

Thousands of surveys show the impact of smoking around the world

May 28 2021



Credit: Andres Siimon

The most comprehensive data on global trends in smoking highlight its enormous global health toll. The number of smokers worldwide has increased to 1.1 billion in 2019, with tobacco smoking causing 7.7

million deaths—including 1 in 5 deaths in males worldwide.

Of particular concern are the persistently [high rates](#) of [smoking](#) among young people, with over half of countries worldwide showing no progress in reducing smoking among 15-24 year olds. 89% of new [smokers](#) become addicted by age 25. Protecting young people from nicotine addiction during this critical window will be crucial to eliminate [tobacco use](#) among the next generation.

Using data from 3,625 nationally representative surveys, the three new studies published in *The Lancet* and *The Lancet Public Health* journals by the Global Burden of Disease collaboration provide global estimates on smoking prevalence in 204 countries in men and women aged 15 and over, including age of initiation, associated diseases, and risks among current and former smokers, as well as the first analysis of global trends in chewing tobacco use.

Published ahead of World No Tobacco Day (31st May), the authors call on all countries to urgently adopt and enforce a comprehensive package of evidence-based policies to reduce the prevalence of tobacco use and prevent initiation, particularly among adolescents and young adults.

"Smoking is a major risk factor that threatens the health of people worldwide, but tobacco control is woefully insufficient in many countries around the world. Persistently high smoking prevalence among young people in many countries, along with the expansion of new tobacco and nicotine products, highlight an urgent need to double down on tobacco control. If a person does not become a regular smoker by age 25, they are very unlikely to become a smoker. This presents a critical window of opportunity for interventions that can prevent young people from starting smoking and improve their health for the rest of their lives," says Professor Emmanuela Gakidou, senior author, Institute for Health Metrics and Evaluation (IHME), University of Seattle,

Washington.

Increasing number of smokers highlights uphill battle in global tobacco control

Since 1990, global smoking prevalence among men decreased by 27.5% and by 37.7% among women. However, twenty countries saw significant increases in prevalence among men, and 12 saw significant increases among women.

In half of countries, reductions in prevalence have not kept pace with population growth, and the number of current smokers has increased. The ten countries with the largest number of tobacco smokers in 2019, together comprising nearly two-thirds of the global tobacco smoking population, are China, India, Indonesia, the U.S., Russia, Bangladesh, Japan, Turkey, Vietnam, and the Philippines—one in three current tobacco smokers (341 million) live in China.

In 2019, smoking was associated with 1.7 million deaths from ischaemic heart disease, 1.6 million deaths from chronic obstructive pulmonary disease, 1.3 million deaths from tracheal, bronchus, and lung cancer, and nearly 1 million deaths from stroke. Previous studies have shown that at least one in two long-term smokers will die from causes directly linked to smoking, and that smokers have an average life expectancy ten years lower than never-smokers.

Approximately 87% of deaths attributable to smoking tobacco occurred among current smokers. Only 6% of global deaths attributable to smoking tobacco use occurred among individuals who had quit smoking at least 15 years previously, highlighting the important health benefits of cessation.

7.4 trillion cigarette-equivalents of tobacco (combining smoked tobacco products include manufactured cigarettes, hand-rolled cigarettes, cigars, cigarillos, pipes, shisha, and regional products such as bidis and kreteks) were consumed in 2019, amounting to 20.3 billion each day worldwide. Countries with the highest consumption per person were mostly in Europe. Globally, one in three male and one in five female smokers consume 20 or more cigarette-equivalents per day.

15-24 years: a critical window to change the course of the tobacco epidemic

"Behavioral and biological studies suggest that young people are particularly vulnerable to addiction, and with high rates of cessation remaining elusive worldwide, the tobacco epidemic will continue for years to come unless countries can dramatically reduce the number of new smokers starting each year. With nine out of ten smokers starting before the age of 25, ensuring that young people remain smoke-free through their mid-twenties will result in radical reductions in smoking rates for the next generation," says Marissa Reitsma, lead author of the studies on smoking, IHME. [1]

In 2019, there were an estimated 155 million smokers aged between 15 and 24 years—equivalent to 20.1% of young men and 5.0% of young women, globally.

Two-thirds (65.5%) of all current smokers began smoking by age 20, and 89% of smokers began by age 25. This highlights a critical age window during which individuals develop nicotine addiction and transition to become established smokers.

In 12 countries and territories in 2019, more than one in three young people were current smokers, including Bulgaria, Croatia, Latvia,

France, Chile, Turkey, and Greenland, as well as five Pacific islands.

Globally, smoking prevalence among young people decreased between 1990 and 2019 among both young men (-32.9%) and young women (-37.6%). Progress varied across countries with only 81 achieving a significant decrease in prevalence among young people. More than half of countries experienced no change.

In many countries, progress in reducing the prevalence of smoking has not kept pace with population increases, resulting in significant increases in the number of young smokers. India, Egypt, and Indonesia had the largest absolute increases in number of young male smokers. Turkey, Jordan, and Zambia had the largest increases in number of young female smokers.

Globally, the average age at which individuals began smoking regularly is 19. The youngest average ages of initiation were observed in Europe and the Americas—with the youngest average age of initiation in Denmark (16.4). The oldest average ages of initiation were seen in east and south Asia and sub-Saharan Africa—with the oldest average age of initiation in Togo (22.5 years).

Reitsma adds: "Notably, in countries where prevalence of smoking among young people has decreased significantly, the age at which people start smoking has remained constant across time. This is encouraging evidence that interventions prevent smoking altogether, as opposed to only delaying the age at which people start smoking."

Stronger regulation of chewing tobacco needed, particularly in South Asia

Globally, 273.9 million people used chewing tobacco in 2019, equivalent

to age-adjusted prevalence of 6.5% among men and nearly 3% among women over the age of 15. Most people (228.2 million; 83.3%) who used chewing tobacco in 2019 resided in the South Asia region. The largest population of people who use chewing tobacco are in India with 185.8 million users, corresponding to 68% of all chewing tobacco users globally. Bangladesh, Nepal and Bhutan also had very high prevalence of chewing tobacco use.

"The health risks of chewing tobacco are well documented, including strong evidence of an increased risk of oral cancer. While global smoking prevalence has decreased, chewing tobacco has not, suggesting that control efforts have had much larger effects on the prevalence of smoking than on chewing tobacco in some countries. Stronger regulations and policies that specifically target use of chewing tobacco are needed, especially in countries in South Asia with high prevalence," says Parkes Kendrick, lead author of the study on chewing tobacco, IHME.

Industry interference and waning political commitment stalling urgent action on tobacco control

The first international public health treaty, the WHO Framework Convention on Tobacco Control (WHO FCTC), entered into force and became international binding law in 2005. The WHO FCTC outlines evidence-based interventions including reducing affordability of tobacco products through taxation, passing comprehensive smoke-free laws, restriction of sales to minors, mandating health warnings on packaging, and banning tobacco advertising, promotion, and sponsorship.

Since 2005, the FCTC has been ratified by 182 parties, but, as of 2018, only 62 countries had comprehensive smoke-free policies; 23 offered the full range of cessation support services; 91 mandated pictorial health

warnings; 48 had comprehensive advertising, promotion, and sponsorship bans; and 38 had the recommended level of tobacco taxation.

Tobacco taxation is a highly cost-effective measure, particularly when combined with a progressive approach to redistributing revenue from taxation to tobacco control programmes, health care, and other social support services. Decreasing affordability is particularly effective in reducing smoking rates among young people.

Between 2008 and 2018, the affordability of cigarettes decreased in only 33% of low-income countries compared with 38% in middle-income countries and 72% of high-income countries. Low-income and middle-income countries face the additional challenge of population growth expanding their smoking population. Despite this, only one low-income country, Madagascar, taxes tobacco at the rate recommended by WHO.

As the tobacco industry innovates by leveraging social media, tobacco control strategies must also evolve. Flavors may also play an important role in attracting youth to tobacco, in particular with the emergence of e-cigarette use. Banning all characterizing flavors, including menthol, across all nicotine-containing products, including smoked tobacco products, smokeless tobacco products, e-cigarettes, and heated tobacco products is a promising approach to reducing demand among young people.

Most countries have their legal purchase age set at either 16 or 18, but three quarters of smokers start by the age of 21. The authors point to encouraging evidence from some studies showing the impact of increasing the legal purchase age may have on smoking rates. Globally, the highest observed minimum age of purchase at the national level is 21, with six countries (the U.S., Uganda, Honduras, Sri Lanka, Samoa, and Kuwait) at this benchmark.

Dr. Vin Gupta, co-author, IHME, says: "Despite progress in some countries, tobacco industry interference and waning political commitment have resulted in a large and persistent gap between knowledge and action on global tobacco control. Bans on advertising, promotion, and sponsorship must extend to internet-based media, but only one in four countries have comprehensively banned all forms of direct and indirect advertising. Despite the clear link to youth initiation, fewer than 60 countries have enacted even partial flavor bans on tobacco products. Closing these loopholes is critical to protecting [young people](#) from the influence of the tobacco."

Finally, the authors note limitations across the three studies, including that data on tobacco use are self-reported, age of initiation may be subject to recall bias, and the health effects of smoking do not include second hand smoke. The analyses focus on smoking tobacco products and chewing tobacco products and do not reflect e-cigarettes (and other electronic nicotine delivery systems) or heated tobacco products.

In a linked Comment in *The Lancet*, Alan Blum and Ransome Eke, University of Alabama, Tuscaloosa, U.S. (who were not involved in the study) write: "How to tackle the global smoking pandemic has become a perpetual dilemma. Tobacco control—a term adopted by 1990s academia to keep radical grassroots antismoking activism at arm's length—remains mired in descriptive research that generates data to support policies aimed at reducing smoking. However, unlike, for instance, mosquito control, the vector—the tobacco industry—survives and thrives. And, like a mutating virus, it adapts to legislative and regulatory attempts to hinder the sale, promotion, and use of its products. Taxation or sin taxes are not necessarily the most effective tobacco control policy, but to say so risks derision. Cigarette taxes could be set high enough to crush the tobacco industry, but no governments will go that far. They rely on this revenue for deficit reduction and for things other than curbing smoking.... The tobacco industry remains the

foremost obstacle to [tobacco control](#). State-owned cigarette manufacturers— notably, the China tobacco monopoly in the world's largest cigarette market—pose a daunting challenge to public health. The U.S., the UK, Japan, Korea, Switzerland, and Sweden, among other countries, also host powerful tobacco companies... Any hope for ending the [tobacco](#) pandemic lies in the commitment of every health professional to make smoking prevention, smoking cessation, and relapse prevention a top priority."

More information: *The Lancet* (2021). DOI: 10.1016/S0140-6736(21)01169-7

Provided by Lancet

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