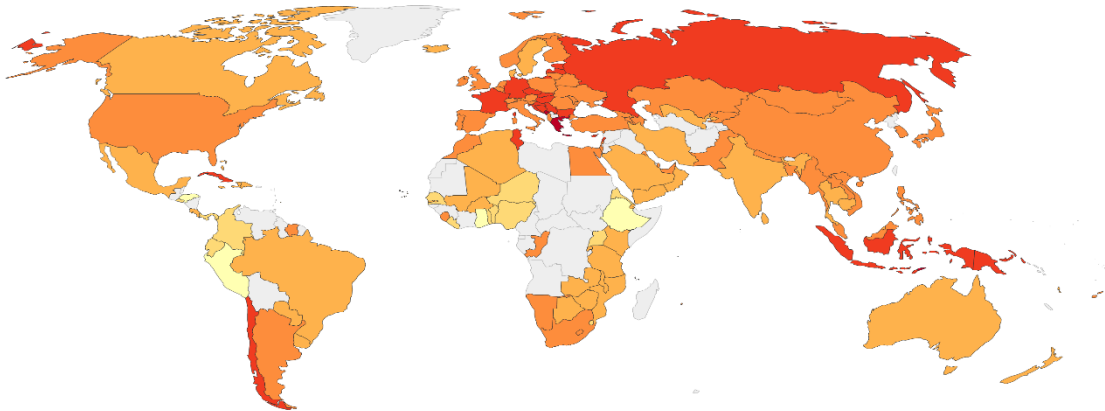


Tobacco Use and Cessation Seminar Report

Epidemiology of smoking worldwide

Share of adults who smoke, 2016

The share of men and women aged 15 and older who smoke any tobacco product on a daily or non-daily basis. It excludes smokeless tobacco use.



Source: World Bank

OurWorldInData.org/smoking • CC BY

(1)

- Tobacco kills up to half of its users. Tobacco kills around 6 million people each year. More than half of those deaths are the result of direct tobacco use while around 1.2 million are the result of non-smokers being exposed to second-hand smoke. Over 80% of the world's 1.3 billion tobacco users live in low- and middle-income countries. (2)
- Tobacco smoking killed an estimated 100 million over the 20th century – most in high-income countries. Estimates suggest one billion could die from smoking this century, most in low-to-middle income countries.
- Smoking deaths typically affect older populations: more than half of deaths occurred in people over 70 years old; 93% were over 50 years.
- One-in-five adults in the world smoke tobacco. (3)

Epidemiology of Smoking in Saudi Arabia

- Every year, more than 7000 of its people are killed by tobacco-caused disease. Still, more than 20000 children (10- 14 years old) and 3,453,000 adults (15+ years old) continue to use tobacco each day. (4)
- A survey conducted by The Saudi Health Interview Survey (SHIS) in all Saudi regions, in March and July 2013 from 10,827 participants who are 15 years or older found that overall, it showed that (7)
 - 12.1% of Saudis reported that they currently smoke tobacco. This prevalence was 23.7% among males and 1.5% among females.
 - The prevalence of tobacco smoking varied by age; among those aged 65 and older, the prevalence of tobacco smoking was the lowest: 6.5%
 - Saudis aged 55 to 64 years had the highest prevalence of current smoking (15.6%).
 - Daily tobacco smoking is 11.4%
 - 11.4% of smokers consume cigarettes daily with an average of 15.0 cigarettes per day.
 - 11.2% of Saudis consume shisha daily.
 - 0.3% of Saudis consumed smokeless tobacco products daily.
 - On average, Saudis start smoking at age 18.7
 - 17.2% of Saudis are exposed to secondhand smoke at home
 - Among smokers, 49.1% attempted to quit smoking within the last 12 months.

Types of tobacco products:

• Cigarettes

The main ingredients in cigarettes are tobacco, a filter, and paper wrapping. Companies may incorporate other chemical substances to manipulate how rapidly the cigarettes can burn, for instance, they put Ammonia that is addictive and can enhance the absorption of nicotine. Also, different elements are introduced into the product to make smoking attractive and to mask the harshness of the smoke. Like sugars and flavors that may alter the flavor of the smoke and

make it more acceptable for inhalation. Other components include bronchodilators that might raise the quantity of the harmful chemical substances absorbed via the lungs.

- **Cigars, Little Cigars, Cigarillos**

cigars are chopped tobacco enveloped in a leaf tobacco or a substance containing tobacco. People may have a misconception when it comes to cigars, labeling it as "the Better version of cigarettes", which is completely not true. In fact, Large cigarettes can provide a lot of nicotine almost ten folds ,2 folds of tar and greater than 5 folds of the carbon monoxide It has a wide range starting from smaller sizes also referred to as cigarillos to the Large ones . Also, small cigars may include sweet or fruit flavors that attract the adolescent and adults.

- **Pipe tobacco**

Pipes are a reusable form of tobacco products. It is composed of : a chamber or bowl, stem and mouthpiece. Tobacco is usually located into the bowl and lit then the smoke is drawn thru the stem and mouthpiece to be inhaled . Different kind of extracts are introduced to Most of the pipes along with the tobacco to deliver a rich intense flavor and smell. despite the fact that Smokers do not generally tend to inhale pipe smoke as much as cigarette smokers ,it do reaches the bloodstream in reality pipe bowl consists of (1–3)grams of tobacco, with the nicotine percentage per gram averaging 30–50 milligrams.

- **Waterpipe Tobacco Smoking**

In this type a pipe is used to smoke a mixture of tobacco and fruit that is heated and the smoke is filtrated via water. It is composed of a head, body water or a bowl ,and a hose. Unlike the vape ,the tobacco here is heated by using charcoal. An average one session of shisha can lasts forty five minutes to an hour, delivering a minimum of 10mg nicotine from the (300mg -750mg) nicotine that is usually with in the tobacco .So smoking hookah exposes the consumer to a huge amount of smoke in comparison to smoking a single cigarettes.people may also inhale different types of toxins like carbon monoxide, heavy metals carcinogens,Tar ,and arsenic.

- **Smokeless tobacco**

Smokeless tobacco use includes putting the product in the gum ,cheek or lip. There are two major sorts of smokeless tobacco: chewing tobacco ,and snuff. These types of smokeless tobacco consist of : tobacco powder, herbs, flavorings ,glycerin, menthol, salts, water and different hydrating agents. First, Chewing tobacco comes in many forms like loose leaf, plug, or twist.Second,Snuff is finely ground tobacco that either could be dry, moist, or in tea bag-like pouches.third,Dry snuff is loose or powdered dry tobacco which is commonly sniffed via the nostrils.And lastly, the Moist snuff/snus is a loose tobacco or a pouch that is placed with in the buccal or the mouth in general.

- **Electronic Cigarettes (Also Referred to as: Vape)**

electronic nicotine delivery systems (ENDS) Is a term that encompasses numerous digital cigarettes like Vapes, vape pens,and vaporizers .The concept of (ENDS) combine the idea of the original cigarette in a modern way in which it is attached to a powering system that turn on the heater to produce the electronic liquid "e-liquid "generated bin form of aerosols that can be inhaled by the consumers.along with the nicotine additional flavors,propylene glycol, vegetable glycerin, and different ingredients are added.



The differences in the nicotine percentages between different types of tobacco products

<u>Product</u>	<u>Nicotine content</u>
(cigarettes)	1.1mg to 1.8mg per cigarette (22mg to 36mg/pack)
(Cigars)	13.3mg average
(Mini-cigars)	3.8mg per mini-cigar = 76mg/pack
(pipe tobacco)	30-50 mg average per bowl
(Waterpipe Tobacco Smoking)	One 45-60 minute session = approximately one pack of cigarettes in nicotine and tar content
(smokeless tobacco)	- 88mg per can of dip/chew. -144mg per pouch

How does nicotine work in the body

Nicotine is an amine found in tobacco and tobacco products. It is the addictive agent which confers a much lower risk than other elements of tobacco, but it is not completely benign. When tobacco smoke is inhaled, nicotine rapidly enters the bloodstream through the pulmonary circulation.

Inhaled nicotine escapes the first pass intestinal and liver metabolism. Nicotine readily crosses the blood-brain barrier which then promptly diffuses into the brain tissue. The process is said to take only 2 to 8 seconds from the time of inhalation. Nicotine is a selective binder to nicotinic cholinergic receptors (nAChRs) in the brain and other tissues. The half-life of nicotine in the human body is estimated to be around 2 hours from the time of consumption. Brain imaging studies have demonstrated that nicotine acutely increases activity in the prefrontal cortex, thalamus, and visual system consistent with activation of corticobasal ganglia and thalamic brain circuits. Nicotine which stimulates nAChRs produces the release of neurotransmitters, predominantly dopamine causing various responses and behaviors after nicotine intake.

- When there is repeated exposure to nicotine, tolerance develops to some of the physiological effects of nicotine. therefore a repeated exposure to Nicotine is needed in order to achieve the same response, creating dependence and addiction.
- Nicotine is a sympathomimetic drug that causes the release of catecholamines and increases heart rate, cardiac contractility, constricts cutaneous and coronary blood vessels and increases blood pressure.

- Dopamine is a key neurotransmitter, Nearly all drugs of abuse directly or indirectly increase dopamine in the pleasure and motivation pathways and in so doing, alter the normal communication between brain cells. Addictive drugs increase dopamine levels and activate the reward pathway. The reward pathway of the brain is connected to areas of the brain that control behavior and memory. It begins in the ventral tegmental area (VTA), where neurons release dopamine to make you feel pleasure. The brain begins to make connections between the activity and the pleasure, ensuring that we will repeat the behavior. Sometimes this pathway is helpful but other times, it can be devastating. For example, certain drugs can trigger the reward pathway and over time, an addiction can happen.

Health consequences for tobacco products:

Tobacco is packed with harmful and addictive substances. Scientific evidence has shown conclusively that all forms of tobacco cause health problems throughout life, frequently resulting in death or disability.

• Central nervous system

ischemic stroke

The chemicals in smoke make your platelets, a type of blood cell, more likely to stick together. This increases the chance of a clot forming. These factors increase smokers' risk of developing atherosclerosis, a condition where arteries become narrowed and harden, This reduces the blood flow and makes blood clots more likely to form. A stroke occurs if a clot occurs in an artery leading to the brain, it can cause a stroke when it blocks the blood supply to part of the brain, This type of stroke is known as an **ischemic stroke**. Stroke can cause disability such as paralysis, muscle weakness, trouble speaking, memory loss or death.

addiction and withdrawal

Nicotine acts as both a stimulant and a depressant to the central nervous system. Nicotine first causes a release of the hormone epinephrine, which further stimulates the nervous system and leads to feeling of pleasure and, over time, addiction. Nicotine also promotes the release of the hormone beta-endorphin, which inhibits pain. This stimulation is then replaced with a drop in mood and fatigue, which lead the smoker to seek more nicotine. This cycle leads to chronic tobacco use and addiction.

According to the National Institutes of Health, the nicotine in cigarettes changes your brain, which leads to withdrawal symptoms when you try to quit. When this happens, you may experience a variety of side effects such as :

- Anger, hostility, and aggression
- Difficulty dealing with stress
- Anxiety
- Depressed mood
- Difficulty concentrating
- Increased appetite
- Craving for nicotine

Increased risk of dementia

Smokers also have an increased risk of dementia, a condition that can affect memory, thinking abilities, language skills, judgement, and behavior. It may also cause personality changes.

Cognitive decline

typically happens naturally as you get older. You may become more forgetful or not be able to think as quickly as you did when you were younger. But if you smoke, you may experience faster cognitive decline than nonsmokers.

• **Cardiovascular system**

Chemicals in cigarette smoke cause the cells that line blood vessels to become swollen and inflamed. This can narrow the blood vessels and can lead to many cardiovascular conditions.

Atherosclerosis, in which arteries narrow and become less flexible, occurs when fat, cholesterol, and other substances in the blood form plaque that builds up in the walls of arteries. The opening inside the arteries narrows as plaque builds up, and blood can no longer flow properly to various parts of the body. Smoking increases the formation of plaque in blood vessels.

Coronary heart disease occurs when arteries that carry blood to the heart muscle are narrowed by plaque or blocked by clots. Chemicals in cigarette smoke cause the blood to thicken and form clots inside veins and arteries. Blockage from a clot can lead to a heart attack and sudden death.

Peripheral Arterial Disease (PAD) and peripheral vascular disease occur when blood vessels become narrower and the flow of blood to arms, legs, hands and feet is reduced. Cells and tissue are deprived of needed oxygen when blood

flow is reduced. In extreme cases, an infected limb must be removed. Smoking is the most common preventable cause of PAD.

Abdominal Aortic Aneurysm is a bulge or weakened area that occurs in the portion of the aorta that is in the abdomen. The aorta is the main artery that carries oxygen-rich blood throughout the body. Smoking is a known cause of early damage to the abdominal aorta, which can lead to an aneurysm. A ruptured abdominal aortic aneurysm is life-threatening; almost all deaths from abdominal aortic aneurysms are caused by smoking. Women smokers have a higher risk of dying from an aortic aneurysm than men who smoke. Autopsies have shown early narrowing of the abdominal aorta in young adults who smoked as adolescents.

- **Respiratory system⁹**

Smoke damage in the lungs can lead to serious long-term lung diseases such as chronic obstructive pulmonary disease (COPD). Smoking can also increase the risk of lung infections such as pneumonia and tuberculosis, and it can worsen some existing lung diseases, such as asthma.

Chronic obstructive pulmonary disease (COPD)

COPD refers to a group of diseases that cause airflow blockage and breathing-related problems. COPD includes emphysema; chronic bronchitis, Smoking is by far the most common cause of COPD.

Chronic bronchitis

Chronic bronchitis is a common problem in people who smoke for a long time. In this disease, the airways make too much mucus, forcing the person to try to cough it out. The airways become inflamed (swollen), and the cough becomes chronic (long-lasting). The symptoms can get better at times, but the cough keeps coming back. Over time, the airways can get blocked by scar tissue and mucus, which can lead to bad lung infections (pneumonia).

Emphysema

In emphysema, the walls between the tiny air sacs in the lungs break down, which creates larger but fewer sacs. This lowers the amount of oxygen reaching the blood. Over time, these sacs can break down to the point where a person with emphysema might struggle to get enough air, even when at rest.

- **Endocrine** (Type 2 diabetes, Graves's hyperthyroidism and Osteoporosis)

Smoking has multiple effects on hormone secretion, some of which are associated with important clinical implications.

Smoking affects thyroid function, calcium metabolism and the action of insulin. It increases the risk and severity of Graves' hyperthyroidism and osteoporosis. Smoking also contributes to the development of insulin resistance and hence type 2 diabetes mellitus.

- **Gastrointestinal** (inflammatory bowel disease, gastric and duodenal ulcer)

Cigarette smoking is considered to be one of the major contributors to ulcer diseases, they are more likely to develop ulcers which are more difficult to heal. Smokers have a higher chance of developing peptic ulcer, although it is not an independent ulcerogenic. This increased risk may be due to the adverse effects of smoking on the reduction of antioxidants or the defensive immune system locally present in the gastroduodenal mucosa. So it will interfere with the natural defensive mechanisms against H. pylori infection in the stomach and duodenum.

Cigarette smoking increases the risk of IBD. Smokers seem to be more likely to develop Crohn's disease; however, people who smoke have a lower risk of developing ulcerative colitis.

The mechanisms of action of smoking in these disorders include the alteration of mucosal cell proliferation, change of blood flow in the inflammatory sites.

Reproductive

female:

Premature ovarian failure (early menopause)

Reduce fertility (Studies suggest that smoking affects hormone production, which can make it more difficult for women smokers to become pregnant).

Painful menstruation.

pregnancy : Tobacco smoke harms babies before and after they are born.

Effect on mother :

Women who smoke have more difficulty becoming pregnant and have a higher risk of never t, Spontaneous abortion / miscarriage Ectopic pregnancy, Premature birth.

On Baby:

low birth weight, Stillborn infant, Birth defects, eg cleft lip, cleft palate.

Male:

Infertility (sperm deformities, loss of motility, reduce count)

Impotence (Cigarette smoke alters blood flow needed for an erection, and smoking interferes with the healthy function of blood vessels in erectile tissue.)

• **Cancer**¹⁴

Smoking can cause cancer and then block your body from fighting it

- - Poisons in cigarette smoke can weaken the body's immune system, making it harder to kill cancer cells. When this happens, cancer cells keep growing without being stopped.
- - Poisons in tobacco smoke can damage or change a cell's DNA. DNA is the cell's "instruction manual" that controls a cell's normal growth and function. When DNA is damaged, a cell can begin growing out of control and create a cancer tumor.

Smoking can cause cancer almost anywhere in your body, including the:

Women who smoke have more difficulty becoming pregnant and have a higher risk of never

t, Spontaneous abortion / miscarriage Ectopic pregnancy, Premature birth. low birth weight, Stillborn infant, Birth defects, eg cleft lip, cleft palate.

Male:

Infertility (sperm deformities, loss of motility, reduce count)

Impotence (Cigarette smoke alters blood flow needed for an erection, and smoking interferes with the healthy function of blood vessels in erectile tissue.)

becoming pregnan

On baby :

- Blood (leukemia) - cervix
- prostate
- mouth and throat - esophagus

- Stomach

- urinary bladder - lung
- kidney
- colon, rectum

- liver
- Pancreas

Cancer:

The main risks of tobacco usage include many forms of cancer, particularly lung cancer, kidney cancer. Throat and neck cancer, bladder cancer, Colon and rectum cancer, esophageal cancer, gastric and pancreatic caners (9). 90% of lung cancer cases caused by tobacco smoking (10). Risk of developing lung cancer increases with number of years smoking and number of cigarettes smoked per day (11).

Pulmonary:

Long term exposure to compounds found in the smoke (carbon monoxide and cyanide) lead to pulmonary damage and for loss of elasticity in the alveoli, causing emphysema and Chronic obstructive pulmonary disease (COPD). COPD caused by smoking is a permanent, cannot be cured reduction of pulmonary capacity characterized by shortness of breath, wheezing, persistent cough with sputum, and damage to the lungs, including emphysema and chronic bronchitis (12).

Cardiovascular:

Inhalation of tobacco smoke causes several immediate responses within the heart and blood vessels. Within one minute the heart rate begins to rise, increasing by as much as 30 percent during the first 10 minutes of smoking (13)

Smoking increase blood cholesterol levels. For example, the ratio of high-density lipoprotein to low-density lipoprotein tends to be lower in smokers compared to non-smokers. if carbon monoxide exposure reaches a certain point before, they can be recycled, hypoxia then if left untreated might result in death. All these factors make smokers at higher risk of developing various forms of arteriosclerosis. As the

arteriosclerosis progresses, blood flow decreases easily through rigid and narrow blood vessels, making the blood more likely to form a thrombus (14).

Pregnancy:

Many studies have demonstrated that tobacco product use is an important factor in miscarriages among pregnant mothers, and that it contributes to many other threats to the health of the fetus and his mother also it slightly increases the risk of neural tube defects (15).

Environmental tobacco smoke exposure and maternal smoking during pregnancy have been shown to cause lower infant birth weights (16)

Infection:

Smoking is also linked to susceptibility to infectious diseases, particularly in the lungs (pneumonia). Smoking more than 20 cigarettes a day increases the risk of tuberculosis by two to four times (17), and being a current smoker has been linked to a fourfold increase in the risk of invasive disease caused by the pathogenic bacteria *Streptococcus pneumoniae*. (18) It is believed that smoking increases the risk of these and other pulmonary and respiratory tract infections both through structural damage and through effects on the immune system (19)

Mouth:

Perhaps the most serious oral condition that can arise is that of oral cancer. However, smoking also increases the risk for various other oral conditions like (20):

- Staining of the teeth
- Halitosis
- leukoplakia: mouth condition involving thickened white patches on the mucous membranes (lining) of the mouth, gums, or tongue (21).
- tooth loss

Smoke Cessation Cognitive and pharmacological programs.

Tobacco use can lead to nicotine dependence which is a condition that often requires a repeated treatments and early quitting have proven a better outcome for

smokers. For smoke cessation there are two main domains which is psychological and pharmacological.

Cognitive behavioral therapy approach to smoking cessation focuses on identifying and altering the thoughts and behaviors that keep people smoking or lead the to relapse after quitting, the key point of CBT is to get individuals invested in working CBT outside the sessions.

Tobacco dependence is gradual process the turn to be a chronic condition need to be managed rather than cured.

During smoking cessation every individual smoker will go through a series of challenging that he or she need to cope to reach the ultimate goal, however some overarching foe guiding this process is needed.

The publication “Treating tobacco use and dependence “offer a brief evidence - based steps to guide practitioners in helping smokers through the process of quitting

Steps known as five A’s

1-Ask

Ask the patient do you smoke? as simple as that any answer other than a firm no means that the answer is yes and should written in the medical records as smokers and in each visit unrelated to smoking should mark the smoking status, other questions need to be asking is how much do you smoke? and how soon after you waking do you have your first cigarette? As it measures the dependency.

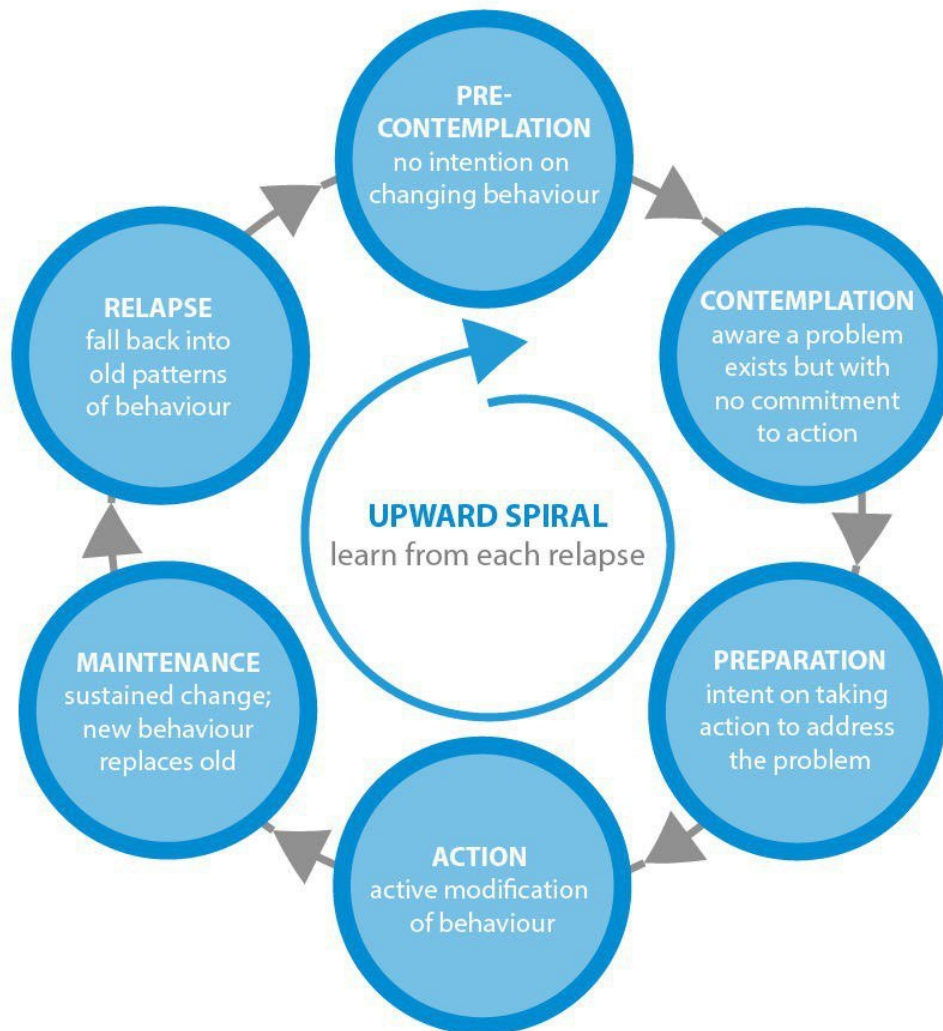
2-Advice

The next step after established that the person is a current smoker is advising to quit

When advising come from person of perceived authority (e.g., practitioner) it has a significant impact in likelihood of smoker successfully quitting.

3- Assess the motivation to quit

STAGES OF CHANGE



Only the stage that have clearly impact on health is the action of quitting and maintenance also only the people individuals specifically seeking treatment for smoking are likely to arrive at a session at third stage of change

Ambivalence can be raised by a lot of factors and but list of alternatives is helpful to smokers like

List for reasons to quit smoking:

- health concerns
- social issues

- being positive influence on one's children

List for list to continue smoking list

- negative affect relief
- missing social interaction
- diminished cognitive function
- past failure

4- Action and Assist

First step in this is stage is to set a quite date. Deciding on specific date prepare for impending abstinence and forces the action. THE recommended quit date be no more than 2 weeks away when the set. This gives smokers adequate time for preparation without allowing too much time during which they can lose motivation.

Smoking should consider the following option when consider the quit date:

1-holidays and weekend

Because it allows time for individual to engage in alternatives activities to cope with psychological and behavioral challenges to quitting 0

2-vacation

Some smokers report that being away from the home association with making the first days of quitting easier. Smoking is strongly associated with objective, places, people consistently present while smoking occurs, Over time these conditioned cues as triggers for smoking

3- Menstrual Cycle Phase

suggests that females who quit during the luteal phase of their cycle (days 15–28 in a 28-day cycle) are at a disadvantage in quitting because they experience more severe withdrawal symptoms compared to women who quit during the follicular phase (days 1–14 in a 28-day cycle)

Coping Strategies:

1-Reminding oneself of the positive consequences of not smoking.

2- Stay busy: Boredom is a common trigger to smoke.

3-Relaxation training.

One of the important in the process of smoking cessation before and after the quitting is assess the smoking triggers and the most common triggers for smoking are the paraphernalia associated with the behavior. Cigarettes, ashtrays, lighters, and matches easily become strong cues for smoking.

5- Arrange follow up

Follow-up is an essential part of the smoking cessation process. Multiple follow-up visits should be arranged. Electronic follow-up methods can be used to augment face-to-face visits. However, some in-person sessions in which biochemical verification (e.g., CO) can be obtained should be planned.(24)

Pharmacotherapy for tobacco cessation

There are currently two categories of medication that are available for smoking cessation: nicotine replacement medications and non-nicotine medications. These treatments aim to reduce symptoms of nicotine withdrawal, thereby making it easier to stop smoking.

All pharmacologic agents may be continued for 3 to 6 months.

Current forms of nicotine replacement therapy are:

- Nicotine Transdermal patches
- Nicotine gum
- Nicotine lozenge
- Nicotine Oral inhaler
- Nicotine Nasal spray

Nicotine replacement therapy				
Drugs	transdermal patches	gums	oral inhaler	nasal spray
Overview and Doses	<p>Available for 16- and 24-h delivery systems.</p> <p>If the cigarette consumption is:</p> <ul style="list-style-type: none"> -more than 10cigarettes/day 21mg patch is recommended. -less than 10 cigarettes a day, a 14 mg patch/day is recommended ²⁰. 	<p>Available in both 2-mg and 4-mg dosage forms. ¹⁸</p> <ul style="list-style-type: none"> - For smokers who smoke within 30 minutes of awakening 4 mg dose is recommended. - For smokers who wait more than 30 minutes after awakening to smoke the 2 mg dose is recommended. <p>Maximum: ≤24 pieces/day. ¹⁹</p>	<p>Consists of a mouthpiece and a plastic cartridge containing 10mg of nicotine. ^{18,19}</p> <p>Using 6 to 16 cartridges per day is recommended.</p>	<p>A multi-dose bottle with a pump mechanism that delivers 0.5 mg of nicotine per spray.</p> <p>The dose of nasal spray should be individualized for each patient based on:</p> <ul style="list-style-type: none"> -The patient's level of nicotine dependence -And the occurrence of symptoms of nicotine excess. ¹⁸ <p>Apply 1 spray to each nostril every 1 to 2 hours as needed with a maximum of 10 sprays/hour.</p>
Duration	<p>In general, NRT use is recommended for two to three months after smoking cessation¹⁹, or until a patient feels that they have stabilized as a nonsmoker. ¹⁸</p>			

Advantages	<p>-The easiest to use -higher compliance rate - provide a steady nicotine level. ^{18,19}</p>	-	<p>Addresses not only physical dependence but also the behavioural aspects of smoking, namely, the hand-to-mouth ritual. ^{18,19}</p>	<p>Deliver doses of nicotine more rapidly than was possible with use of the gum or patch. ¹⁸</p>
Precautions	<p>Remove before an MRI procedure because of risk of skin burns. ²¹</p>	<p>Require proper chewing technique "chew and park". - Exacerbate temporomandibular joint disease. In this case users can switch to Nicotine lozenges. -Can damage dental work. -Acidic beverages (eg, coffee, carbonated drinks) should be avoided before and during gum use because they reduce nicotine absorption. ¹⁹</p>	<p>may cause bronchospasm, so it may be less appropriate for smokers with a history of severe airway reactivity. ¹⁹</p>	<p>May cause Local irritation to nasal mucosa which is difficult for many to tolerate. ¹⁹</p>
Side effects	<p>-Local skin reactions. <ul style="list-style-type: none"> • Moving the site of patch application daily can reduce the incidence of skin reactions. <p>-Sleep disturbances when using 24-hour patches. ¹⁸ <ul style="list-style-type: none"> • Removing the patch after 16 hours and not wearing it while sleeping will help in reducing sleep disturbance. </p> </p>	<p>-nausea and vomiting, -abdominal pain and constipation -hiccups -headache -excess salivation -sore jaw -mouth irritation or ulcers</p>	<p>-localized irritation of the mouth or throat. ¹⁹</p>	<p>-Nasal and throat irritation -rhinitis -sneezing and cough or teary eyes ¹⁹</p>

Combined patch+ acute forms ¹⁸

A strategy for further improving the efficacy of NRT.
For example, transdermal patches and nicotine gums.
The patch provides nicotine in a steady-state and passive form while gum can be manipulated to accommodate the users' needs. Thus, preventing the appearance of severe withdrawal, and providing relief in trigger-to-smoke contexts, which is an excellent treatment option over either therapy alone.

Precautions of NRT: ¹⁸

Pregnancy	Heart diseases
The risk of adverse effects from nicotine products during pregnancy appears lower than by smoking. However, because the possibility of risks cannot be ruled out, it is generally recommended that a doctor be consulted concerning use of the medications during pregnancy.	Nicotine is a presumed risk factor for coronary artery disease, so persons with histories of heart disease should consult with a doctor before using the products

Non-nicotine medications:

A wide range of non-nicotine substances has been marketed for people who need help in reducing or quitting smoking and managing symptoms associated with withdrawal. ¹⁸

They include:

- **Bupropion** which is an antidepressant
- **Clonidine** which is an alpha-2-adrenergic receptor agonist anti-hypertensive agent
- **Varenicline** which is an alpha-4 beta-2 neuronal nicotinic acetylcholine receptor partial agonist.

Non-Nicotine medications		
Classes	Bupropion	Varenicline
Overview	When given in association with intensive behavioural support, bupropion is as effective as nicotine replacement therapy (NRT) ²⁴	More effective than bupropion or NRT and as effective as combination NRT for tobacco smoking cessation. ^{22,23}
Dose	150 mg/day. ¹⁹	0.5 mg once daily. ¹⁹
MOA	antidepressant in a sustained release formulation. ¹⁹	Alpha-4 beta-2 neuronal nicotinic acetylcholine receptor partial agonist. ¹⁹
Duration	At least 12 weeks. ¹⁹	12-week course. ¹⁹
Advantage	Helps in reducing Negative mood which is one of the symptoms of tobacco withdrawal, which may account for failures to quit smoking and relapse after cessation. ¹⁸	Has a dual action, it is not only relieving nicotine withdrawal but also blocks reward from smoking. ¹⁹
Contraindications And precautions	In patients with a seizure disorder or predisposition to seizure (because it reduces the seizure threshold). ¹⁹	In patients with unstable psychiatric status or history of suicidal ideation. ¹⁹
	Needs Monitoring for neuropsychiatric symptoms. ¹⁹	
side effects	-insomnia -agitation -dry mouth -and headache. ¹⁹	-Nausea -insomnia, -abnormal (vivid, unusual, or strange) dreams, -headache -and skin rash. ¹⁹

MOA= Mechanism of action.

Cognitive behavioral therapy

Cognitive behavioral therapy (CBT) is a psycho-social intervention that aims to focus on challenging and changing unhelpful behaviors and the development of personal coping strategies that target solving current problems

Cognitive behavioral therapy tends to be more effective when conducted with a healthcare professional, as this allows them to personalise the therapy to the person's individual thoughts and behaviors.

Behavioral therapy can range from simple advice offered by a physician or a health-care provider to much more extensive therapy offered by counsellors or specialized smoking-cessation clinics .

How CBT Works?

CBT is a psychotherapy technique that focuses on identifying negative thoughts and developing new ways of thinking about situations, according to the Association for Behavioral and Cognitive Therapies (ABCT). It combines two approaches: cognitive and behavior therapies

Cognitive behavioral therapy strategies for smoking cessation:

-Identifying environmental triggers

By determining the triggers for the urge for a cigarette meaning which situations make you desire nicotine and avoid them.

For example, if watching football is a trigger for lighting a cigarette, watching something else instead may be a better option.

In order to identify these cues, you may wish to use a diary to record every time you feel like having a cigarette, and what you were doing and how you were feeling at the time

-Changing thinking patterns

Coping better emotionally with the mood changes associated with nicotine withdrawal by working on the way of thinking about certain situations.

For example, if when you are stressed the first thought that comes to mind is, "I need a cigarette," you can change this to, "I need some fresh air," or, "I need to slow my breathing."

This will allow you to better handle stress without a cigarette

-Managing stress

Stress and anxiety can increase the urge to smoke

Strategies for managing stress:

- Prioritize tasks.
- Taking breaks when needed.
- Practicing relaxation exercises, deep breathing or meditation.

- Getting regular exercise.

-Social support

It is important to determine the level of social support you will get in attempting to quit. Depending on the smoking status of your current social network, If you have many friends and family members who smoke, think about how supportive they will be of your quit attempts. They may also need to manage their current social network or build a larger non-smoking network

Pros and Cons of CBT:

Pros:

- Confidence-boosting skills
- Greater insight over their life
- Quitting smoking
- Different therapy session types: group sessions, or individuals.

Cons:

- Cost of the therapy
- Lack of therapist trained in CBT
- Relies on the will of the patient

Smoking cessation during pregnancy:

PHS Guidelines recommended behavioral counselling as first line treatment

Both NRT and bupropion associated with higher rates of abstinences during pregnancy

Varenicline is not recommended

Tobacco cessation programs in Saudi Arabia

Saudi Arabia is one of the leading countries in tobacco cessation programs.

A national committee for tobacco control was founded by the council of ministers. Approval No. 46 on the 19th of Feb 2007.

The national committee for tobacco control is a Saudi national committee formed from a variety of governmental entities with a goal of controlling tobacco and implying regulations to achieve that goal.

And there strategy has 3 steps:²⁹

1-control tobacco

2-to be a benchmark in controlling tobacco world wide

3-to implement the endgame strategy of eliminating tobacco

Anti-Smoking Clinics is one of the steps that has been taken to control tobacco, the Anti-Smoking Clinics is an initiative meant to facilitate access to therapeutic services and integrate these clinics with other

The initiative aims to provide the best preventive and therapeutic services through qualified skilled staff to the largest possible number of those willing to quit smoking, in line with the Saudi Clinical Guidelines for Tobacco Cessation Services. It also aims to raise the service efficiency standards to the local,

healthcare providers to ensure a standard high-quality service for all beneficiaries. regional and global best with commitment to continuous improvement.

Detailed Objectives

- Enhance collaboration between the National Tobacco Control Committee and other sectors to provide high-quality preventive and therapeutic services for smoking prevention.
- Qualify physicians and health practitioners and train them on Tobacco-Cessation Program, in line with the Saudi Guide for Tobacco-Cessation Services.
- Boost health education and preventive services.
- Help those willing to quit smoking by providing them with therapeutic services (behavioral - pharmacological).
- Introduce Anti-smoking System and process of handling the incoming notifications.

Legislation of tobacco in the Kingdom Saudi arabia³¹

In 2012 a labeling standardization was issued on the tobacco products packages, to put warning pictures and statements about the harming effect of tobacco on all tobacco products (with a minimum 50% from the size of the product and in both sides written in both languages arabic and english)

In July of 2012 a control on marketing and promotion of tobacco products was applied by forbidding advertising for any tobacco products and not to display the products by making it visible to everyone in the markets.

By July 2015 restrictions on smoking in public places were applied, growing or manufacturing tobacco and its derivatives in the Kingdom got prohibited and tax increase on tobacco and its derivatives shall be pursued by the council of ministers.

Anti-smoking clinic Overview:

Anti-smoking clinic Is an initiative that aims at providing the best preventive and therapeutic services through qualified skilled staff to the largest possible number of those who wish to quit smoking

MOH has activated 262 anti-smoking clinics across the Kingdom for smokers and non-smokers, highlighting anti-smoking regulations, providing counseling and health education, as well as reducing the percent of smoking and passive smoking.

Objectives of the clinic:

- Qualify physicians and health practitioners and train them on Tobacco-Cessation Program.
- Boost health education and preventive services.
- Help those willing to quit smoking by providing them with therapeutic services (behavioral - pharmacological).
- Enhance collaboration between the National Tobacco Control Committee and other sectors to provide high-quality preventive and therapeutic services for smoking prevention. (26)

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