%	20 10%	201	
	Female	138 85.2%	23 14.2%	1 0.6%	162	**p-Value**
	Total	265 73.0%	77 21.2%	21 5.8%	363	**.000**
Age	18 and younger	138 78.0%	34 19.2%	5 2.8%	177	
	19 and older	127 68.3%	43 23.1%	16 8.6%	186	**p-Value**
	Total	265 73.0%	77 21.2%	21 5.8%	363	**.029**
Marital status	Single	253 74.4%	70 20.6%	17 5.0%	340	
	Married	12 52.2%	7 30.4%	4 17.4%	23	**p-Value**
	Total	265 73.0%	77 21.2%	21 5.8%	363	**.017**
Weekly income	No income	16 76.2%	5 23.8%	0 0%	21	
	less than 125,000 SOS	215 77.1%	53 19.0%	11 3.9%	279	**p-Value**
	More than 125,000 SOS	34 54.0%	19 30.2%	10 15.9%	63	**.000**
	Total	265 73.0%	77 21.2%	21 5.8%	363	

4.15 Sociodemographic characteristics in relation to shisha smoking status

When shisha smoking and demographics were compared, there was significant association between shisha smoking status, gender, age, marital status, and weekly income. [p<0.05]. (Table 8).

Table 8 Sociodemographic characteristics in relation to shisha smoking status

Variables		What is your current smoking status? I never smoked		I gave up smoking		I am a current smoker		Total	Statistics
Gender	Male	98	47.8%	42	20.9%	63	31.3%	201	
	Female	102	63.0%	31	19.1%	29	17.9%	162	**p-Value**
	Total	198	54.5%	73	20.1%	92	25.3%	363	**.006**
Age	18 and younger	107	60.5%	39	22.0%	31	17.5%	177	
	19 and older	91	48.9%	34	18.3%	61	32.8%	186	**p-Value .004**
	Total	198	54.5%	73	20.1%	92	25.3%	363	
Marital status	Single	190	55.9%	71	20.9%	79	23.2%	340	
	Married	8	34.8%	2	8.7%	13	56.5%	23	**p-Value**
	Total	198	54.5%	73	20.1%	92	25.3%	363	**.002**
Weekly income	No income	14	66.7%	5	23.8%	2	9.5%	21	
	less than 125,000 SOS	156	55.9%	58	20.8%	65	23.3%	279	**p-Value**
	More than 125,000 SOS	28	44.4%	10	15.9%	25	39.7%	63	**.036**
	Total	98	54.5%	73	20.1%	92	25.3%	363	

4.16 Exposure to passive smoke and current cigarette smoking status

The relationship between cigarette smoking and passive smoking and environmental tobacco smoke exposure is given in table 10. It was observed that the participants who smoked were more exposed to tobacco use at home [p<0.001], at indoors [p<0.001], and at school [p<0.001].

Table 9 Exposure to passive smoke and current cigarette smoking status

Variables		Current cigarette smoking status				
		İ never smoked	İ gave up smoking	İ am a current smoker	Total	
family member smoking at home	İ see them about everyday	9	8	7	24	p-value= 0.000
	İ see them Sometimes	53	21	6	80	
	İ Never see them	203	48	8	259	
Total		265	77	21	363	
						p-value= 0.000
Past 7 days exposure.	0 days	193	33	2	228	
	1 to 2 days	45	26	7	78	
	3 to 4 days	24	10	7	41	
	5 to 6 days	1	4	1	6	
	7 days	2	4	4	10	
Total		265	77	21	363	
Past 30 days, exposure inside/ outside the school building on school property?	Yes, inside the school building	7	3	0	10	p-value= 0.000
	Yes, outside the school building	39	19	9	67	
	Both	8	5	6	19	
	No	211	50	6	267	
Total		265	77	21	363	

4.17 Exposure to passive smoke and current shisha smoking status.

The relationship between shisha smoking and passive smoking and environmental tobacco smoke exposure is given in. table 11). It was also observed that the participants who smoked were more exposed to tobacco use at home [p=0.001], at indoors [p<0.001], and at school [p<0.001].

Table 10 Exposure to passive smoke and current shisha smoking status.

Variables		What is your current shisha smoking status?			Total	
		I never smoked shisha	I gave up smoking shisha	I am a current shisha smoker		
Family member smoking at home	İ see them about everyday	8	4	12	24	p-value= 0.001
	İ see them Sometimes	33	18	29	80	
	İ Never see them	157	51	51	259	
Total		198	73	92	363	
Past 7 days, exposure inside any enclosed public places.	0 days	158	51	19	228	p-value= <0.001
	1 to 2 days	28	15	35	78	
	3 to 4 days	9	5	27	41	
	5 to 6 days	1	0	5	6	
	7 days	2	2	6	10	
Total		198	73	92	363	
Past 30 days, exposure inside/ outside the school building on school property.	Yes, inside the school	2	4	4	10	p-value= <0.001
	Yes, outside the school	23	14	30	67	
	Both	4	4	11	19	
	No	169	51	47	267	
Total		198	73	92	363	

5. DISCUSSIONN

Today, public health experts describe tobacco use as an epidemic that its harms are agreed to threaten the public health. Tobacco products, which are preventable public health problem, cause unavoidable and irreversible diseases and death and is one of the most important factors that shorten life expectancy by up to ten years (69). This research was conducted by reaching 42% (n=363) of 860 students who study in the last year classes of five selected high schools in Mogadishu, Somalia and their tobacco use prevalence was evaluated and data was compared with studies done in Somalia and in neighboring countries and to the world.

55% (n=201) of the study participants are male and 45% (n=162) are female. More than half of the students (51%, n=186) declared they were at least 19 years old, which implies that they are a little older than the global average for high school age (70,71), and this is demonstrating that Somalia has no law governing school administration by age. The majority of students, 93.7% (n=340), are single, while 6% (n=23) of the participants are married, which explains the cultural belief that a person reaches adulthood when they hit puberty and that the family can marry off their children as soon as they reach puberty, even if they are just as young as ten years old (72). (Table 1). In this study, 27.3% of the participants stated that they smoked cigarette at least once in their life and this is in line with other studies conducted at Kenya (21.2%) (73) and eastern Ethiopia (21.1%) (74). In this study 5.8% of the ever cigarette smokers stated they are current cigarette smokers, and this matches exactly with a study done in northern Somalia (5.8%) (75). In study conducted in Djibouti found that 7.0% (76) of high school students smoked cigarette in the year 2009, 7.7% in Turkey (77), and prevalence of cigarette smoking in Kenya was found to be 8.2%. Around the world, smoking shisha has grown in popularity among young adults and college students. This is attributed to decreased cigarette smoking caused by the growing exposure and popularity of shisha cafés near educational institutions as well as the availability of shisha and shisha pens (78). In this study the rate of ever shisha smoker was found to be 45.5 % and 68.5% being a male gender. In a study conducted at eastern Ethiopia in the year 2020, the rate of ever shisha smokers were found to be 37.9%.

When compared the shisha and cigarette smoking with gender, the rate of women using tobacco was found to be statistically significantly lower. The rate of cigarette and shisha smoking for women is 4.8%and 31.5% and for men is 98.2% and 31.5% respectively.

In a study conducted at a secondary school in Khartoum-Sudan with 3387 participants (79), women's shisha/cigarette smoking rate were found to be significantly lower. The GYTS, the smoking rate was 47.9% for men and 15.2% for women.
This study highlights the need for an all-encompassing strategy to combat teenage addictive product use, which includes cigarettes, khat, and shisha. In contrast to a research carried out in eastern Ethiopia (47.8%), 5.5% of this study's participants said they had ever consumed khat and only 0.6% of the ever consumers are now chewing khat.

In this study when assessed the rate of exposure at home it was discovered that 28.6% of the participants live in a home where others smoke in their presence, and this finding aligns with other research undertaken in northern Somalia (29.1%), Djibouti (36.0%), and Kenya (24.7%). In the last seven days, 37.2% of participants were exposed to cigarette smoke outside of their homes and 26.4%at school. According to studies conducted in northern Somalia it was found that 48.7% of high school students were around people who smoke in places outside their home, Djibouti 44.7%, Kenya 48.2%, and Turkey 51.8%.
According to the study, 35.3% of the students who took part in it were unaware of the potential dangers of secondhand smoke exposure. 35.3% of the participants believe that being exposed to secondhand smoke is hazardous to their health and this result complied with research carried out in northern Somalia (36.7%) and Djibouti (44%). However in comparison to Kenya's (68.3%) and Turkey's (79.5%) results, the current study's outcome is significantly lower.

In the study, the rate of the students who thought smoking tobacco helps people feel more comfortable at celebrations, parties, and social gatherings was found to be 20% and this comes in line with another study done at turkey (26.2%).

When evaluated the attitude of student participants towards tobacco barn in public places such restaurants, shopping malls, beaches, and parks, 80% of them are in favor of barning of tobacco use in public places, this study is somehow matched by studies conducted at northern Somalia (75.4%), and Djibouti 64.8%). The current study's findings are less impressive than those of investigations conducted in Turkey (91.1%). Nonetheless, it exceeds the research carried out in Kenya (52.0%).

Its noteworthy that 96% of the current tobacco user are considering quitting tobacco use and 44% made the attempt to quit tobacco use in the past year. This finding correlates with research accomplished in Turkey and Djibouti were the rate of those who attempted to quit were 56.4% and 59.0% respectively. It's also significant to emphasize that nearly all of the current tobacco users (96%) got support to stop using tobacco and this result is more outstanding than the results of those studies done in Turkey (13.6%) and Djibouti (73.2%).

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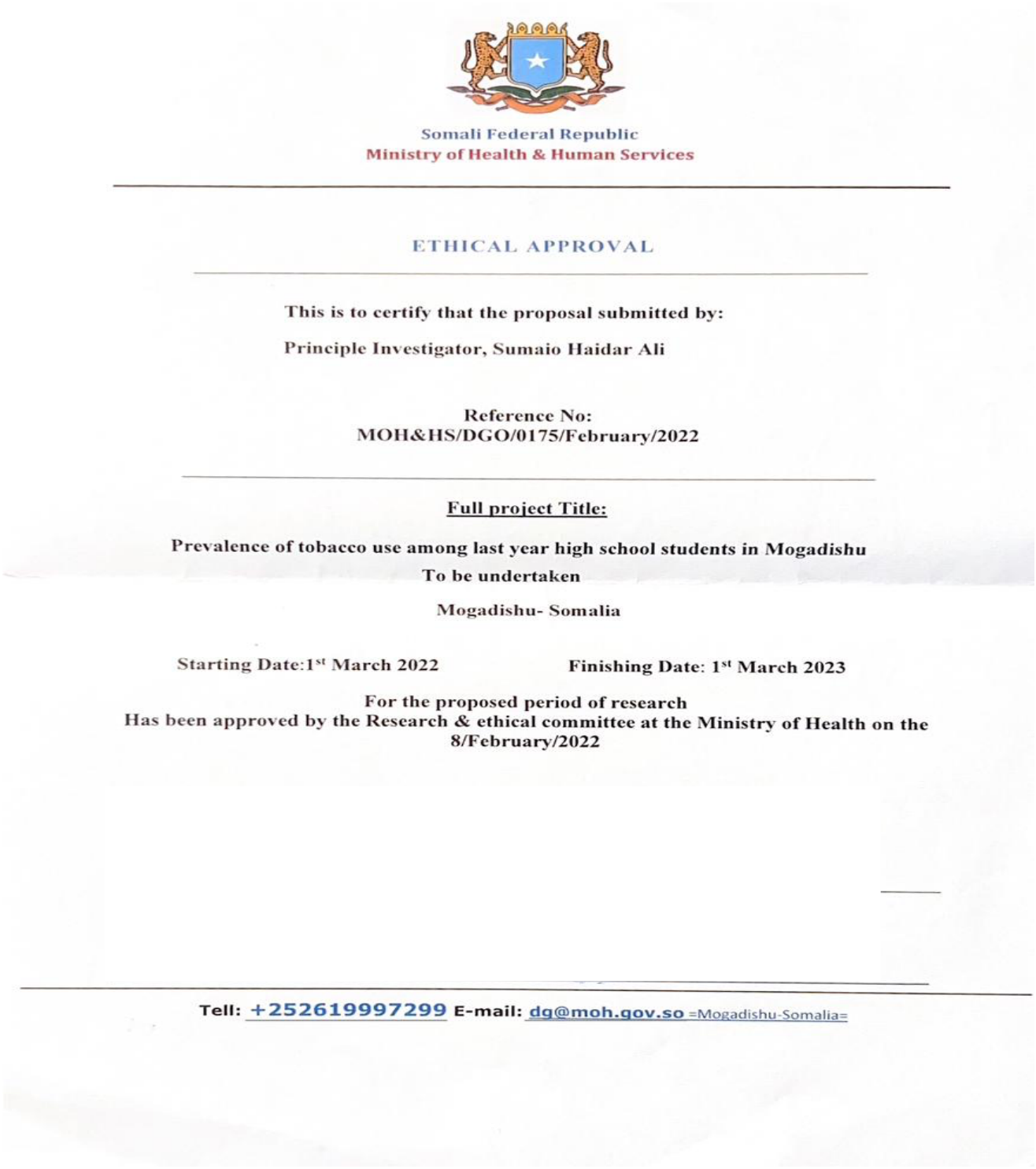
7. APPENDICES

Appendix .1 Ethical Approval



Somali Federal Republic
Ministry of Health & Human Services

ETHICAL APPROVAL

This is to certify that the proposal submitted by:

Principle Investigator, Sumaio Haidar Ali

Reference No:
MOH&HS/DGO/0175/February/2022

Full project Title:

Prevalence of tobacco use among last year high school students in Mogadishu
To be undertaken

Mogadishu- Somalia

Starting Date:1st March 2022 Finishing Date: 1st March 2023

For the proposed period of research
Has been approved by the Research & ethical committee at the Ministry of Health on the 8/February/2022

Tell: +252619997299 E-mail: dg@moh.gov.so =Mogadishu-Somalia=

Appendix .2 Approval from Educational Directorate

R.T. YEDİTEPE UNIVERSITY

DATE: 02.03.2022

TO: BANADIR REGIONAL EDUCATION DIRECTORATE

SUBJECT: REQUEST FOR PERMISSION TO COLLECT DATA ON SELECTED SCHOOLS

Dear sir/madam

My name is DR. Sumaio Haidar Ali. I am a registered master's student at Yeditepe University in Turkey. The research I wish to conduct for my master's thesis is entitled **Prevalence of tobacco use among last year high school students in Mogadishu, Somalia** and will be conducted under the supervision of Professor Dr. Recep Erol Sezer, Dean of department of Public Health, Yeditepe University, Turkey.

I am writing to request a permission to conduct a research study at the last year high school classes of the below listed schools that are under your authority, schools are:

- Axmed Gurey
- Imam Shaafici
- Al fajri
- Dhame Yasiin Cartan
- Abuu Xaniifa

To assist you in reaching a decision, I have provided you with a copy of my thesis's proposal which includes measures to be undertaken in the research process, as well as a copy of the approval letter which I received from the Research Ethics Committee of Ministry of Health Somalia.

If approval is granted, four hundred interested students, boys, girls; who volunteer to participate in the research will be requested to anonymously complete a self-administrated questionnaire (a copy enclosed). The survey results will be pooled for the thesis project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented.

For further information or concern please do not hesitate to contact me or my supervisor:

Email: Sumaiohaidar.ali@std.yeditepe.edu.tr Email: erol.sezer@yeditepe.edu.tr

If you agree, kindly sign below and return the signed form of this letter.
Alternatively, kindly submit a signed letter of permission on your ministry's letterhead acknowledging your consent and permission for me to conduct this survey/study as I will provide it to the participants.

Your assistance will be gently appreciated.

Yours faithfully,

DR. Sumaio Ali

Yeditepe University, Turkey.

Appendix .3 Consent form and Questionnaire.

Consent form and Questionnaire

Prevalence of tobacco use among last year high school students in Mogadishu, Somalia: a cross-sectional questionnaire survey'.

You are invited to participate in questionnaire based survey titled 'Prevalence of tobacco use among last year high school students in Mogadishu, Somalia: a cross-sectional questionnaire survey'. This study is being conducted by Sumaio Haidar Ali and Recep Erol Sezer (at Yeditepe University Medical Faculty, Department of Public Health) as a master of public health thesis research. It would take few minutes to complete. If you agree to participate in this study, you will be interviewed through a questionnaire. Through the questionnaire process No names will be required in any way and the information you share with us will be kept completely confidential to the fullest extent only Study findings will be presented in summary form. Please know that You have the right to skip any questions you don't want to answer and you may end the interview at any time you want. Your response will be used for research purpose, thus the sincerity of your answers are much appreciated.

Please select your choice below, ticking on " I Agree " box it indicates that you have read the above information and voluntarily agree to participate the study.

☐ **Agree**

☐ **I Disagree**

Questions about background information

Q1. Which year were you born?

Q2. What is your sex/gender?

1. Male
2. Female

Q3. What is your current marital status?

1. Single
2. Married
3. Divorced
4. Widowed

Q4. During an average week, how much money do you have that you can spend on yourself?

1. I usually don't have any spending money
2. Less than 125.000 Somali shillings
3. 125,000 -250,000 Somali shillings
4. More than 250,000 Somali shillings

Questions about use of cigarettes.

Q5. Have you ever tried or experimented with cigarette smoking, even one or two puffs?

1. Yes
2. No

Q6. How old were you when you first tried a cigarette?

Q7. What is your current smoking status?

1. I never smoked
2. I gave up smoking
3. I am a current smoker

Q8. Thinking of the past 30 days, on how many days did you smoke cigarettes?

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

Q9. Please think about the days you smoked cigarettes during the past 30 days. How many cigarettes did you usually smoke per day?

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

Q10. The last time you smoked cigarettes during the past 30 days, how did you get them?

1. I did not smoke any cigarettes during the past 30 days
2. I bought them in a store or shop
3. I bought them from a street vendor
4. I got them from someone else
5. I got them some other way. How? ----------
6.

Questions about shisha smoking.

Q11. Have you ever tried or experimented with shisha smoking, even one or two puffs?

1. Yes
2. No

Q12. How old were you when you first tried smoking shisha?

Q13. During the past 30 days, on how many days did you smoke shisha?

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

Q14. The last time you smoked shisha during the past 30 days, where did you smoke it?

1. I did not smoke shisha during the past 30 days
2. At home
3. At a coffee shop
4. At a restaurant

Questions about khat use.

Q15. In your lifetime, have you ever tried using khat?

1. Yes, I tried using khat
2. No, i have not tried using khat

Q16. How old were you when you first tried using khat?

Q17. Do you currently use khat?

1. No, I never used khat
2. No, I gave up using khat
3. Yes, I use khat

Questions about attitudes and beliefs towards using tobacco.

Q18. If one of your best friends offered you a tobacco product, would you use it?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Q19. At any time during the next 12 months do you think you will use any form of tobacco?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Q20. Once someone has started smoking tobacco, do you think it would be difficult for them to quit?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Q21. Do you think smoking tobacco makes people feel more comfortable or less comfortable at celebrations, parties, or in other social gatherings?

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

Questions about feelings toward stopping smoking (İf you are none smoker, skip the following three questions)

Q22. Do you have an intention to stop smoking?

1. No
2. Yes as soon as possible
3. Yes in six months time
4. Yes in one year time
5. Yes in the future

Q23. How confident, would you say you are that if you decided to quit smoking, you could do it? on a scale between 0 and 10 (where zero is not confident at all and ten is ompletely confident)

Q24. During the past 12 months, did you make any quit attemp to stop smoking?

1. Yes, I tried to stop smoking and succeeded in quiting
2. Yes, I tried to stop smoking but T did not succeed in quitting
3. No, i did not tried to stop smoking

Q25. Have you ever received help or advice to help you stop smoking?

1. I have never smoked
2. Yes, from a program or professional
3. Yes, from a friend
4. Yes, from a family member
5. No

Questions about your exposure to other people's smoking.

Q26. Do your parents use tobacco product in any form (cigarettes or shisha)?

1. None
2. Father only
3. Mother only
4. Both

Q27. Do you have any older siblings? If any How many sisters and brothers do you have?

1. The number of older sisters: .....
2. The number of older brothers: .....

Q28. How many of your older brothers use tobacco in any form ?

Q29. How many of your older sisters use tobacco in any form ?

Q30. Considering your family, how often do you see any family member smoking at home?

1. I see them about everyday
2. I see them Sometimes
3. I Never see them

Q31. During the past 7 days, on how many days has anyone smoked in your presence, inside any enclosed public place, other than your home (such as: shops, restaurants, shopping malls, movie theaters)?

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

Q32. During the past 30 days, did you see anyone smoke inside the school building or outside on school property?

1. Yes, inside the school building on school property
2. Yes, outside the school building on school property
3. Both
4. No

Q33. Do you think the smoke from other people's tobacco smoking is harmful to you?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Q34. Are you in favor of banning smoking inside enclosed public places (such as: schools, shops, restaurants, shopping malls)?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Q35. Are you in favor of banning smoking at outdoor public places (such as: playgrounds, sidewalks, entrances to buildings, parks, beaches)?

1. Definitely not
2. Probably not
3. I don't know
4. Probably yes
5. Definitely yes

Appendix. 4 Curriculum Vitae

Personal Information

Name	Sumaio Haidar	Surname	Ali

Education

Degree	Department	The name of the Institution Graduated From	Graduation year
University	Medicine and Surgery	Benadir University	2019
High school	-	Mu'ad Binu Jabal Secondary School	2013

Languages	Grades (#)
Somali	Native
English	Expert User
Arabic	Very good user
Turkish	Good user

All the grades must be listed if there is more than one (KPDS, ÜDS, TOEFL; EELTS vs), Work Experience (Sort from present to past)

Position	Institute	Duration (Year - Year)
Emergency Health Officer	UNICEF	2022-now
Health and Safeguarding Officer	Danish Refugee Council	2021-2022

Computer Skills

Program	Level
Microsoft Office	Excellent
Google workspace	Good

*Excellent, good, average or basic