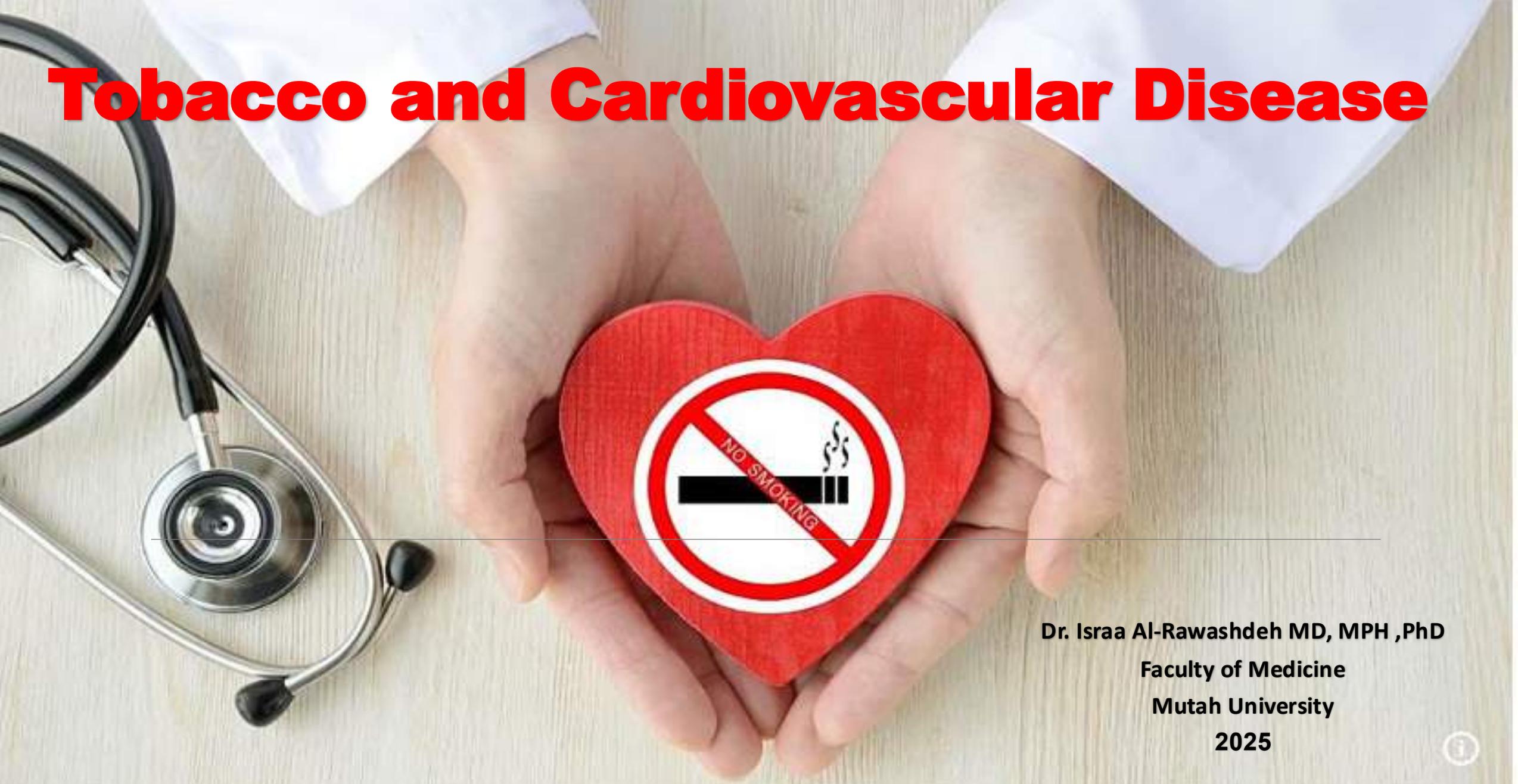


Tobacco and Cardiovascular Disease



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BACKGROUND

Global prevalence of smoking among adults aged ≥ 15 years is 22.3%³

Mortality and Disability: Prolonged smoking is identified as a major cause of premature mortality and disability worldwide.

Tobacco kills over 8.7 million people annually, including 1.3 million due to second-hand smoke

Around 80% of smokers live in low- and middle-income countries (populations that are targets of intensive tobacco industry marketing).

SMOKING....

HELPS YOU

RELAX!





TOBACCO –AVOIDABLE BURDEN

Cardiovascular disease (CVD) is the world's leading cause of death.

Tobacco is the **single most** preventable cause of CVDs.

Tobacco is the leading cause of premature death from CVD → 25% of deaths at ages 35–69 years.

If current trends continue, annual tobacco-related deaths will reach nearly 10 million by 2030.

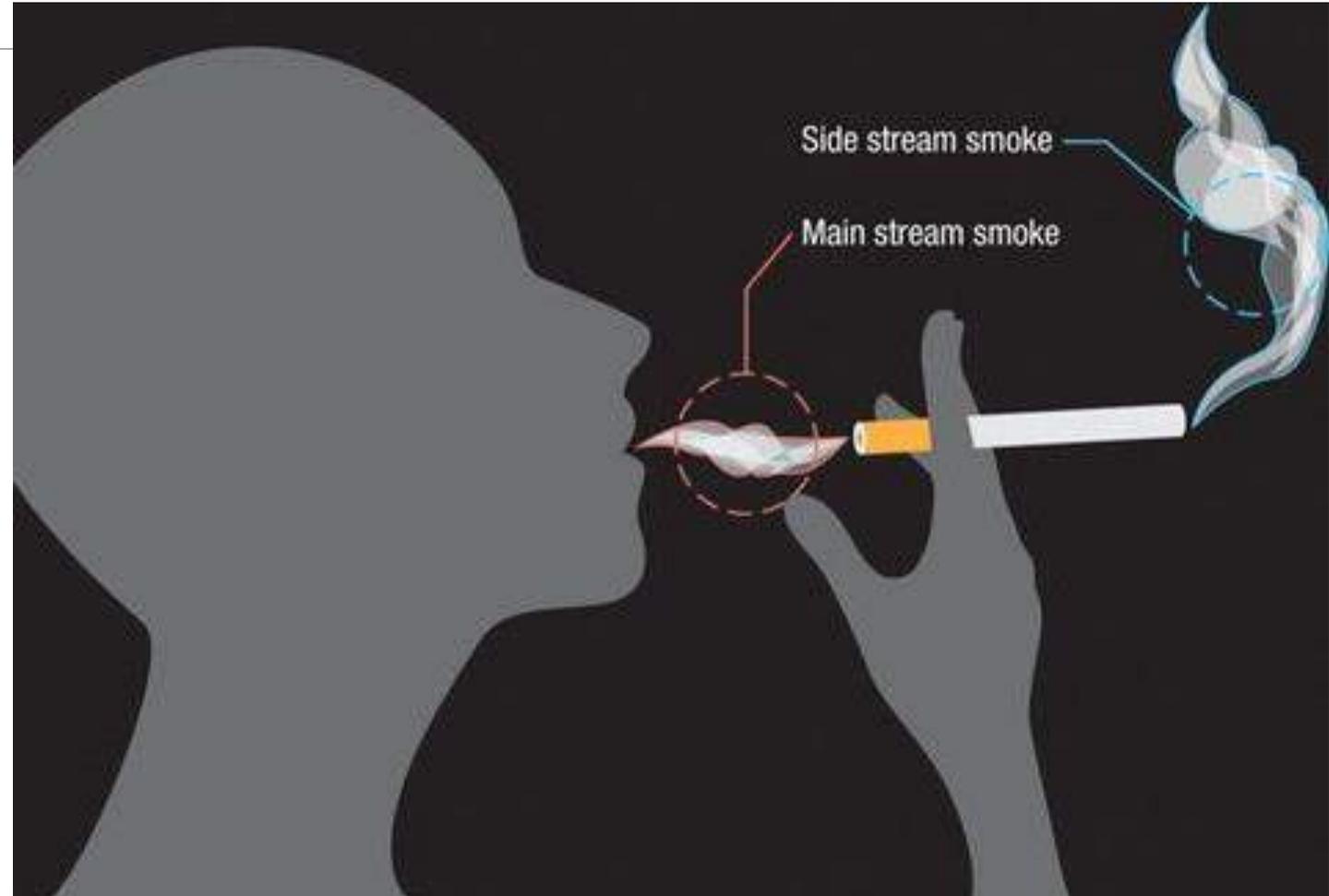




PATHOPHYSIOLOGY AND MECHANISMS

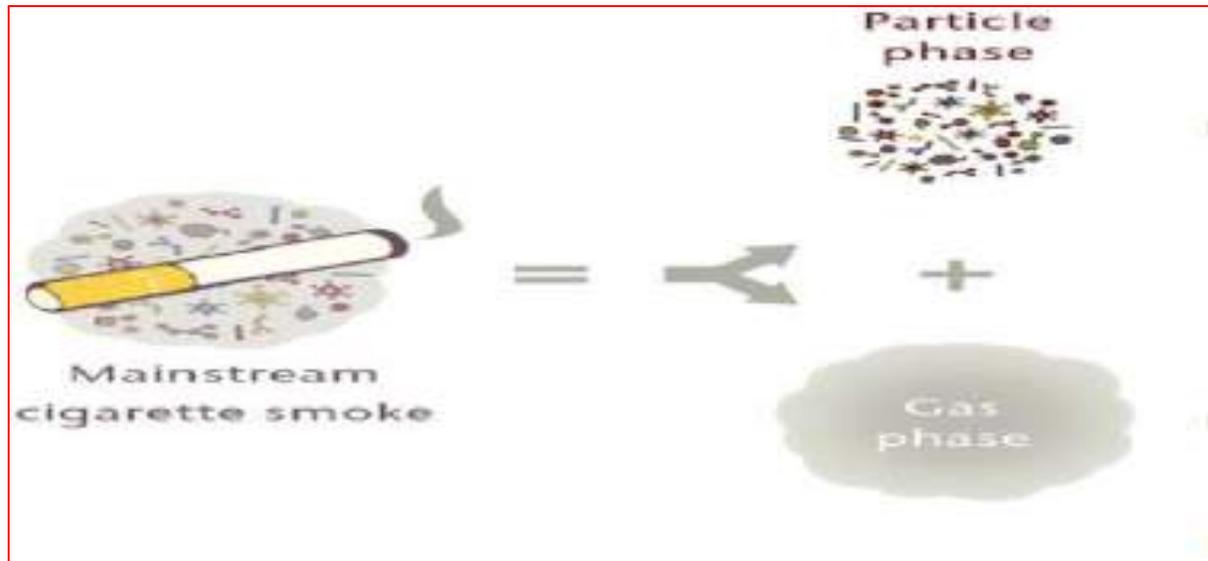
Burning tobacco products *produce two forms of smoke*:

1. **Mainstream smoke**: is inhaled and exhaled by the smoker.
2. **Sidestream smoke**: comes from the burning end of the cigarette (more toxic than mainstream smoke)





PATHOPHYSIOLOGY AND MECHANISMS



More than 7,000 chemicals in cigarette smoke → mediate the pathophysiology of CVD.

Cigarette smoking is divided into two phases:

1. a particulate phase.
2. a gas phase.

Cigarette smoke contains a cocktail of over **7,000** toxic chemicals
60 of which are known to cause cancer

Newcross
HEALTHCARE

Source: American Lung Association
<http://www.lung.org/5000-chemicals-in-cigarette-smoke-facts-which-are-in-cigarets.html>

The advertisement features a dark blue background with a lit cigarette at the bottom left. Various chemical formulas are scattered across the top, including H_2 , N_2 , $C_{10}H_{18}$, Pb , CH_2O , $C_{20}H_{12}$, $C_3H_6O_2$, d^{+2} , C_6H_6 , C_4H_{10} , As , C_2H_6O , and NH_3 .



PATHOPHYSIOLOGY AND MECHANISMS

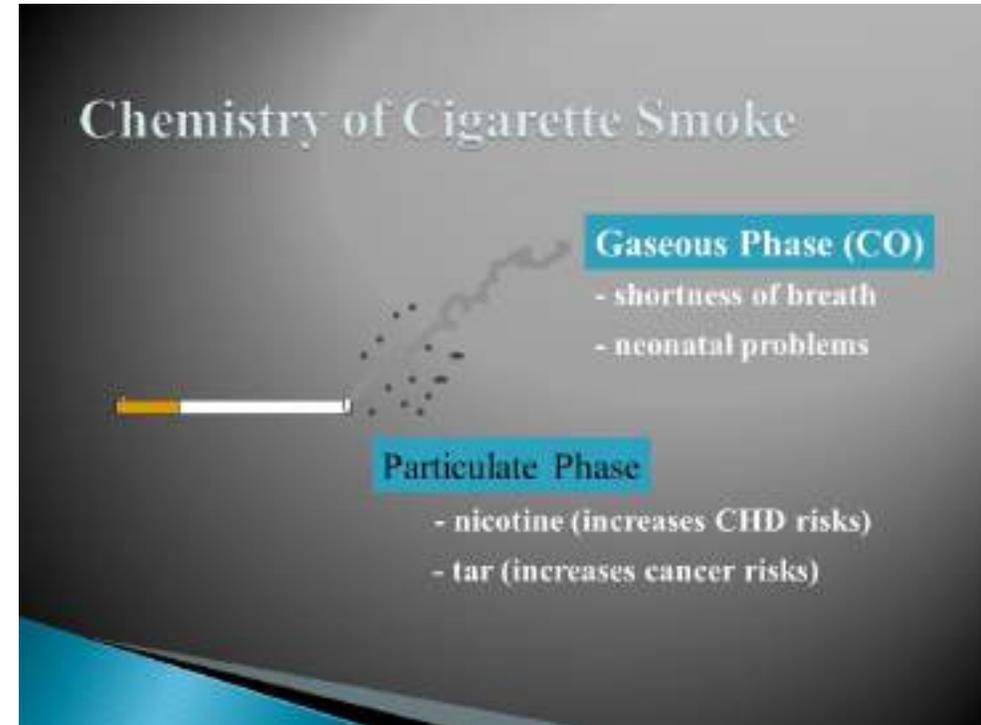
1. **The particulate phase** : contains nicotine and the total aerosol residue (tar) → together contribute to heart disease through the following pathway:

Cigarette smoke particulates generate strong oxidative stress, leading to endothelial dysfunction and promoting early atherosclerosis progression. ↑ enhanced formation of clots and reduced level of high-density lipoprotein (HDL) cholesterol .

Particulate-phase toxicants rapidly activate platelets within minutes of exposure, increasing thrombogenesis and cardiovascular risk.

2. **The gas phase** contains the poisonous gas carbon monoxide (CO), along with other gases.

➤ Carbon monoxide → reduces oxygen carrying capacity
+Vasodilation/vasoconstriction changes+Hypoxia-related myocardial stress



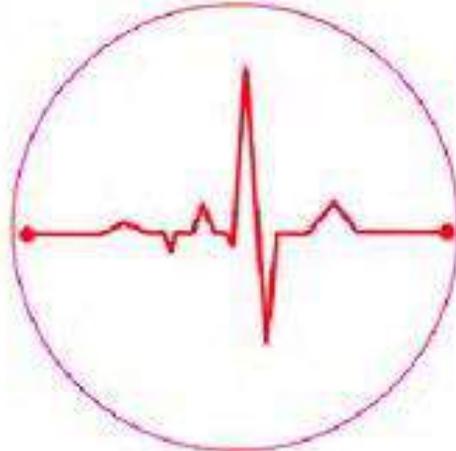


Tar and chemicals



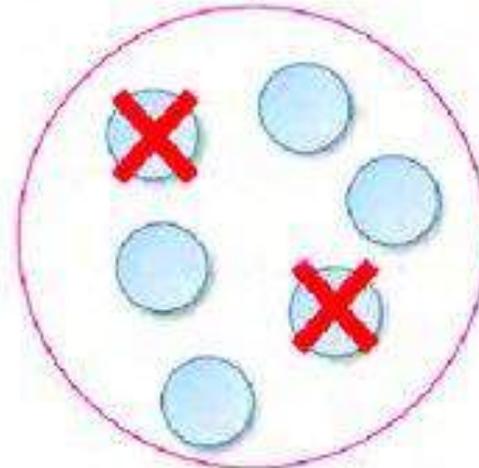
damages blood vessels;
adverse lipid profile;
thickens your blood

Nicotine



increases heart rate
and blood pressure

Carbon monoxide



replaces oxygen

Cardiovascular diseases

FORMS OF TOBACCO USE

Tobacco is consumed worldwide in many forms other than cigarettes, both smoked and smokeless.

Firsthand smoke: inhaled directly by a smoker

Secondhand Smoke: AKA environmental tobacco smoke/Passive smoking.

Secondhand smoke has physiological effects similar to those of active smoke.

Exposure to second-hand smoke can cause coronary heart disease, increasing the risk of disease by approximately 25–30%

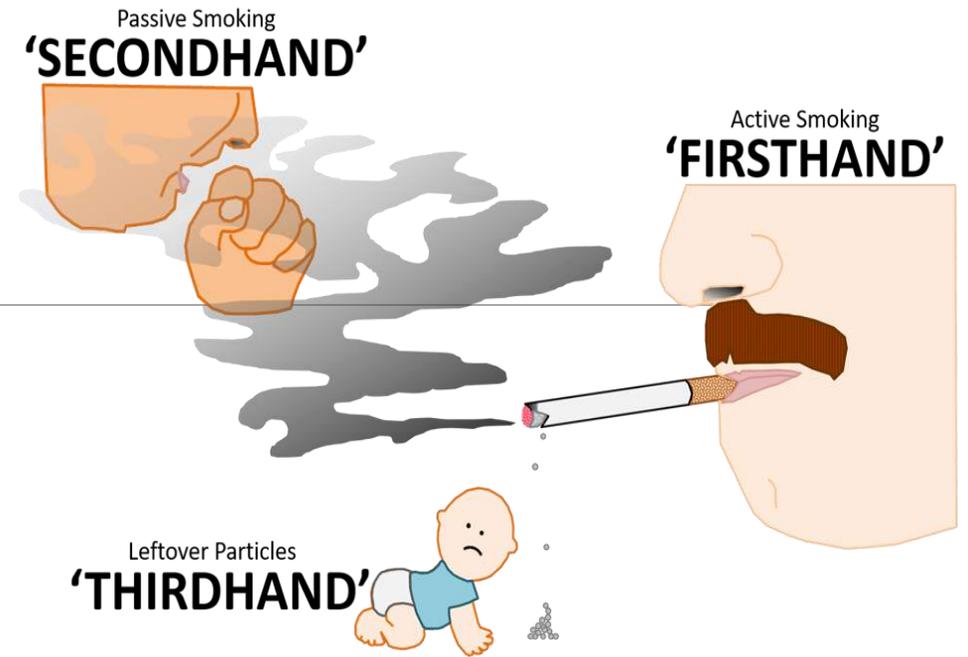
Thirdhand Smoke: The lasting or residual nicotine and other chemicals left on indoor surfaces after tobacco smoke is finished.

Third-hand smoke can get trapped in hair, skin, fabric, carpet, furniture, and toys.

It poses health risks, especially to children, through skin contact, inhalation, and ingestion.

Third-hand smoke is now recognized by WHO as a contributor to respiratory morbidity and chemical exposure in children

Associated with respiratory issues, increased risk of cancer, and developmental problems.





SMOKELESS TOBACCO

Smokeless tobacco is a tobacco product that is used by ways other than smoking.

Chewing tobacco is typically sold as loose leaves, twists, or plugs. Users place a portion of the tobacco between the cheek and gum, chewing it to release the flavor and nicotine.

Snuff is a finely ground or powdered tobacco product. It is available in dry or moist forms. Dry snuff is sniffed or "snorted" into the nose, while moist snuff is placed between the lower lip or cheek and gum.

Snus is a type of moist snuff that originated in Sweden. It comes in small pouches, and users place these pouches between the upper lip and gum. Unlike some other forms of smokeless tobacco, snus does not require spitting.

Some smokeless tobacco products come in **dissolvable forms** such as lozenges, strips. These products are designed to dissolve in the mouth, releasing nicotine.



Moist snuff



Dry snuff



Snus



SMOKELESS TOBACCO

Smokeless tobacco also cause heart disease by acutely elevating blood pressure and contributing to chronic hypertension.

Smokeless tobacco use is increasing in many parts of the world, and in some countries (e.g. Bangladesh, India) it is more commonly used than smoked tobacco.

Smokeless tobacco use is associated with various adverse health effects, including an increased risk of oral cancer, gum disease, and other oral health problems. Additionally, smokeless tobacco products deliver nicotine, which is an addictive substance.

Smokeless tobacco increases the risk of fatal myocardial infarction by 28%

Common toxicants include cadmium, arsenic, and lead affect the CVS adversely.



ELECTRONIC NICOTINE DELIVERY SYSTEMS (ENDS)

Introduced in 2007.

known as e-cigarettes → battery-operated devices that heat a solution, or e-liquid, to generate an aerosolized mixture containing flavoured liquids and nicotine inhaled by the user

Use of e-cigarettes is growing rapidly, especially among children and young people.

E-cigarettes contain toxic substances that are harmful to people's health, sometimes at levels higher than in tobacco smoke.

E-cigarettes have not been proven to be effective for smoking cessation at the population level and may lead to ongoing nicotine dependence.

Countries should consider banning or regulating e-cigarettes for a comprehensive approach to tobacco control.





ENDS

Association with Cardiovascular Events:

Short-Term Changes: Using ENDS can lead to acute changes in the cardiovascular system, such as increased heart rate and arterial stiffness.

- Impact on Blood Vessels:

Vaping acutely increases sympathetic activity, heart rate, blood pressure, and arterial stiffness.

- Inflammatory Response:

Inflammation: Studies suggest that ENDS use may trigger an inflammatory response in the cardiovascular system, which is associated with cardiovascular disease.

Other effects: ENDS contain nicotine (sometimes at very high levels), a highly addictive substance that can adversely affect the development of the fetus in a pregnant woman as well as negatively affect brain development in children and adolescents.

Long-term cardiovascular effects remain uncertain due to insufficient longitudinal data



one of these products (2).



Devices may resemble a highlighter pen, portable gaming console, wireless earbuds, hand-held two-way radio transmitter or a toy, among other items.

E-cigarettes offer, by far, the most flavours among all nicotine and tobacco products. Many of these flavours are appealing to children. Flavours can increase the general toxicity of the aerosols, mask the harsh taste of nicotine, play a role in product use initiation and serve as a path from experimentation to regular use.

Marketing of e-cigarettes usually relies heavily on social media and influencers. Even brief exposure to e-cigarette content on social media is associated with adolescents' greater intention to use these products, as well as more positive attitudes toward e-cigarettes.

Many e-cigarettes are designed to allow discreet use and are marketed as such. They may resemble lipsticks or watches, making them easier to hide and more difficult to detect or recognize, especially by teachers and parents.

Some forms of e-cigarettes, such as disposable e-cigarettes, which are particularly popular with youth, have increased in size, contain much more nicotine, and are increasingly becoming more affordable and accessible (2).



Illustration of the many e-cigarette flavours (3)



ELECTRONIC NICOTINE DELIVERY SYSTEMS



- Interaction with Traditional Smoking:

Dual Use: Individuals who use both traditional cigarettes and ENDS may experience increased cardiovascular risks.

Synergistic Effects: The combined exposure to toxicants from both sources may have synergistic effects on cardiovascular health.

Non-users, including children and young people, are at risk of CVD through second-hand vaping.

Still, long-term health effects of use of ENDS are unknown.



SOCIOECONOMIC DIMENSIONS OF TOBACCO-USE-RELATED CVS DISEASES

Many socioeconomic factors modify the relationship between tobacco use and CVD:

Examples:

- Age (young male smokers are at higher risk of sudden death)
- Gender (smoking women have more risk for coronary heart disease)
- Ethnicity (South Asians → greater risks)

Smoking prevalence is 2–3 times higher in populations living in poverty



CARDIOVASCULAR BENEFITS OF TOBACCO USE CESSATION

There is evidence for the cardiovascular benefits of tobacco cessation, particularly cigarette smoking.

Smoking cessation benefits all users, irrespective of form, duration, and age.

Cardiovascular benefits are consistent and achieved early after tobacco cessation.

In general, smoking cessation has clearly been shown to prolong life, especially when it occurs early in life.



Time to Cardiovascular Benefit of Smoking Cessation after Last Cigarette

Within 20 minutes: Blood pressure decreases and body temperature and heart rate return to normal.

Within 12 hours, the carbon monoxide level in blood drops to normal.

Within 24 hours. Risk of myocardial infarction decreases.

Within 1 year. risk of coronary heart disease is half that of a person who smokes

At 5 years. Stroke risk is reduced to that of someone who has never smoked.

Within 15 years. Coronary heart disease risk is the same as a person who has never smoked.





PEOPLE OF ALL AGES WHO HAVE ALREADY DEVELOPED HEALTH PROBLEMS RELATED TO TOBACCO USE CAN STILL BENEFIT FROM QUITTING.

Benefits in comparison with those who continue to use tobacco

Aged about 30: gain almost 10 years of life expectancy

Aged about 40: gain nine years of life expectancy

Aged about 50: gain six years of life expectancy

Aged about 60: gain three years of life expectancy

After the onset of life-threatening disease: rapid benefit – people who quit tobacco after a myocardial infarction reduce their chances of death by between 36% and 46%.





Solutions: WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL



FCTC

WHO FRAMEWORK CONVENTION
ON TOBACCO CONTROL

The First Public Health agreement under WHO

Aim ⇒ protect present and future generations from the consequences of tobacco

Unique ⇒ introduced urgency into tobacco control; negotiated; binding international law; comprehensive approach.

As of 2024, 182 Parties including the European Union have approved the WHO FCTC

FCTC

اتفاقية منظمة الصحة العالمية الإطارية
بشأن مكافحة التبغ

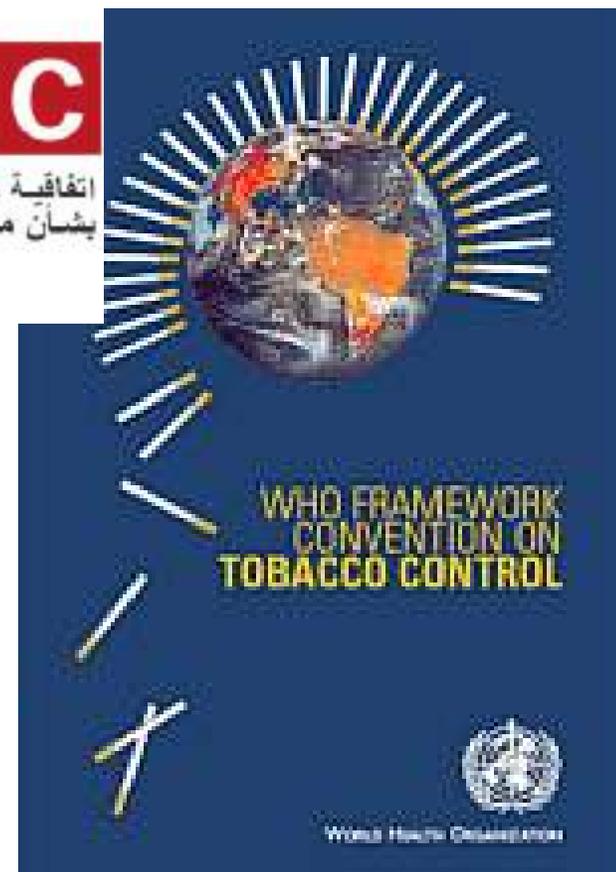
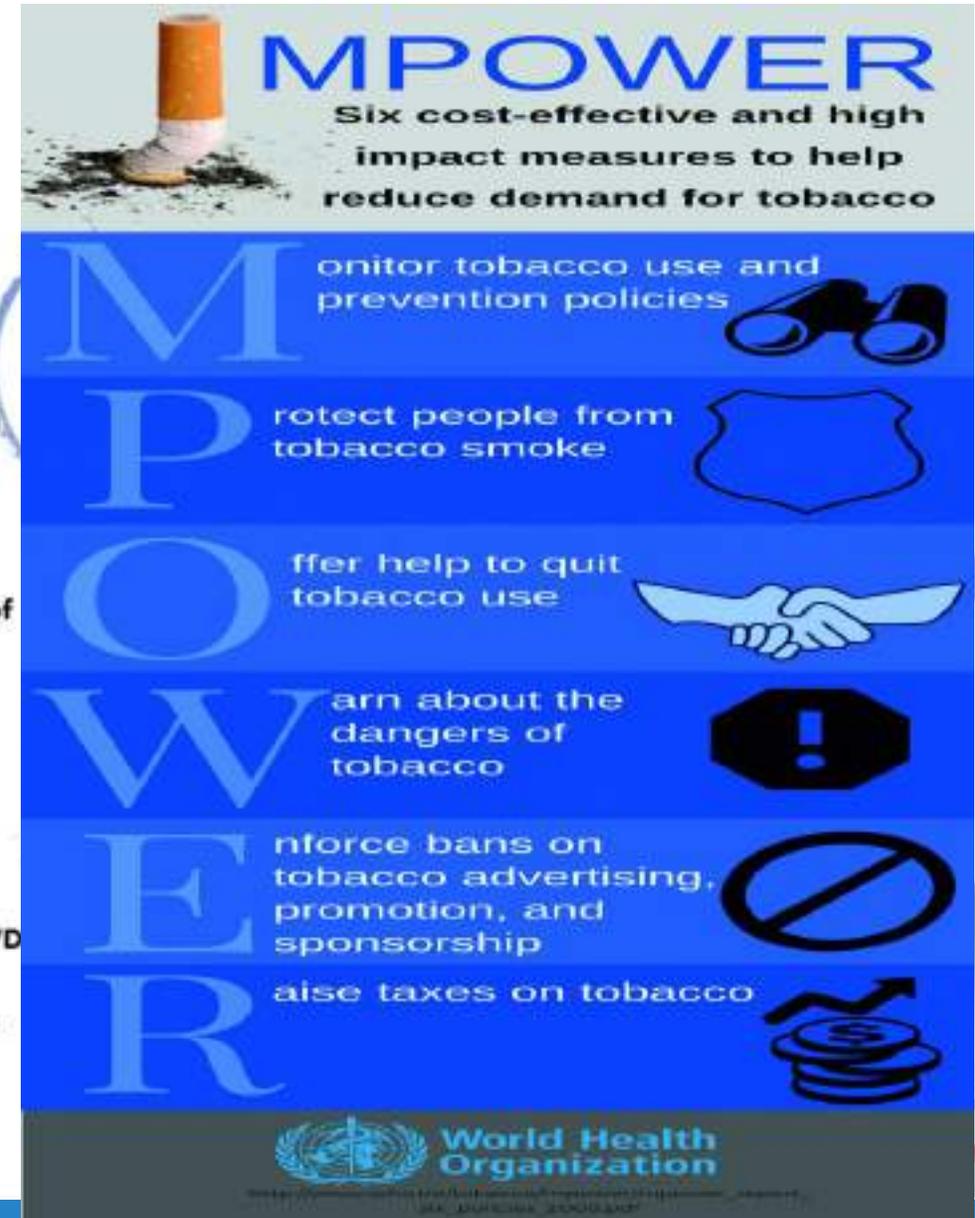




Table 1 | The WHO MPOWER policy package

MPOWER component	Definition
M	Monitor tobacco use and prevention policies
P	Protect people from tobacco smoke
O	Offer help to quit tobacco use
W	Warn about the dangers of tobacco
E	Enforce bans on tobacco advertising, promotion and sponsorship
R	Raise taxes on tobacco

MPOWER is a policy package intended to assist in the country-level implementation of cost-effective interventions to prevent and reduce tobacco use, as ratified by the WHO FCTC. Other than demand reduction measures, MPOWER encourages countries to develop surveillance systems to monitor the tobacco epidemic. Each of the MPOWER components reflects one or more provisions described in the FCTC.





Smoking in Jordan

Jordan has one of the **highest tobacco-use prevalence rates worldwide.**

Jordan is the highest-ranking country in the Eastern Mediterranean Region (EMR) in tobacco use according to the 2024 WHO EMR Report.

Jordan is also **one of six countries globally where tobacco use is still increasing**





Patterns of Tobacco Use (Ages 15–49)

Cigarettes: 41% of men and ~9–10% of women smoke cigarettes.

Any tobacco product: The overall adult tobacco-use prevalence (aged 15+) is estimated at 36.3%

- 48–58% of men and ~14% of women use at least one tobacco product (cigarettes, waterpipe, pipes).

Waterpipe use is significantly increasing among females.

Daily Smoking Behavior:

46% of adult men are daily smokers.

Among daily smokers:

- **62% consume 15–24 cigarettes/day**
- ~20% smoke **25+ cigarettes/day**.

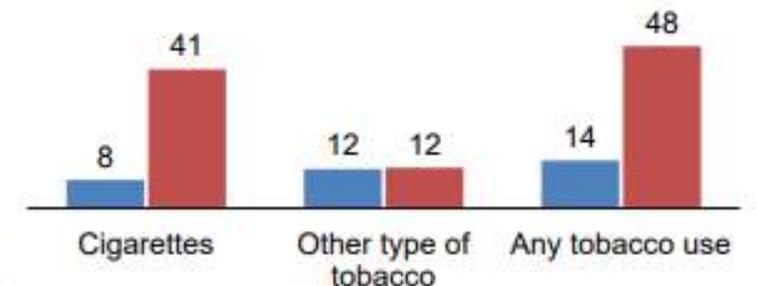
•Regional Patterns:

- Women: Smoking rates range from 5% in Tafileh to 19% in Zarqa.
- Men: Rates range from 38% in Ma'an and Tafileh to 56% in Irbid.

Figure 3.6 Use of tobacco among women and men

Percentage of ever-married women and all men age 15–49 who use tobacco products

■ Women ■ Men





- Tobacco use costs Jordan an estimated **1.6 billion Jordanian Dinars per year**, including healthcare costs and productivity losses.
- This represents approximately **6% of Jordan's GDP**.
- The financial burden includes treatment of cardiovascular disease, cancer, COPD, and other tobacco-related illnesses.

Home » Local » Tobacco has so far claimed lives of 9,027 Jordanians in 2021 — Health Ministry

Tobacco has so far claimed lives of 9,027 Jordanians in 2021 — Health Ministry

By Rayya Al Muheisen - Jun 06,2021 - Last updated at Jun 06,2021

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AMMAN — Tobacco consumption has claimed the lives of 9,027 Jordanians so far this year, according to an infographic published on the Ministry of Health's social media platforms.

Smoking rates in Jordan are some of the highest in the world. More than eight out of 10 men smoke or regularly use nicotine products including e-cigarettes, according to a Health Ministry study carried out in collaboration with the World Health Organisation (WHO).

"Smoking increases the risk of developing health conditions, some can be fatal and others can cause irreversible long-term damage. It also causes around seven out of every 10 cases of lung cancer," Abdel Rahman Shafer, a general physician, told The Jordan Times.

The study also showed that more than 66 per cent of Jordanian men and 17 per cent of Jordanian women are smokers. Additionally, the study showed that 78.8 per cent of adults are exposed to secondhand smoking.

The ministry also stated that 56 per cent of the tobacco-related deaths are among people below the age of 70.

The average monthly expenditure on cigarettes is over JD60 for each smoker, according to the study.

"The rates are dangerously high and a predictor of a future public health catastrophe," Health Minister Feras Al Hawari said, according to the statement.



Photo courtesy of hypnosischicago.com



Tobacco Control Policy in Jordan (Updated 2024–2030)

Tobacco Control Policy in Jordan



Jordan now follows a new national plan to reduce smoking (2024–2030).



The plan focuses on:

- Making more public places smoke-free
- Helping people quit through more support services
- Reducing illegal tobacco trade
- Limiting the influence of the tobacco industry



Jordan joined an international agreement in 2024 to fight illegal tobacco products



Because smoking rates in Jordan are among the highest in the region, stronger actions are now being taken.



University Students

Smoking Among University Students in Jordan:

Approximately **39–41%** of university students currently use tobacco.

Males: 56–58%

Females: 11–14%

Cigarettes are the most commonly used product (~80%).

Daily smoking: ~86% of student smokers.

Associated factors:

Male sex, higher income, lower academic performance, peer smoking, and family smoking are strong predictors of tobacco use.

After a coronary event, only **29.7% quit**, while **60.7% continue smoking**, and **9.6% relapse**.

The most frequent reasons given by smokers for not quitting smoking were **"do not incline to stop smoking"** (25.6%) and **"craving for a cigarette"** (25%).



Knowledge and Attitudes toward Smoking among University Students in Jordan: A Con

REVIEW ARTICLE: STUDENTS' SMOKING BEHAVIORS

Insights into Smoking Behaviors among University Students in Jordan: A Narrative Review

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Quick Response Code:



ABSTRACT

Background and Objective: This review examines smoking behaviors among Jordanian university students, focusing on their habits, attitudes, perceptions, knowledge, and the factors that influence them. It also offers public health recommendations that could help reduce the smoking rate within this population.

Methods: A search of the published studies was conducted in Google Scholar and PubMed. The publication date, study design, and results on smokers' attitudes, perceptions, habits, knowledge, and influencing factors were considered. The extraction process was followed by a quality assessment method.

Results: The smoking habits among Jordanian university students varied from cigarettes, smoked as many as 40 a day by some students, to waterpipes with nicotine that lasted from as little as 10 minutes to as long as 90 minutes. Knowledge or risks related to smoking were also revealed to vary among students, with academic resources and smoking status serving as the predictors. In general, students in the older age groups and also the medical majors were better aware of the associated risks of smoking. Students also differ in their attitudes about tobacco; some students accept the waterpipe as a socially acceptable method of tobacco use. Additional studies will be required to outline the temporal changes in the smoking pattern and assess any reasons of intervention that may be instituted.

Conclusion and Implications for Translation: Targeted public health interventions, such as gender-sensitive smoking cessation campaigns at university campuses, can decrease the prevalence of smoking among Jordanian students. This initiative will be further reinforced by the smoke-free campus policy, restrictions on tobacco advertising, and the incorporation of smoking control education into academic curricula. Future research should aim to examine how social norms influence smoking behavior.

Keywords: Smoking, Smoking Behaviors, Students, Jordan, University

Overview of

TOBACCO USE,
TOBACCO CONTROL

outpatient clinics participated. Before disease occurrence,



مؤسسة التعليم العالي



مركز اعتماد مؤسسات التعليم العالي وضمان جودتها
Accreditation and Quality Assurance Commission for Higher Education Institutions

المادة (15): مكافحة التبغ والتدخين

تلتزم الجامعة بمكافحة التبغ والتدخين من خلال الإجراءات الآتية:

1. توفير الرسائل والنشرات التوعوية ونشرها للعاملين والطلبة من خلال الوسائل المتاحة وعلى جميع وسائل التواصل الاجتماعي التي تستخدمها الجامعة.
2. تركيب أجهزة إنذار لكشف التدخين في مباني الجامعة.
3. توفير أماكن خاصة للتدخين ضمن الحرم الجامعي.
4. تفعيل الرقابة على التدخين داخل مباني الجامعة.
5. تطوير أسس وتعليمات خاصة بمكافحة التدخين وتحديد العقوبات الرادعة على الطلبة والعاملين عند مخالفتهم لها.

المادة (16): الترتيبات التيسيرية لذوي الاحتياجات الخاصة

تلتزم الجامعة بما جاء في دليل توفير الترتيبات التيسيرية المعقولة والأشكال الميسرة وإمكانية الوصول في مؤسسات التعليم العالي الصادر عن المجلس الأعلى لحقوق الأشخاص ذوي الإعاقة والمتوفر على موقع المجلس الأعلى لحقوق الأشخاص ذوي الإعاقة من خلال الرابط التالي (<https://www.hcd.gov.jo/Default/Ar>).



Thank you

