Tobacco and Ethnic Minorities



ASH Fact Sheet

March 2024

Plain English Summary

Tobacco causes health problems for people of all ethnicities.

Smoking cigarettes is the most common way of using tobacco in the UK. Black, Asian, and Chinese people are less likely to smoke than white people. People with mixed ethnicity are slightly more likely to smoke than white people. Over time, smoking is slowly becoming less common in people of all ethnicities.



In general, men are slightly more likely to smoke than women. This gender difference is bigger in people with Asian or Chinese ethnicity, where men are much more likely to smoke than women.

Some forms of tobacco other than cigarettes are more often used by certain ethnic minorities. Shisha pipes are most often used by Middle Eastern and South Asian Britons. Smokeless tobacco (e.g. naswar, paan or betel quid) is most often used by South Asian Britons. These ways of using tobacco are not safe and can cause health problems.

Ethnic minorities living in Britain have a higher risk of some diseases that can be caused by smoking than white Britons. If no-one used tobacco products, society would be more equal as well as healthier.

Introduction

Tobacco causes health problems across all ethnicities, but the way people from different ethnic backgrounds use tobacco varies considerably. Some ethnic minorities are substantially more likely to use smokeless tobacco (in particular, South Asian Britons) and shisha pipes (in particular, Middle Eastern and South Asian Britons). However, smoking remains the most common form of tobacco use in all communities. In 2022, 12.9% of the UK adult population smoked cigarettes.¹ Smoking causes about 64,000 deaths each year in England,² with approximately 5,000 further in Wales, 10,000 in Scotland and 2,300 in Northern Ireland.³ This factsheet includes the latest data and evidence on tobacco use by ethnic minorities in England, Wales, Great Britain, and the UK.

It includes:

- Smoking prevalence by ethnicity and nationality
- Shisha
- Smokeless tobacco
- The health impacts of tobacco use among ethnic minorities

Population profile

Ethnic minorities in England and Wales represent approximately 18% of the total population:⁴

- Asian/Asian British/Asian Welsh people are the largest minority ethnic group in England and Wales, accounting for 9.3% of the total population.
- Black/African/Caribbean/black British people account for 4.0% of the total population.
- People of mixed/multiple ethnicities make up 2.9% of the total population.
- People of 'Other' ethnicities make up 2.1% of the total population.

Since 2011, there has also been a shift in the ethnic background of white people living in England and Wales. The proportion of the population classified as white British decreased from 81% in 2011 to 74% in 2021, while the 'Other White' group saw an increase in their share of the population, from 4.4% to 6.2%. However, these changes may have been at least partly due to new functionality of the form which made it easier for people to self-define their nationality.

Immigration also has an impact on the use of tobacco in the UK. When people immigrate to the UK, many come from countries with higher smoking rates – particularly from within Europe (See Table 1 below for more details). Many immigrants also come from countries with a different legal framework for tobacco control to the UK, and a different cultural approach to tobacco use.

Table 1: Smoking rates (15+) by country of origin, top five immigrant communities to the UK by size

Country of birth	Population living in the UK, 2021 ⁵	Tobacco smoking rate in country of origin, 2020 ⁶		
India	896,000	8%		
Poland	682,000	24%		
Pakistan	456,000	14%		
Republic of Ireland	412,000	21%		
Germany	347,000	22%		
Comparator				
UK		15%		

Please note the World Health Organisation methodology for measuring smoking prevalence differs substantially to that used by the Office for National Statistics and smoking rates between the two sources are not comparable. The ONS data is a much larger sample and is the most appropriate measure of smoking rates in the UK, and how they have changed over time. The WHO data is an appropriate measure to use to compare different countries.

Smoking prevalence by sex and ethnic group

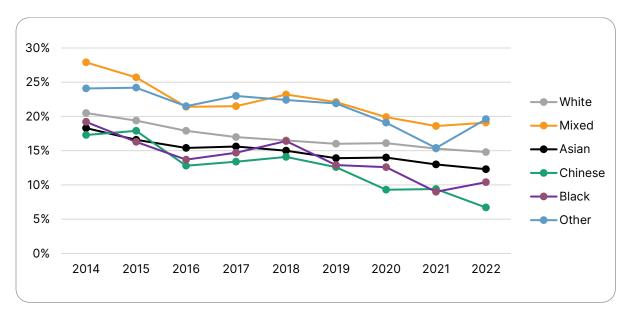
In 2022 the smoking rate for adult men in the UK was 15% and for adult women it was 11%.

Figures differ most noticeably amongst ethnic minority women, where smoking rates are substantially lower than for white women, except for women of mixed ethnicity.

Table 2: UK smoking rate by gender and ethnicity (2022)¹

Ethnicity	Male smoking rate	Female smoking rate
Mixed ethnicity	15%	12%
White	19%	14%
Asian	12%	2.4%
Black	6.7%	3.2%
Chinese	10%	6.9%
Other	20%	7.7%

Figure 1: Smoking Prevalence in men, by ethnicity (UK 2014-2022)¹



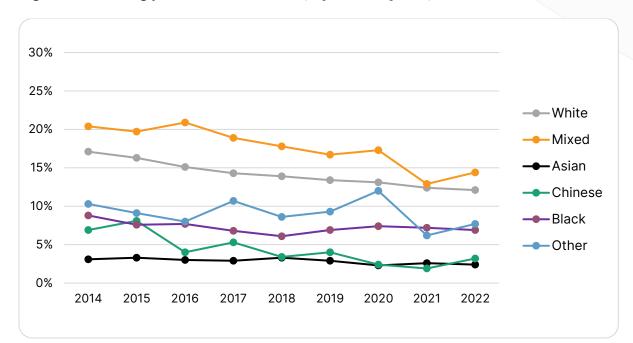


Figure 2: Smoking prevalence in women, by ethnicity (UK, 2014-2022)1

Stopping smoking

In England, self-reported success rates among those who set a quit date were very similar across ethnicities in 2022/3. For all ethnic groups, 54.0% of the white population attempting to quit reported success, compared with 55.0% of the Asian or Asian British and 53.9% of the black or black British population.⁷

Tobacco-use by ethnic minorities in Britain Smokeless tobacco

What is smokeless tobacco (SLT)?

Smokeless tobacco (SLT) constitutes a wide range of tobacco containing products that are non-combustible but may be chewed, inhaled (sniffed) or placed in the mouth. Only products designed to be chewed or inhaled are legal in the UK (see section on regulation below). These include tobacco with or without characterising flavours and sweeteners (e.g. Mishri and Qiwam), with alkaline modifiers (e.g. Khaini, Naswar and Gul) to increase nicotine absorption and addictiveness and tobacco with areca nut and slaked lime (e.g. Gutkha, Zarda, Mawa).8

Specific types of SLT include:

 Naswar is a smokeless tobacco usually containing powdered tobacco, slaked lime and indigo. It is used by sniffing (nasally) or 'dipping' (placing a pinch under the tongue or in the cheek where it is stored)⁹

- Paan (also known as Betel quid) is commonly used in many Asian communities. It
 can be prepared in a variety of ways but usually contains sliced areca nut, slaked
 lime and catechu, wrapped in betel leaf. The resulting quid is then placed in the
 mouth and sucked or chewed for its psychoactive effects. Paan is itself not a
 tobacco product, but it is often mixed with tobacco as an auxiliary ingredient.
- Gutkha is a mixture of tobacco and pan masala.
- Khaini is dried tobacco and slaked lime.
- Zarda is a moist or dry chewing tobacco mixed with a variety of colourings, spices, and perfumes.¹⁰

South Asian SLT products are largely produced by a fermentation process and may contain *Nicotiana rustica*, a tobacco species containing higher levels of nicotine and carcinogenic tobacco specific nitrosamines (TSNAs). As a result, they often have varying pH levels and include heavy metals which contribute to poor health outcomes.¹¹ ¹²

Characterising flavours are also added which increase the attractiveness and palatability of SLT products. The most commonly found flavours include menthol, eugenol and camphor.

Who uses smokeless tobacco?

SLT products are consumed by up to 351 million individuals worldwide. Most of global consumption is based in South and Southeast Asia.¹³ In Great Britain, SLT products are consumed most frequently by ethnic minority groups, predominantly South Asians of Bangladeshi, Indian and Pakistani origin (see Table 3).

Table 3: GB use of chewed or sucked tobacco products by ethnic group 2019¹⁵

Table 5. Ob use of chewed of sucked tobacco products by ethinic group 2019				
Smokeless tobacco use, by ethnicity	White	South Asian	Black/ African/ Caribbean	Other/ mixed ethnicity
Ever tried	12%	23%	19%	20%
Regular use (at least monthly)	1%	7%	5%	3%
Never tried	86%	64%	75%	75%

Among the British South Asian population, adults of Bangladeshi origin are most likely to use smokeless tobacco, with adults of Indian origin least likely to do so (see Table 4).

Table 4: GB use of chewed or sucked tobacco products by South Asian ethnic group 2019¹⁶

Smokeless tobacco use, by ethnicity	Indian	Bangladeshi	Pakistani
Ever tried	16%	29%	21%
Regular use (at least monthly)	5%	12%	0%
Never tried	80%	68%	69%

There are also gender differences in smokeless tobacco use (see Table 5), with men reporting higher 'ever tried' and 'regular use' of SLT.

Table 5: GB use of chewed or sucked tobacco products by gender and ethnic group 2019¹⁵ 16

Smokeless tobacco use, by gender and ethnicity	All respondents		South Asian subsample	
	Male	Female	Male	Female
Ever tried	15%	11%	24%	18%
Regular use (at least monthly)	2%	1%	7%	6%
Never tried	82%	87%	73%	77%

Regulation of smokeless tobacco

The UK Tobacco and Related Products Regulations 2016¹⁷ and EU Tobacco Products Directive 2014¹⁸ state that 'no person may produce or supply tobacco for oral use'.

Tobacco for oral use is defined as a tobacco product which is:

- (a) intended for oral use, unless it is intended to be inhaled or chewed; and
- (b) in powder or particulate form or any combination of these forms, whether presented in a sachet portion or a porous sachet, or in any other way.

This means that tobacco which is inhaled or chewed is **not** considered to be tobacco for oral use.

The Tobacco and Related Products Regulations (2016) and EU Tobacco Products Directive 2014 are also the source of SLT regulations for tobacco which is inhaled or chewed. These regulations impose fewer requirements on most SLT products than those for combustible tobacco products:

- Regulations require one minimal text warning ('This tobacco product damages your health and is addictive') to be placed on SLT products. Pictorial warnings and plain packaging are not required.
- There are no requirements for placement of fiscal markings (showing UK Duty has been paid) on SLT products.
- There is no minimum purchase requirement size for SLT, meaning that SLT products can be bought in very small quantities.
- While there is a ban on cigarettes and hand rolling tobacco with characterising flavours, this does not extend to SLT products.¹⁹

As well as having less stringent regulatory requirements, ²⁰ fewer than 50% of SLT products have been found to comply with existing regulations. ²¹ There is also a considerable variation in the degree of compliance among SLT products. Alongside minimal enforced regulation on the contents of SLT products, a 2021 study found there is also little regulation of the supply chain and minimal knowledge of these regulations by retailers. ²²

Worldwide, SLT products may be sold in a variety of packaging designs that are comparable to confectionery products. They may also contain messages that promote

the use of tobacco through misleading claims of the product's taste or experience.²³ All tobacco producers and suppliers are required to provide a product's ingredients listing to Public Health England; however, no South Asian SLT products are currently listed.²⁴

Oral snuff, marketed in Sweden as snus, is illegal in the UK. Unlike in the UK and the rest of Europe the contents of smokeless tobacco are strictly regulated in Sweden by the Swedish National Food Agency Directive of snus and chewing tobacco (LIVSFS 2012:6) which sets maximum limits for lead, aflatoxins and carcinogens in line with recommendations by the WHO.²⁵

Health impacts of smokeless tobacco

Smokeless tobacco products (SLTs) refer to a wide category which covers several products; therefore, it is difficult to generalise about their health impacts.

Any SLT product which contains tobacco is addictive. Given the wide diversity of SLT products, and lack of knowledge about their toxic constituents, it is not possible to generalise about the health risks of SLT products as a category, although some of the risks are likely to be lower than traditional tobacco smoking.

The global evidence on many SLT products suggests strong associations with oral and pharyngeal cancers, ischaemic heart disease, stroke and adverse perinatal outcomes.²⁶ ²⁷ ²⁸ ²⁹ As with combustible tobacco, SLT use has also been linked to a range of oral health problems that include tooth staining and wear, periodontal disease, bad breath (halitosis) and tooth loss.³⁰

In the UK there is a lack of direct evidence identifying the negative health impacts of SLT use. However, data extracted from cancer registries does suggest a significantly higher risk of oral and pharyngeal cancers among South Asian ethnic groups compared to the general population.³¹

The National Institute for Health and Clinical Excellence (NICE) has published guidance on helping people to stop using smokeless tobacco.³²

Some SLTs are not legal in the UK. Swedish snus, which is a type of oral tobacco available in loose form, is consumed by placing it between the gum and the upper lip.

Heated tobacco or 'Heat-not-burn' products (HnB) are electronic devices that heat process tobacco instead of combusting it to supposedly deliver an aerosol with fewer toxicants than in cigarette smoke. However, there is a lack of knowledge about the toxic constituents of these products, and evidence is primarily drawn from tobacco industry data meaning there is a lack of reliable research on the effects of long-term SLT/HnB use on health. A more detailed background on these products can be found at the Tobacco Tactics webpage.³³ There are no indications that HnB products are used by any particular ethnic group in the UK.

Shisha

Shisha, also known as hookah, water pipe, narghille or hubble bubble, have traditionally been used to smoke tobacco in the Middle East. However, there has been a global resurgence of waterpipe smoking. Shisha bars have become particularly popular among young people from ethnic minority groups in the United Kingdom. ¹⁶

Shisha can be used to smoke a number of substances. Whilst they are largely used to smoke tobacco, which may be flavoured with fruits or sugar syrup, herbal mixtures are also commonly used. The latter do not contain nicotine, and so are not addictive, but smoking herbal shisha is as harmful to health as smoking tobacco shisha, as both involve burning charcoal and inhaling the smoke.

How are shisha pipes used?

Shisha generally consists of a head, body, water bowl and a hose. A tobacco mixture is placed on top of the head, and this is often covered with perforated aluminium foil. Burning charcoal is placed on top of the foil. On breathing in through the hose, a mixture of the coal and tobacco smoke is drawn down through the body of the apparatus and into the bowl of water. This causes a vacuum in the air space above the water, resulting in smoke passing through the water, producing bubbles (hence the name "hubblebubble"), passing into the hose and finally the mouth of the user. The size of the waterpipe, number of hoses and other features may vary.

Who uses shisha pipes?

Shisha use in Great Britain is concentrated among ethnic minorities (see Table 6), particularly those of South Asian descent and those of other/mixed ethnicity. White people are the least likely ethnic group to have tried shisha, or to use it once a year or more.

Table 6: GB use of shisha pipe by ethnicity 2023³⁴

Shisha use	White	South Asian	Black/African/ Caribbean	Other/mixed ethnicity
Ever tried	12%	28%	29%	27%
Once a year or more	2%	15%	8%	11%
Less often	10%	13%	22%	17%
Never tried	73%	51%	54%	56%

Rates of shisha use appear to be similar to 2015 when 13% of respondents had ever tried shisha, with 14% of respondents reporting having ever tried shisha in 2023.¹⁵

As with other non-smoked tobacco products, use of shisha is more heavily concentrated among smokers than among never smokers or ex-smokers (see Table 7).

Table 7: GB use of shisha pipe by smoking status 2023³⁴

Shisha use	Never smoker	Ex-smoker	Smoker
Ever tried	10%	16%	27%
Once a year or more	2%	3%	9%
Less often	8%	13%	18%
Never tried	76%	70%	53%

The health impact of shisha

The most common belief among shisha users, across all regions of the world, is that shisha smoking is less harmful and less addictive than cigarette smoking.³⁵ Since the smoking ban, Shisha use has increased by 210% in the UK.³⁷ Users have reported the belief that the water, which the smoke passes through before it is inhaled, "filters out" the harmful substances in the smoke.³⁸

Although shisha smoking has not yet been as extensively researched as cigarette smoking, the existing research suggests that it is associated with many of the same risks as cigarette smoking and may incur some unique health risks too. It contains similar toxins and carcinogens known to cause cancer, alongside other harmful chemicals.³⁹ Furthermore, studies demonstrated heavy metal contamination of the blood and urine.⁴⁰ A review of the literature found that shisha smoking consistently produces significant levels of noxious chemicals, including "tar", nicotine, carbon monoxide (CO), nitric oxide and various carcinogens (cancer-causing chemicals), in amounts comparable to cigarette smoking.⁴¹ Furthermore, due to the use of other inhaled additives such as marijuana and alcohol, the addictive nature of waterpipe smoking is enhanced.⁴²

Short term health effects

After 45 minutes of tobacco or herbal shisha use, expired air carbon monoxide, plasma nicotine and heart rate are substantially increased, ⁴³ and these levels are equal to, or higher than exposure when smoking cigarettes. It can also cause common colds or chronic bronchitis in frequent users. ⁴⁴ There have also been reports of carbon monoxide poisoning from waterpipe use, leading to headaches, dizziness and nausea, ⁴⁵ ⁴⁶ a phenomenon which is largely unseen in the cigarette smoking literature.

Longer term health effects

A systematic review of the literature on the health risks of shisha smoking found that shisha smoking more than doubled the risk of lung cancer, respiratory illness, low birthweight, and gum disease.⁴⁷ A recent literature review on the harmful effects of shisha smoking also found that those who smoke shisha are significantly more likely to have disorders associated with metabolic syndrome (a combination of high blood pressure, diabetes, and obesity).⁴¹

Second-hand smoke from shisha

Second-hand smoke from shisha is a mixture of smoke exhaled by the smoker, plus smoke from the fuel used to heat the pipe. It therefore poses a serious risk to the health of non-smokers. One study of machine-smoked waterpipes found that compared with cigarette smoking, shisha smoke contained five times the number of ultrafine particles,

four times the carcinogenic polyaromatic hydrocarbons and volatile aldehydes and 35 times the carbon monoxide.⁴⁸ These are all toxic or carcinogenic substances.

Health impact of tobacco use among ethnic minorities

Ethnic minorities living in Britain are at higher risk of a number of smoking related diseases than white Britons. Those already more susceptible to these diseases further increase their chances of ill health if they smoke.⁴⁹

Ethnic minorities in Britian are more likely to experience poverty, with of black African, Bangladeshi and Pakastani Britons most likely to be living in poverty or depravation.⁵⁰ However, Smoking is found to be a bigger source of health inequalities than social position,⁵¹ suggesting that reducing smoking is a highly effective way to tackle health inequalities. In line with this, smoking is isolated as a key area to work on as part of NHSE CORE20PLUS5 strategy which aims to reduce heath inequalities.

Stroke

Smoking is a major risk factor for stroke. Ethnic minorities in Great Britain are generally at a higher risk of stroke than white Britons.⁵² For example:

- Black people are almost twice as likely to have a stroke than white people.⁵³
- On average, people of black African, black Caribbean and South Asian descent in the UK have strokes earlier on in their lives.⁵⁴

Diabetes

There is a growing body of evidence to suggest that smoking is an independent risk factor for diabetes, 55 with one report stating smokers are 30-40% more likely to develop type 2 diabetes than people who don't smoke. 56 Smoking has also been identified as a risk factor for insulin resistance, a precursor for diabetes, 57 and is associated with problems with insulin dosing amongst those with diabetes. 58

Compared to non-smokers with diabetes, people with diabetes who smoke have twice the risk of premature death. Furthermore, diabetics who smoke are less likely to comply with proper care recommendations and have an increased likelihood of depression.⁵⁹

Diabetes rates are higher amongst ethnic minorities. Bangladeshi men are almost four times more likely to have doctor-diagnosed diabetes. Among women, diabetes is three times more common in Bangladeshi and black Caribbean women, more than five times as common among Pakistani women, and two-and-a-half times as common in Indian women compared with the general population. Considering this greater prevalence of diabetes amongst ethnic minorities, and the comorbidities associated with diabetes and smoking, smoking cessation would improve health outcomes for these populations.

For further information about smoking and diabetes see the <u>ASH Fact Sheet on smoking</u> and diabetes.

Cardiovascular Disease

It is well known that South Asian and black populations have a higher rate of cardiovascular disease than white Europeans.⁶¹

It is also established that smoking is among the top causes of cardiovascular disease, including coronary heart disease, ischemic stroke, peripheral artery disease and abdominal aortic aneurysm.⁶² Smoking is a significant risk factor for CVD in black populations, forming the second largest contribution to cases.

It is unclear that smoking effects the CVD risk for ethnic minorities in the same way. For example, whilst smoking is a similar risk factor for CVD in black populations as white where it comprises the second biggest factor. Yet for South Asian populations smoking was a lower risk factor compared to obesity and diabetes.⁶³ However, differences in CVD between men and women of Asian descent, with rates higher amongst men, may be in part explain by differences in smoking prevalence between genders.⁶⁴

For further information about smoking and heart health see the ASH factsheet on smoking, the heart and circulation.

Cancer

While the evidence suggests that ethnic minorities in England experience lower rates of cancer than white people, including for lung cancer, they experience certain cancers more frequently than white people.⁶⁵ 66

The risk of all tobacco-related diseases decreases after the cessation of tobacco use. Lung cancer risk decreases to about 50% of that of a smoker 10 years after quitting, and your risk of cancer of the mouth, throat, oesophagus, bladder, cervix, and pancreas also decrease.⁶⁷

For further information about smoking and cancer see the **ASH Fact Sheet on Smoking** and Cancer.

References

¹ Adult smoking habits in the UK: 2021 Office of National Statistics, 2022.

² The Khan review: Making Smoking obsolete Dr Javed Khan, June 2022.

³ Adult smoking habits in the UK: 2019 ONS, 2020.

⁴ 2021 Census Office of National Statistics

⁵ Vargas-Silva et al., The Migration Observation - Migrants in the UK: An Overview, Figure 5. The University of Oxford

⁶ Tobacco Control Target 3a. Estimate of current tobacco use prevalence (%) World Health Organisation.

NHS Digital; Statistics on NHS Stop Smoking Services in England, April 2022 to March 2023 2023

⁸NIH National Cancer Institute; Smokeless tobacco and public health: A global perspective. [Full Report] 2014

⁹ IARC Working Group; Evaluation of Carcinogenic Risks to Humans. Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines. IARC Monographs on the evaluation of Carcinogenic risks to Humans, 2007

- ¹² Stanfill et al., Global surveillance of oral tobacco products: total nicotine, unionised nicotine and tobacco-specific Nnitrosamines Tob Control, 2011.
- ¹³ Sinha et al., Prevalence of smokeless tobacco use among adults in WHO South-East Asia Indian J Cancer, 2012.
- ¹⁴ Siddiqi et al., Global burden of disease due to smokeless tobacco consumption in adults: an updated analysis of data from 127 countries BMC Med, 18. 2020.
- ¹⁵ ASH YouGov Research. Main GB sample: All figures, unless otherwise stated, are from YouGov Plc. Total sample size in 2019 was 12,393 adults. Fieldwork was undertaken between 12th February to 10th March. The survey was carried out online. The figures have been weighted and are representative of GB adults (aged 18+). Surveys are conducted yearly, but 2019 was the most recent to include this question. For more details see ASH adult vaping and smoking factsheets.
- ¹⁶ ASH YouGov Research. SA sample: All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 500 adults. Fieldwork was undertaken between 14th February to 9th March. The survey was carried out online. The figures have been weighted and are representative of South Asian GB adults (aged 18+).
- ¹⁷ The Tobacco and Related Products Regulations 2016
- ¹⁸ DIRECTIVE 2014/40/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
- 19 The Tobacco and Related Products Regulations 2016
- ²⁰ Kumat et al., Regulation of toxic contents of smokeless tobacco products Indian J Med Res, 2018.
- ²¹ Accessibility of chewing tobacco products in England Journal of public health. 2010;32(3):372-8.
- ²² Longman et al., Siddiqui et al., <u>Smokeless tobacco products, supply chain and retailers' practices in England: a multimethods study to inform policy</u>, 2021
- ²³ Mahrotra et al., Why smokeless tobacco control needs to be strengthened? 2020 Cancer Control, 2020.
- ²⁴ Public Health England; List of tobacco and related products notified under SI 2016/507
- ²⁵ WHO Study Group on Tobacco product regulation Report on the scientific basis of tobacco product regulation: 6th report of a WHO study group WHO Technical report series, n. 1001. 2018
- ²⁶ Centre for Disease Control and Prevention Smokeless Tobacco: Health Effects
- ²⁷ NHS Paan, bidi and shisha: Chewing tobacco and cancer risk
- ²⁸ Critchley et al., Health effects associated with smokeless tobacco: a systematic review Thorax, 2003
- ²⁹ C. Hajat et al., The health impact of smokeless tobacco products: a systematic review Harm Reduct J, 2021
- ³⁰ Tobacco and Oral health-ASH research report. Action on smoking and health; September 2016.
- ³¹ Moles D et al., <u>Oral and pharyngeal cancer in South Asians and non-South Asians in relation to socioeconomic deprivation in South East England</u> British journal of cancer, 2008
- ³² National Institute for Health and Care excellence NCIE guideline [NG209] Tobacco: preventing uptake, promoting quitting and treating dependence August, 2020.
- 33 Tobacco Tactics: Heated Tobacco Products https://tobaccotactics.org/article/heated-tobacco-products/
- ³⁴ ASH YouGov Research. Main GB sample: All figures, unless otherwise stated, are from YouGov Plc. Total sample size in 2023 was 12,271 adults. Fieldwork was undertaken between 22nd February to 15th March. The survey was carried out online. The figures have been weighted and are representative of GB adults (aged 18+). Surveys are conducted yearly. For more details see ASH adult vaping and smoking factsheets.
- 35 Jawad et al., To what extent should waterpipe tobacco smoking become a public health priority? Addiction, 2013
- ³⁶ Jawad et al., <u>A qualitative analysis among regular waterpipe tobacco smokers in London universities</u> Int J Tuberc Lung Dis, 2013
- ³⁷ Kadhum et al., A review of the health effects of smoking shisha Clin Med (Lond), 2015
- 38 Aljarrah et al., Perceptions of hookah smoking harmfulness: predictors and characteristics among current hookah users
 Tob. Induced Dis, 2009

¹⁰ A McNeill et al., Levels of toxins in oral tobacco products in the UK. Tobacco Control, 2006

¹¹ Stanfill et al., <u>Chemical characterization of smokeless tobacco products from South Asia: Nicotine, unprotonated nicotine, tobacco-specific N'-Nitrosamines, and flavor compounds. Food Chem Toxicol.</u> Food and Chemical Toxicology, 2018

- ³⁹ Patil et al., Effects of smoking shisha, cancer risk, and strategies for prevention of shisha habit J Oral Biol Craniofac Res, 2022
- 40 Ghaderi et al. Examining of Heavy Metal Concentrations in Hookah Smokers Biol Trace Elem Res. 2022
- ⁴¹ Muhammad Aslam et al., Harmful effects of shisha: literature review Int Arch Med. 2014
- ⁴² Fares Darawshy et al., <u>Waterpipe smoking: a review of pulmonary and health effects</u> European respiratory Review, 2021
- ⁴³ Blank et al., <u>Acute effects of waterpipe tobacco smoking: a double-blind, placebo-control study 2011</u> Drug Alcohol Depend. 2011
- ⁴⁴ P Salameh et al. Waterpipe smoking and dependence are associated with chronic bronchitis: a case-control study in Lebanon East Mediterr Health J, 2012
- ⁴⁵ Arziman et al., <u>Five Cases of Carbon Monoxide Poisoning Due to Narghile (Shisha)</u> Hong Kong Journal for emergency Medicine, 2011
- ⁴⁶ Clarke et al., <u>Multiple patients with carbon monoxide toxicity from water-pipe smoking 2012</u> Prehost Distaster Med, 2012
- ⁴⁷ AkI et al., <u>The effects of waterpipe tobacco smoking on health outcomes: a systematic review</u> International Journal of Epidemiology, 2010
- ⁴⁸ Daher et al., Comparison of carcinogen, carbon monoxide, and ultrafine particle emissions from narghile waterpipe and cigarette smoking: Sidestream smoke measurements and assessment of second-hand smoke emission factors

 Atmos Environ 2010
- ⁴⁹ Shah et al., Smoking and stroke: the more you smoke the more you stroke 2010 Expert Rev Cardiovasc Ther, 2010
- ⁵⁰ Equalities and Human Rights Commission 'Is Britain Fairer?' report 2018
- ⁵¹ Gruer L, Hart CL, Gordon DS, Watt GC. Effect of tobacco smoking on survival of men and women by social position: a 28 year cohort study. BMJ. 2009
- ⁵² Shiekh et al. Ethnicity and risk of diagnosed dementia after stroke: a cohort study using the Clinical Practice Research

 Datalink 2017 J Epidemiol Community Health, 2020
- 53 Wang et al., <u>Age and ethnic disparities in incidence of stroke over time: the South London Stroke Register Stroke</u>, 2013
- ⁵⁴ Giosue Gulli et al., <u>Differences in the distribution of stroke subtypes in a UK black stroke population final results from the South London Ethnicity and Stroke Study, BMC Medicine, 2016</u>
- 55 Maddatu et al., Smoking and the Risk of Type 2 Diabetes Transl Res, 2017
- ⁵⁶ The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General, 2014.
- ⁵⁷ Hyeon Cho et al., <u>Short-term smoking increases the risk of insulin resistance.</u> Scientific Reports, 2022
- ⁵⁸ Pan A et al. Relation of active, passive, and quitting smoking with incident type 2 diabetes: a systematic review and meta-analysis. Lancet Diabetes Endocrinol. 2015
- ⁵⁹ Solberg et al., <u>Diabetic Patients Who Smoke: Are They Different?</u> Ann Fam Med. 2004 Jan-Feb
- 60 NHS Digital, Health Survey for England 2004: Health of ethnic minorities, Headline results, 2006
- ⁶¹Frederick K. Ho et al. <u>Ethnic differences in cardiovascular risk: examining differential exposure and susceptibility to</u> risk factors BMC Medicine (2022) 20:149
- 62 British Heart Foundation (BHF). Statistics Factsheet UK. January 2021
- ⁶³Frederick K. Ho et al. Ethnic differences in cardiovascular risk; examining differential exposure and susceptibility to risk factors BMC Medicine (2022) 20:149
- ⁶⁴ Renee Bolijn et al., The contribution of smoking to differences in cardiovascular disease incidence between men and women across six ethnic groups in Amsterdam, the Netherlands: The HELIUS study. Preventive Medicine Reports Volume 31, February 2023
- ⁶⁵ Lane et al., Ethnic differences in cancer incidence and mortality: the Birmingham Factory Screening Project QJM: An International Journal of Medicine, 2007
- ⁶⁶ Delon, C., Brown, K.F., Payne, N.W.S. et al. <u>Differences in cancer incidence by broad ethnic group in England, 2013–</u> **2017**. Br J Cancer, 2022

⁶⁷ WHO Fact sheet about health benefits of smoking cessation