

# Tobacco and Ethnic Minorities

August 2019

#### 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. The most recent smoking rate for the UK is 14.7%, and smoking causes 95,600 deaths each year.<sup>1</sup>

This fact sheet includes the latest data and evidence on tobacco use by ethnic minorities in England, Wales, Great Britain and the UK (differences due to the population covered by each data source). It includes:

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

### POPULATION PROFILE

Ethnic minorities in England and Wales represent approximately 14% of the total population:<sup>2</sup>

- Asian/Asian British people are the largest minority ethnic group in England and Wales, accounting for 7.5% of the total population
- Black/African/Caribbean/Black British people account for 3.3% of the total population
- People of mixed/multiple ethnicities make up 2.2% of the total population
- And people of 'other' ethnicities make up 1% of the total population.

Since 2001, 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 88% in 2001 to 81% in 2011, while the 'Other White' group saw an increase in their share of the population, from 2.6% to 4.4%.<sup>3</sup>

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 in Eastern Europe (See Table 1 below for more details).<sup>4</sup> Many migrants 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, 2016<sup>54</sup>

Country of birth	Population living in the UK	Smoking rate in country of origin		
Poland	922,000	28.2%		
India	829,000	11.3%		
Pakistan	522,000	19.8%		
Ireland	390,000	24.4%		
Romania	390,000	30.0%		
Comparator				
UK		22.4%		

<sup>\*</sup>Please note that 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 and how they have changed over time in the UK. The WHO data is an appropriate measure to use to compare different countries.

## SMOKING PREVALENCE BY SEX AND ETHNIC GROUP

For 2017, the last year for which we have a breakdown by ethnicity, the smoking rate for adult men in Great Britain was 17% and for adult women it was 13%.<sup>6</sup>

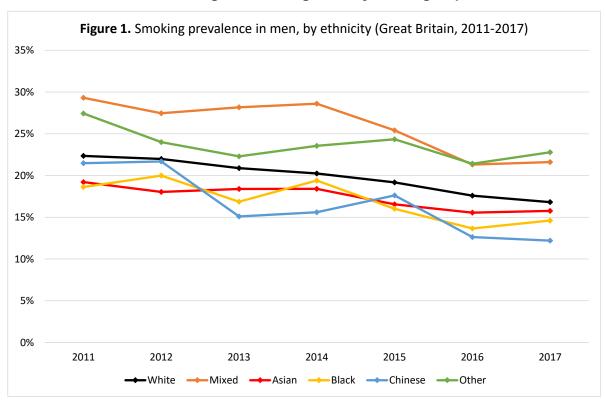
The largest groups of ethnic minority men in Great Britain have a lower smoking prevalence than white men (figure 1):<sup>78</sup>

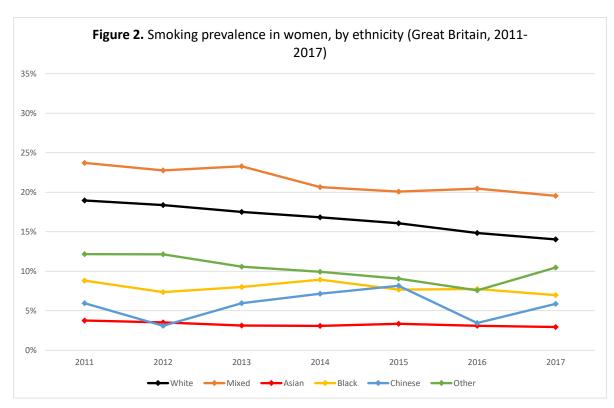
- · 23% of men of 'other' ethnicities smoke
- · 22% of men of mixed ethnicity smoke
- 17% of white men smoke
- 16% of Asian men smoke
- 15% of black men smoke
- 12% of Chinese men smoke

Amongst ethnic minority women, smoking rates are substantially lower than for white women, except for women of mixed ethnicity (figure 2):<sup>78</sup>

- 19% of women of mixed ethnicity smoke
- 14% of white women smoke
- 10% of women of 'other' ethnicities smoke
- 7% of black women smoke
- 6% of Chinese women smoke
- 3% of Asian women smoke

#### Current regular smoking rates by ethnic group9





# STOPPING SMOKING

Smokers from minority ethnic groups are as motivated to quit smoking as the overall UK population. Between 2011 and 2017 the smoking rate for ethnic minority groups fell by 4.9 percentage points, compared to 5 percentage points for the population as a whole.<sup>10 11</sup> This reduction has been more pronounced for ethnic minority men (5.7 percentage points) compared to ethnic minority women (3.8 percentage points).

## **SMOKELESS TOBACCO**

#### WHAT IS SMOKELESS TOBACCO?

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).

SLT products include tobacco with or without characterising flavours and sweeteners (eg. Mishri and Qiwam), with alkaline modifiers (eg. Khaini, Naswar and Gul) to increase nicotine absorption and addictiveness and tobacco with areca nut and slaked lime (eg. Gutkha, Zarda, Mawa).<sup>12</sup>

#### 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).<sup>13 14</sup>
- 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 mixture of tobacco, lime, spices, areca nut and flavourings<sup>15</sup>

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.<sup>16 17</sup>

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. More than two thirds of global consumption is based in South and South East Asia.<sup>18</sup> In Great Britain, SLT products are consumed most frequently by ethnic minority groups, predominantly South Asians of Bangladeshi, Indian and Pakistani origin (see Table 2).

Table 2: GB use of chewed or sucked tobacco products by ethnic group, 2019

Smokeless tobacco use	White	South Asian	Black/African/	Other/mixed
			Caribbean	
Ever tried	12%	23%	19%	20%
Regular use (at least monthly)	1%	7%	5%	3%
Never tried	86%	64%	75%	75%

Among the GB 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 3).

Table 3: GB use of chewed or sucked tobacco products by South Asian ethnic group, 2019<sup>20</sup>

Smokeless tobacco use	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 4) with men reporting higher 'ever tried' and 'regular use' of SLT.

Table 4: GB use of chewed or sucked tobacco products by gender and ethnic group, 2019<sup>19 20</sup>

Smokeless tobacco use	All respondents <sup>19</sup>		South Asian subsample <sup>20</sup>	
	Male	Female	Male	Female
Ever tried	15%	11%	24%	18%
Regular use (at least	2%	1%	7%	6%
monthly)				
Never tried	82%	87%	73%	77%

# REGULATION OF SMOKELESS TOBACCO

The UK Tobacco and Related Products Regulations 2016<sup>21</sup> and EU Tobacco Products Directive 2014<sup>22</sup> 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.<sup>23</sup>

As well as having less stringent regulatory requirements, fewer than 50% of SLT products have been found to comply with existing regulations.<sup>24</sup> There is also a considerable variation in the degree of compliance among SLT products. Naswar products may be the least compliant and are often sold in unlabelled plastic pouches containing no relevant product information.<sup>25</sup>

Other 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.<sup>29</sup> 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.<sup>26</sup>

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.<sup>27</sup>

# HEALTH IMPACTS OF SMOKELESS TOBACCO

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.

However, as smokeless tobacco is not associated with the same risks for lung cancer and respiratory diseases as cigarette smoking, the overall risk is likely to be lower.

Some forms of smokeless tobacco could provide an alternative to cigarettes. For example, Swedish snus, the contents of which are strictly regulated, is much less harmful than smoking.<sup>28</sup> On the other hand, the global evidence on many other SLT products suggests strong associations with oral and pharyngeal cancers, ischaemic heart disease, stroke and adverse perinatal outcomes.<sup>29 30 31 35</sup>

In England, 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.<sup>32</sup>

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.<sup>33</sup>

The National Institute for Health and Clinical Excellence (NICE) has published guidance on helping people to stop using smokeless tobacco.<sup>34</sup>

#### SHISHA

Shisha, also known as hookah, water pipe, narghile or hubble bubble, have traditionally been used to smoke tobacco in the Middle East. However, there has been a recent global resurgence of waterpipe smoking and in recent years shisha bars have become particularly popular among young people from ethnic minority groups in the United Kingdom.<sup>19</sup>

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. Although the latter do not contain nicotine, and so are not addictive, 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 consist 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 "hubble bubble"), 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 3), particularly in 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 regularly (once a year or more).

Shisha use White **South Asian** Black/African/ Other/Mixed Caribbean 10% 21% 16% 29% Ever tried 2% 6% 7% Once a year or more 11% Less often 9% 11% 10% 22% 77% 58% 64% 57% Never tried

Table 3: GB use of shisha pipe by ethnicity, 2019<sup>19</sup>

Shisha use appears to be steadily declining from its high point in 2015 when 13% of people had ever tried shisha to 11% of people reporting having ever tried shisha in 2019.<sup>19</sup>

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 4).

Shisha use	Never smoker	Ex-smoker	Smoker
Ever tried	8%	12%	22%
Once a year or more	1%	2%	5%
Less often	7%	10%	17%
Never tried	78%	77%	63%

Table 4: GB use of shisha pipe by smoking status, 2019<sup>19</sup>

#### 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.<sup>35 36</sup> Users often report the belief that the water, which the smoke passes through before it is inhaled, "filters out" the harmful substances in the smoke.<sup>37</sup>

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. 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.<sup>38 54</sup>

#### SHORT TERM HEALTH EFFECTS

After 45 minutes of tobacco or herbal shisha use, expired air CO, plasma nicotine and heart rate are substantially increased<sup>39</sup> and these levels are equal to, or higher than exposure when smoking cigarettes. There have also been reports of CO poisoning from waterpipe use, leading to headaches, dizziness and nausea,<sup>40 41</sup> 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. 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).

# SECONDHAND SMOKE FROM SHISHA

Secondhand 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 CO. These are all toxic or carcinogenic substances.<sup>43</sup>

# 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.<sup>44</sup>

Guidance by the National Institute for Health and Clinical Excellence noted that reducing smoking prevalence among some ethnic minority groups would reduce health inequalities more than any other measure.<sup>45</sup>

### 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. For example:

- Black people are almost twice as likely to have a stroke than white people.<sup>46</sup>
- On average, people of black African, black Caribbean and South Asian descent in the UK have strokes earlier on in their lives.<sup>47</sup>

#### DIABETES

There is a growing body of evidence to suggest that smoking is an independent risk factor for diabetes as smoking has been identified as a risk factor for insulin resistance, a precursor for diabetes.<sup>48</sup>

According to the Health Survey for England 2004, doctor-diagnosed diabetes is almost four times as prevalent in Bangladeshi men, and nearly three times as prevalent in Pakistani and Indian men compared with men in the general population.

Diabetes is more than five times as common among Pakistani women, at least three times as common in Bangladeshi and Black Caribbean women, and two-and-a-half times as common in Indian women, compared with women in the general population.<sup>49</sup>

Compared to non-smokers with diabetes, people with diabetes who smoke have twice the risk of premature death. Furthermore, the risk of complications associated with tobacco use and diabetes in combination is nearly 14 times higher than the risk of either smoking or diabetes alone.<sup>50</sup>

For further information about smoking and diabetes see ASH fact sheet: Smoking and Diabetes.

#### **CANCER**

While the evidence suggests that ethnic minorities in England experience lower rates of cancer than white people, including for lung cancer in general, ethnic minorities experience some cancers more frequently than white people.<sup>51</sup> For example, cancer of the mouth is significantly more likely for Asian females aged 65 years and over.<sup>52</sup>

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 the risk of cancers of the mouth, throat, oesophagus, bladder, cervix, and pancreas also decrease.<sup>53</sup>

For further information about smoking and cancer see ASH fact sheet: <u>Smoking and Cancer</u>.

#### REFERENCES

References last checked 9 August 2019

- 1. Adult smoking habits in the UK: 2018, ONS, 2019
- 2. <u>2011 Census, ONS</u>
- 3. Office for National Statistics. Ethnicity in England and Wales. 2011 [Accessed on: 26/06/19]
- 4. Global Health Observatory data repository, Prevalence of current tobacco use by country, World Health Organisation 2016
- 5. ONS Population of the UK by nationality and country of birth, table 1.3
- 6. Office for National Statistics, Adult smoking habits in the UK: 2017. 3 July 2018
- 7. NHS Digital. Statistics on smoking England, 2018
- 8. Public Health England. *Tobacco Profiles*. Publication Date 4th September 2018
- 9. Ethnicity Facts and Figures, Adult Smokers
- 10. NHS Digital. Statistics on Smoking, England 2013
- 11. ONS. Adult smoking habits in the UK: 2017
- 12. Hatsukami D, Zeller M, Gupta P, Parascandola M, Asma S. Smokeless tobacco and public health: a global perspective. 2014.
- 13. Asma S, Backinger C, Blatt B, et al. Smokeless tobacco fact sheets, 2002, Third International Conference on Smokeless Tobacco Stockholm, Sweden
- 14. Ahlbom A, Asma S, Bhisey RA, et al. Smokeless Tobacco and Some Tobacco-Specific N-Nitrosamines, 2007 IARC Monographs on Evaluation of Carcinogenic Risks to Humans 89
- 15. Millward, D; Karlsen, S. *Tobacco use among minority ethnic populations and cessation*. London, United Kingdom: Race Equality Foundation. 2011 May

- Stanfill SB, Croucher RE, Gupta PC, Lisko JG, Lawler TS, Kuklenyik P, et al. Chemical characterization of smokeless tobacco products from South Asia: Nicotine, unprotonated nicotine, tobacco-specific N'-Nitrosamines, and flavor compounds. Food and Chemical Toxicology. 2018;118:626-34
- 17. Stanfill SB, Connolly GN, Zhang L, Jia LT, Henningfield JE, Richter P, et al. *Global surveillance of oral tobacco products: total nicotine, unionised nicotine and tobacco-specific N-nitrosamines*. Tobacco control. 2011;20(3):e2-e.
- 18. Sinha DN, Agarwal N, Gupta P. Prevalence of smokeless tobacco use and number of users in 121 countries. Br J Med Med Res. 2015;9(6):1-155.
- 19. Main GB sample: All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 12393 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+).
- 20. 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+).
- 21. The Tobacco and Related Products Regulations 2016
- 22. DIRECTIVE 2014/40/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
- 23. The Tobacco and Related Products Regulations 2016.
- 24. Longman J, Pritchard C, McNeill A, Csikar J, Croucher R. Accessibility of chewing tobacco products in England. Journal of Public Health. 2010;32(3):372-8.
- 25. Siddiqui F, McNeill A, McCambridge J, Kanaan M, Parrot S, Sheikh A, et al. Smokeless tobacco control in the UK: a supply chain analysis to inform policy. 2018
- 26. List of tobacco and related products notified under SI 2016/507
- 27. WHO TobReg: Report on the scientific basis of tobacco product regulation: 6th report of a WHO study group WHO Technical report series, n. 1001
- 28. Scientific Committee on Emerging and Newly Identified Health Risks, SCENIHR, Health Effects of Smokeless Tobacco Products
- 29. Asthana S, Labani S, Kailash U, Sinha DN, Mehrotra R. *Association of smokeless tobacco use and oral cancer: A systematic global review and meta-analysis.* Nicotine & Tobacco Research. 2018:1:10.
- 30. Boffetta P, Straif K. Use of smokeless tobacco and risk of myocardial infarction and stroke: systematic review with meta-analysis. BMJ. 2009:339:b3060.
- 31. Siddiqi K, Shah S, Abbas SM, Vidyasagaran A, Jawad M, Dogar O, et al. *Global burden of disease due to smokeless tobacco consumption in adults: analysis of data from 113 countries.* BMC medicine. 2015;13(1):194.
- 32. Moles D, Fedele S, Speight P, Porter S, dos Santos Silva I. *Oral and pharyngeal cancer in South Asians and non-South Asians in relation to socioeconomic deprivation in South East England*. British journal of cancer. 2008;98(3):633.
- 33. Tobacco and Oral health-ASH research report. Action on Smoking and Health; September 2016.
- 34. NICE. Smokeless tobacco: South Asian communities: Public health quideline [PH39]. September 2012
- 35. Jawad M, McEwan A, McNeill A, Shahab L. To what extent should waterpipe tobacco smoking become a public health priority? Addiction 2013 doi: 10.1111/add.12265. 11
- 36. Jawad M, Jawad J, Mehdi A, et al. *A qualitative analysis among regular waterpipe tobacco smokers in London universities*. Int J Tuber Lung Dis. 2013;17(10):1364-1369
- 37. Khaled Aljarrah, Zaid Q Ababneh & Wael K Al-Delaimy, *Perceptions of hookah smoking harmfulness: predictors and characteristics among current hookah users*, Tobacco Induced Diseases, volume 5, Article number: 16 (2009)
- 38. Aslam MH, et al. Harmful effects of shisha: literature review. BMC Public Health. 2014; 7: 16. dio 10. 1186/1755-7682-7-16
- 39. Blank M, Cobb CO, Kilgalen B, et al. *Acute effects of waterpipe tobacco smoking: a double-blind, placebocontrol study.* Drug and Alcohol Dependence 2011;116(1):102-9
- 40. Arziman I, Acar YA, Yildirim AO, et al. *Five cases of carbon monoxide poisoning due to narghile (shisha*). Hong Kong Journal of Emergency Medicine 2011;18:254-7
- 41. Clarke SFJ, Stephens C, Farhan M, et al. *Multiple patients with carbon monoxide toxicity from water-pipe smoking*. Prehospital and Disaster Medicine 2012;27(6):612-4
- 42. Akl EA, Gaddam S, Gunukula SK, et al. The effects of waterpipe tobacco smoking on health outcomes: a systematic review. Int J Epidem. 2010;39:834-57
- 43. Daher N, et al. Comparison of carcinogen, carbon monoxide, and ultrafine particle emissions for narghile, waterpipe and cigarette smoking: Sidestream smoke measurements and assessment of second-hand smoke emission factors. PMC. 2010; 44 (1): 8 14
- 44. Shah RS, Cole JW. Smoking and stroke: the more you smoke the more you stroke. Expert review of cardiovascular therapy. 2010 Jul 1;8(7):917-
- 45. National Institute for Health and Clinical Excellence (NICE) <u>Stop smoking interventions and services (NG92)</u>. <u>NICE Guidelines</u>. 28 March 2018. Public Health England
- 46. Wang Y, Rudd AG, Wolfe CD (2013). Age and ethnic disparities in incidence of stroke over time: the South London Stroke Register. Stroke 44:3298-3304
- 47. 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</u>, BMC Medicine volume 14, Article number: 77 (2016)
- 48. Ko, G; Cockram, C. Cause as well as effect: smoking and diabetes. Diabetes Voice: smoking and diabetes special issue 2005; 50:19-22
- 49. NHS Digital, Health Survey for England 2004: Health of ethnic minorities, Headline results. 21 April 2016
- 50. Haire-Joshu D & Thomas J. *Gambling with addiction: Dangerous beliefs about smoking and diabetes.* Diabetes Voice: smoking and diabetes special issue 2005: 50:15-18

- 51. Ethnic differences in cancer incidence and mortality: the Birmingham Factory Screening Project D.A. Lane, G.Y.H. Lip, D.G. Beevers, QJM: An International Journal of Medicine, Volume 100, Issue 7, 1 July 2007, Pages 423–431
- 52. Cancer Incidence and Survival by Major Ethnic Group, England, 2002 2006, Cancer Research UK
- 53. WHO. Fact sheet about health benefits of smoking cessation
- 54. Perraud V, Lawler, MJ, Malecha KT et al. <u>Chemical characterization of nanoparticles and volatiles present in mainstream hookah smoke</u>. Aerosol Science and Technology 53:9, 1023-1039