

Statistical bulletin

Smoking prevalence in the UK and the impact of data collection changes: 2020

Impact that the coronavirus (COVID-19) pandemic has had on data collection, how this has influenced estimates of smoking prevalence and the comparability of these estimates.

Contact:
Rabiya Nasir and Alison
Brookman
health.data@ons.gov.uk
+44 1329 890154

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1 . Main points

- During the coronavirus (COVID-19) pandemic, the Office for National Statistics (ONS) continued to collect data on the cigarette smoking habits using the Annual Population Survey (APS) and the Opinions and Lifestyle Survey (OPN); APS data collection changed from mixed mode (face to face, telephone) to telephone only whereas the OPN survey was already contactless (online, telephone) at the start of the pandemic.
- In Quarter 1 (Jan to Mar) 2020 before the coronavirus pandemic, when the APS was predominately face to face, 13.8% of people aged 18 years and above in the UK said they smoked cigarettes; this estimate was not statistically significantly different compared with our annual estimate for 2019 (14.1%).
- The change in the APS survey mode to telephone-only interviews in Quarters 2 to 4 (Apr to Dec) of 2020 showed an apparent sudden and implausible drop in the proportion of adults who smoked cigarettes to 12.3%; estimates should be interpreted with caution.
- Data from the OPN were not affected by a change in survey mode during the coronavirus pandemic and are the next best alternative source for estimating smoking prevalence as the estimates are consistent with those published previously.
- Based on the OPN, 14.5% of people aged 16 years and over in Great Britain said they currently smoked in 2020, a decrease from 15.8% in 2019, though this decrease was not statistically significant.
- In Great Britain, based on data from the OPN, 15.3% said they smoked cigarettes at the start of the coronavirus pandemic in April 2020; the proportion peaked in August when 16.3% smoked, though this increase was not statistically significant; smoking prevalence fell after August and was statistically significantly lower in November (13.5%) and December (12.5%) when compared with August 2020.
- In Great Britain, 6.4% of OPN respondents in 2020, based on data collected in June, July, and September, said they currently used an e-cigarette, which equates to nearly 3.3 million adults in the population.

The coronavirus (COVID-19) has meant changes for Annual Population Survey (APS) and Opinions and Lifestyle Survey (OPN) data collection in 2020. See [Measuring the data](#) for more information.

Statistician's comment

“The coronavirus pandemic has changed the way we can collect data and is likely to be a contributing factor to why we have seen an unrealistic decrease in the proportion of adults who smoked cigarettes in 2020 in our usual information source, the Annual Population Survey (APS). Therefore, these numbers should be treated with caution.

“Unlike the APS, the Opinions and Lifestyle Survey was already contactless, with interviews conducted online and by phone, and is the next best alternative source for measuring smoking prevalence in Great Britain. Based on this, smoking prevalence among those aged 16 years or over fell by 1.3% in 2020, compared with 2019. However, this decrease is not statistically significant.”

James Tucker, Health Analysis and Life Events, Office for National Statistics

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2 . Data collection changes during the coronavirus pandemic

The Office for National Statistics (ONS) collects data on [adult smoking habits](#) using two surveys; the [Annual Population Survey \(APS\)](#) provides headline indicators of the number of adults aged 18 years and over who smoke in the UK, and more detailed information on smoking habits and e-cigarette users aged 16 years and over are collected in the [Opinions and Lifestyle Survey \(OPN\)](#).

Annual Population Survey

Since the end of March 2020, [the data collection method for the APS changed, from mixed mode \(face to face and telephone\) to telephone only](#) because of the coronavirus (COVID-19) pandemic. This resulted in a potential bias in the sample, which has since been [reduced using statistical weighting procedures](#).

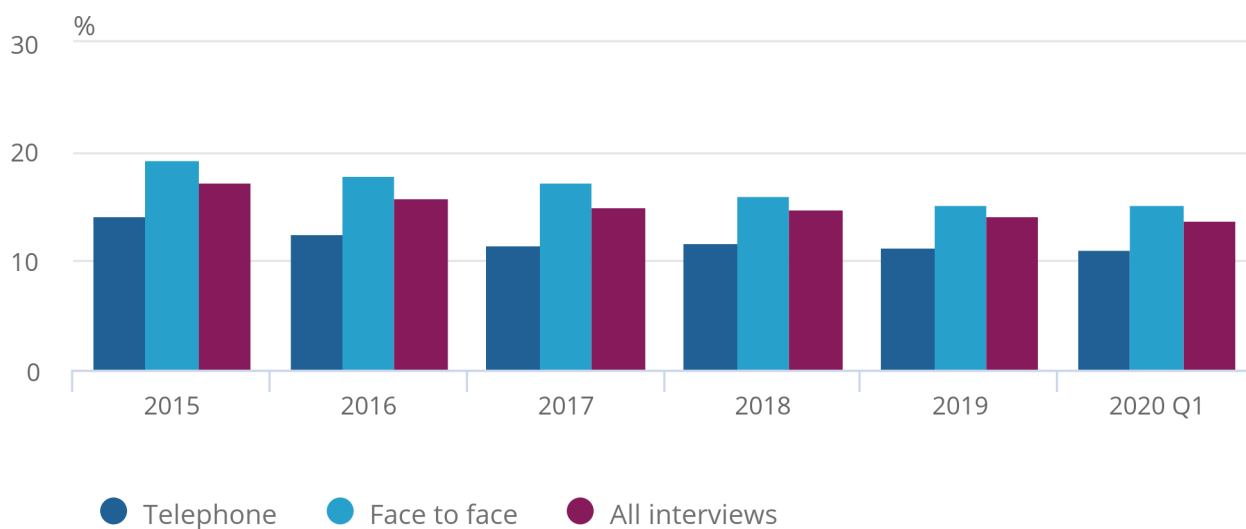
The move to telephone-only interviews has affected estimates on the proportion of adults who smoke cigarettes. Looking at pre-coronavirus data, the proportion of adult cigarette smokers has always been lower when measured on the telephone than [face to face](#) (see Figure 1), and the number of face-to-face interviews has always been higher than the number of telephone interviews. As such, when interviews moved to telephone only, there was a sudden and implausible drop in the proportion of adults who smoked cigarettes. [Research](#) has also found that telephone-only surveys underestimate smoking behaviour. This could potentially be because of a social desirability effect where respondents under-report smoking behaviour over the telephone in order to avoid being negatively viewed by others.

Figure 1: Smoking prevalence has been higher when measured through face-to-face interviews than telephone

Proportion who were current smokers by interview type, all persons aged 18 years and over, UK, 2015 to Quarter 1 (Jan to Mar) 2020

Figure 1: Smoking prevalence has been higher when measured through face-to-face interviews than telephone

Proportion who were current smokers by interview type, all persons aged 18 years and over, UK, 2015 to Quarter 1 (Jan to Mar) 2020



Source: Office for National Statistics – Annual Population Survey

Notes:

1. 2020 Q1 is based on data where most were collected before the UK-wide lockdown (January to March) and has been weighted to produce estimates comparable with previous years.

Opinions and Lifestyle Survey

In March 2020, the [OPN](#) was transformed from a monthly to weekly omnibus survey to understand how the coronavirus pandemic is affecting life in Great Britain. This resulted in a larger sample size. However, the questions related to smoking habits were greatly reduced. For example, the questions on average daily cigarette consumption and type of cigarette smoked have been temporarily discontinued.

3 . Smoking prevalence based on data from the Annual Population Survey

For continuity while the mode effects are investigated, estimates have been produced using data collected from January to March 2020 (Quarter 1), when interviews were face to face and telephone, and April to December 2020 (Quarter 2 to 4) where all interviews were conducted by phone.

Data for Quarter 1 (Jan to Mar) 2020 remain comparable with previously published figures. However, data collected during the coronavirus pandemic, from Quarter 2 (Apr to June) to Quarter 4 (Oct to Dec) 2020, are no longer comparable with previous years because of changes in data collection method. We will continue working to see if the discontinuity in the Annual Population Survey (APS) timeseries, can be corrected for statistically. If not, 2020 will represent a break in time series.

The proportion of current smokers in the UK

The proportion of current smokers in the UK decreased from 14.1% in 2019 to 13.8% in Quarter 1 2020 (around 6.7 million) when the APS was face to face and telephone, though this decrease was not statistically significant. The estimate for Quarter 1 2020 is statistically significantly lower than the estimate for 2011, when one in five adults smoked (20.2%).

In Quarters 2 to 4 (Apr to Dec) 2020, when APS moved to telephone only, the proportion of current smokers in the UK was 12.3% (around 5.9 million in the population). This decrease should be interpreted with caution.

The decrease in the proportion of current smokers in Quarters 2 to 4 will be explained by factors such as change in survey mode, and [selection bias](#). It is also possible that people may give up smoking because of [health concerns](#), [change in health behaviours](#), and lack of access to tobacco while isolating or no longer smoking socially.

We use the APS as the official measure of smoking prevalence in England to monitor and track progress against the [Tobacco Control Plan](#). In Quarter 1 2020, 13.5% of adults smoked cigarettes (equivalent to around 5.5 million adults), and this was not statistically significantly different than the 2019 estimate (13.9%, around 5.7 million people). In Quarters 2 to 4 2020, 12.1% of adults in England smoked cigarettes (around 4.9 million people).

Looking at other UK countries, Scotland had the highest proportion of cigarette smokers in both Quarter 1 2020 (16.0%, around 658,000 people) and Quarters 2 to 4 2020 (14.0% around 571,000 people).

Northern Ireland had the smallest proportion of current smokers in Quarter 1 2020 at 13.2% (around 181,000 people) and the proportion remained the same in Quarters 2 to 4 2020 (around 175,000 people).

In Wales, 15.3% of adults smoked cigarettes in Quarter 1 2020 (around 364,000 people), and in Quarters 2 to 4 2020 this figure was 13.2% (around 316,000 people).

Figure 2: Smoking prevalence has fallen in all four countries of the UK since 2011

Proportion who were current smokers, all persons aged 18 years and over, UK, 2011 to 2020

Notes:

1. 2020 Q1 is based on data where most were collected before the UK-wide lockdown (January to March) and has been weighted to produce estimates comparable with previous years.
2. Because of mode changes introduced in March 2020, Quarters 2 to 4 are not comparable with earlier periods.

Download the data

[.xlsx](#)

Characteristics of current cigarette smokers in the UK

Smoking prevalence continued to be higher in men, with 15.5% (around 3.7 million) of men in the UK saying they smoked cigarettes in Quarter 1 2020 and 14.0% (around 3.3. million) in Quarters 2 to 4 2020, compared with 12.1% of women (around 3.0 million) in Quarter 1 2020 and 10.7% of women (around 2.6 million) in Quarters 2 to 4 2020.

Current cigarette smokers in 2020 by age

In Quarter 1 and Quarters 2 to 4 2020, the highest proportion of current smokers continued to be between 25 to 34 years of age, at 18.3% (around 1.5 million people) and 15.4% (approximately 1.2 million people) respectively, when compared with any other age group. Those aged 65 years and above had the lowest proportion of current smokers (7.4% or 860,000 people in Quarter 1 and 7.3% or 843,000 people in Quarters 2 to 4 respectively).

In Quarters 2 to 4 2020, those aged 18 to 24 years had the second lowest proportion of cigarette smokers (11.6%). Usually, this group has one of the second highest proportion of cigarette smokers. This finding should be interpreted with caution until further methodological work has been completed.

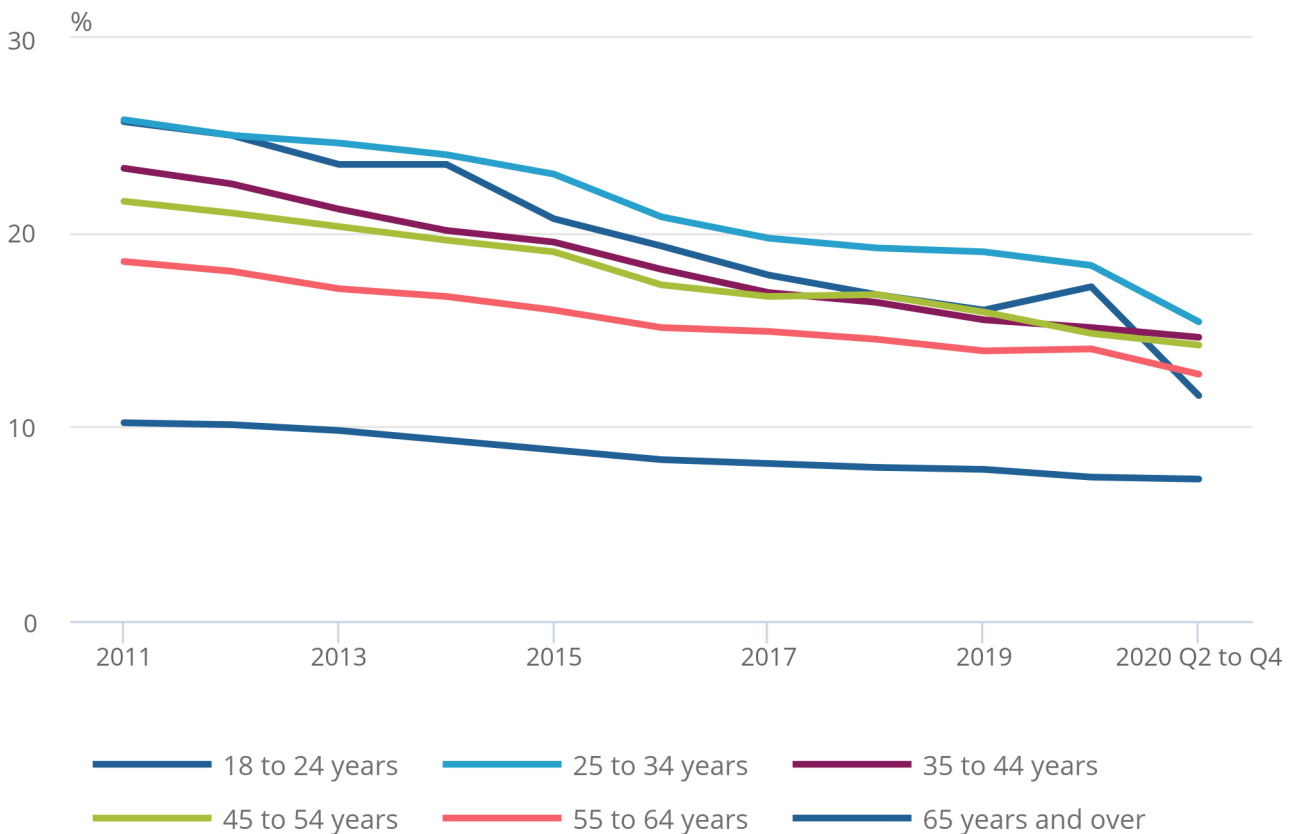
Figure 3: People aged 25 to 34 years continue to have the highest smoking prevalence

Proportion who were current smokers, all persons by age group, UK, 2011 to 2020

Figure 3: People aged 25 to 34 years continue to have the highest smoking prevalence

Proportion who were current smokers, all persons by age group, UK, 2011 to 2020

Because of mode changes introduced in March 2020, it would not be appropriate to compare Quarter 2 to Quarter 4 with earlier periods.



Source: Office for National Statistics – Annual Population Survey

Notes:

1. 2020 Q1 is based on data where most were collected before the UK-wide lockdown (January to March) and has been weighted to produce estimates comparable with previous years.
2. Because of mode changes introduced in March 2020, Quarters 2 to 4 are not comparable with earlier periods.

The [accompanying datasets](#) include a wider range of data on the characteristics of cigarette smokers from the APS, including estimates by socio-economic status, relationship status, education level, housing tenure, country of birth, ethnicity, and religion.

4 . Smoking prevalence based on data from the Opinions and Lifestyle Survey

Unlike the Annual Population Survey (APS), the Opinions and Lifestyle Survey (OPN) was already contactless during the coronavirus (COVID-19) pandemic with interviews occurring online and by phone. As such, there are no comparability issues because of a change in survey mode. The OPN sample size for 2020 is around 10 times larger than usual (around 81,000 in 2020 compared with around 8,000 in 2019) and has narrower confidence intervals, but questions on smoking habits were limited because of the focus on the pandemic.

Current smokers in Great Britain

The proportion of adults aged 16 years and above who said they smoked cigarettes in Great Britain was 14.5% in 2020, down from 15.8% in 2019 and continuing the downward trend seen since 1974. However, the decrease from 2019 was not statistically significant.

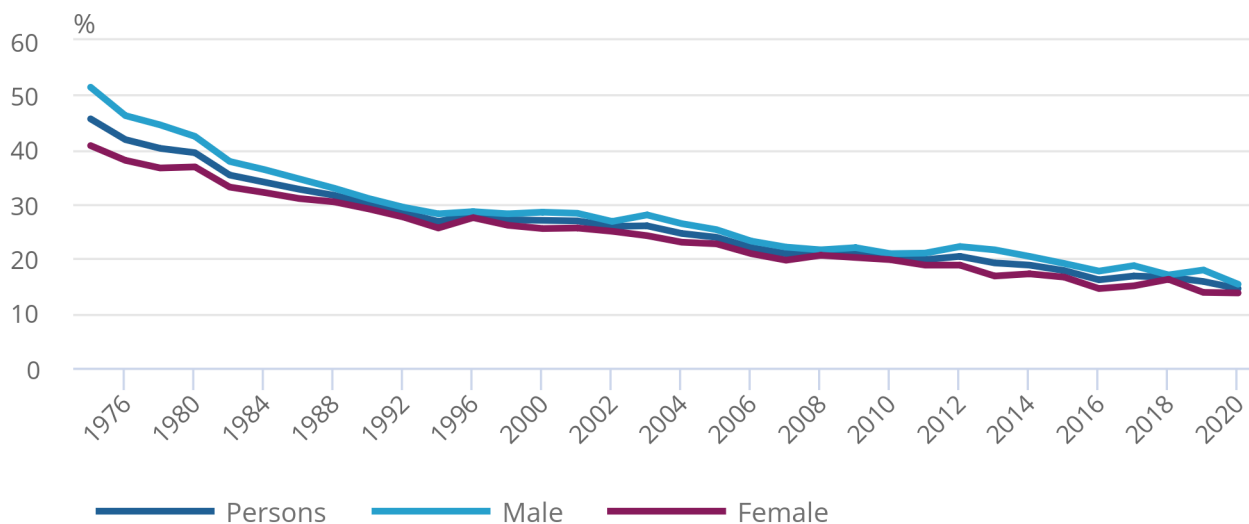
As seen in previous years, in 2020 more men (15.3%) than women (13.7%) smoked in Great Britain.

Figure 4: The proportion of current smokers continued to decrease

Proportion of current smokers by sex, all persons aged 16 years and over, Great Britain, 1974 to 2020

Figure 4: The proportion of current smokers continued to decrease

Proportion of current smokers by sex, all persons aged 16 years and over, Great Britain, 1974 to 2020



Source: Office for National Statistics – Opinions and Lifestyle Survey

Notes:

1. In March 2020, the survey moved to weekly data collection and the sample size increased tenfold.

The proportion of quitting smokers

The proportion of cigarette smokers who have quit continues to rise. Among those who have smoked cigarettes regularly but do not currently smoke, 64.0% said they had quit in 2020, an increase from 62.5% in 2019, though this was not statistically significant.

The proportion of cigarettes smokers by month

The larger OPN sample size in 2020 allows us to look at smoking prevalence during each month of the coronavirus (COVID-19) pandemic.

At the beginning of the coronavirus pandemic, there was a significant reduction in March 2020 compared with February 2020. This coincides with the start of the first national lockdown.

The reduction in the proportion of current smokers in March 2020 was a result of statistically significant decrease in female smokers for that month, when compared with February 2020. Statistically significant decreases were not observed for male smokers.

It is not possible to tell whether the reduction in March 2020 was because of data collection changes or whether there was a genuine reduction in cigarette smoking because of [health concerns](#), and not being able to access tobacco while isolating or no longer smoking socially.

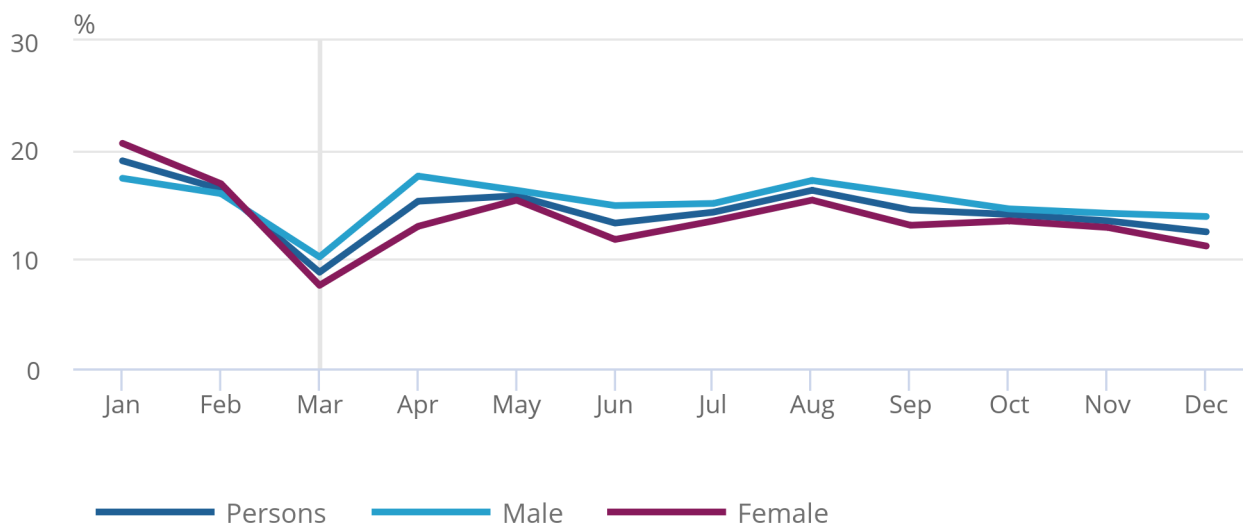
The proportion of adults who said they smoked went back up to 15.3% in April 2020 peaking at 16.3% in August. Smoking prevalence fell after August and was statistically significantly lower in November (13.5%) and December (12.5%) when compared with August 2020.

Figure 5: The proportion of current smokers dropped in March 2020, the beginning of the coronavirus (COVID-19) pandemic

Proportion of current smokers by month and sex for those aged 16 years and over, Great Britain, 2020

Figure 5: The proportion of current smokers dropped in March 2020, the beginning of the coronavirus (COVID-19) pandemic

Proportion of current smokers by month and sex for those aged 16 years and over, Great Britain, 2020



Source: Office for National Statistics – Opinions and Lifestyle Survey

Notes:

1. In March 2020, the survey moved to weekly data collection and the sample size increased tenfold.

Electronic cigarettes use

Before March 2020, respondents were asked whether they currently use an e-cigarette or vape; as such, people were classed as current users even if their frequency of use was “daily” or “occasional”. In March 2020 the survey question changed to ask respondents if they were daily or occasional users. To compare current users with previous years, we have summed the figures for daily and occasional users (see Figure 6). Questions on vaping were only asked during June, July and September.

Prevalence of vaping in Great Britain

In 2020, 3.8% of survey respondents reported that they were currently daily users of an e-cigarette, while a further 2.6% used an e-cigarette occasionally. This equates to almost 3.3 million vapers in the population of Great Britain. The proportion of current vapers who have never smoked cigarettes was 1.2% in 2020.

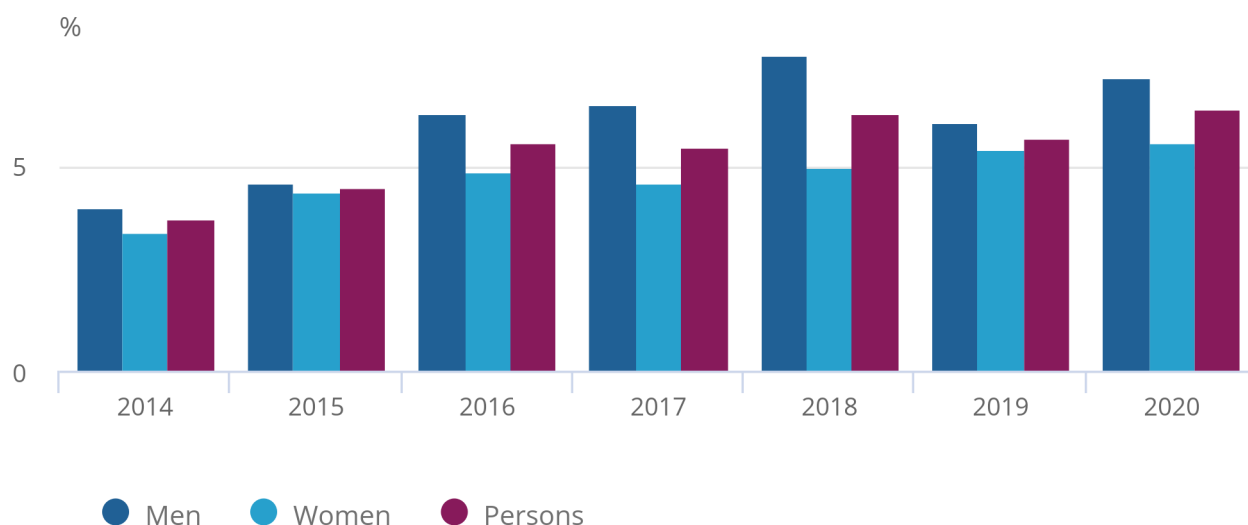
This proportion of vapers was significantly higher than in 2014 when data collection began, where only 3.7% were current vapers.

Figure 6: The proportion of current daily and occasional vapers in 2020 remains statistically significantly higher than current vapers in 2014

Proportion of current vapers, Great Britain, 2014 to 2020

Figure 6: The proportion of current daily and occasional vapers in 2020 remains statistically significantly higher than current vapers in 2014

Proportion of current vapers, Great Britain, 2014 to 2020



Source: Office for National Statistics – Opinions and Lifestyle Survey

Notes:

1. In March 2020, the survey moved to weekly data collection and the sample size increased tenfold.

A higher proportion of men reported vaping daily or as an occasional user (7.2%) compared with women (5.6%) in 2020. By age, those aged 25 to 34 years continued to report the highest proportion of vapers (daily and occasional) at 8.6%.

5 . Other UK sources of data on smoking prevalence during the coronavirus pandemic

The devolved countries of the UK each have their own health surveys, which are used to provide official estimates of smoking in each country. These surveys are also used to track progress against each country's targets to reduce smoking. These are:

- the Northern Ireland Health Survey, which shows that [17.5% of adults smoked cigarettes in 2019/20](#)
- the National Survey for Wales, which shows that [14.4% of adults smoked in cigarettes in January to March 2021](#)
- the Scottish Health Survey, which shows that [9.4% of adults smoked cigarettes in August/September 2020](#)

Public Health England, through their [Local Tobacco Control Profiles](#), details data on a wide range of indicators related to the smoking of cigarettes including different measures of prevalence in adults and young people, smoking-related mortality and the wider impacts of smoking on health. The [Health Survey for England](#) and the [Smoking Toolkit Study](#) (non-Government Statistical Service) also collects data on smoking habits and e-cigarettes.

6 . Adult smoking habits in the UK data

[Smoking habits in the UK and its constituent countries](#)

Dataset | Released 7 December 2021

Quarterly data for 2020, including Quarter 1 (Jan to Mar) and Quarters 2 to 4 (Apr to Dec), and annual historic data on the proportion of adults who currently smoke, the proportion of ex-smokers and proportion of those who have never smoked, by sex and age.

[E-cigarette use in Great Britain](#)

Dataset | Released 7 December 2021

Annual data on the proportion of adults in Great Britain who use e-cigarettes, by different characteristics such as age, sex and cigarette smoking status.

[E-cigarette use in England](#)

Dataset | Released 7 December 2021

Annual data on the proportion of adults in England who use e-cigarettes, by different characteristics such as age, sex and cigarette smoking status.

[Adult smoking habits in Great Britain](#)

Dataset | Released 7 December 2021

Annual data on the proportion of adults in Great Britain who smoke cigarettes, cigarette consumption, the proportion who have never smoked cigarettes and the proportion of smokers who have quit, by sex and age over time.

[Adult smoking habits in England](#)

Dataset | Released 7 December 2021

Annual data on the proportion of adults in England who smoke cigarettes, cigarette consumption, the proportion who have never smoked cigarettes and the proportion of smokers who have quit, by sex and age over time.

7 . Glossary

Current cigarette smokers

The Annual Population Survey (APS) defines current cigarette smokers as those who said they smoke cigarettes nowadays. With the Opinions and Lifestyle Survey (OPN), current cigarette smokers are those who said they smoked cigarettes, even if occasionally. Current cigarette smokers are provided as a proportion of those in the population.

Cigarette smokers who have quit

From the OPN, those who said they have smoked cigarettes regularly, but they do not currently smoke, are cigarette smokers who have quit. This is provided as a proportion of those who have ever smoked cigarettes regularly.

Current vapers

From the OPN, those who said they currently use e-cigarettes, a vaping device, or both are current vapers. Current vapers are provided as a proportion of those in the population.

Survey mode

Survey mode is the method that is used to collect information from respondents. There are different types of survey mode such as face to face, telephone, online and mixed mode.

Selection bias

Selection bias is an experimental error that occurs when the participant pool, or the subsequent data, is not representative of the target population.

Statistical significance

Significance has been determined using [95% confidence intervals](#), which provide the range of values within which we are 95% confident that the true value lies. The 95% confidence intervals for the estimates are available in the [accompanying datasets](#).

8 . Measuring the data

Annual Population Survey

The data on smoking habits in the UK come from the APS. The survey covers residents of the UK, aged 18 years or over. [Further information on the APS and survey methodology](#) is available.

Because of the coronavirus (COVID-19) pandemic, [the data collection for the APS changed, from mixed mode \(face-to-face and telephone\) to telephone only](#). The latest available evidence shows that change in the APS data collection method has had an impact on cigarette smoking estimates (see [Section 2](#) and [Section 3](#)).

The sample size in Quarter 1 (Jan to Mar) 2020 was 44,327 and was weighted accordingly to ensure its comparability with previous years. Therefore, the data in Quarter 1 2020 remains comparable with previous years as there was no change to data collection method. However, data from Quarter 2 to 4 (Apr to Dec) 2020 are no longer comparable because of the changes in data collection method.

Opinions and Lifestyle Survey

Data on smoking and e-cigarette use for Great Britain for those aged 16 years and over come from the OPN. In March 2020, the OPN was transformed from a monthly to weekly omnibus survey to understand how the coronavirus (COVID-19) pandemic is affecting life in Great Britain. Consequentially, the number of questions relating to smoking and vaping habits were greatly reduced (see [Section 4](#)). [Further information on the OPN and survey methodology](#) is available.

Analysis

The analysis reported in this release used survey weights to make estimates representative of the population. Survey weights take into account non-response and attrition as well as the distribution of population characteristics such as sex and age, where someone lives, and socio-economic characteristics.

9 . Strengths and limitations

Strengths

Robust methods are adopted for the Annual Population Survey (APS) and Opinions and Lifestyle Survey (OPN) sampling and weighting strategies to limit the impact of bias. Quality assurance procedures are undertaken throughout the analysis stages to minimise the risk of error.

The sample size of the APS is large, approximately 220,000 respondents, making it possible to generate statistics for small geographic areas. The sample size of OPN in 2020 was almost 10 times higher than the previous year, making the cigarette smoking estimates more robust.

Limitations

Comparisons between periods and groups must be done with caution as estimates are provided from a sample survey; as such, [confidence intervals](#) are included in the [accompanying datasets](#) to present the sampling variability. These should be taken into account when assessing differences between periods, as true differences may not exist.

Because of mode changes in APS, we are unable to provide annual estimates for smoking prevalence for 2020. To allow for continuity while mode effects are investigated, estimates have been produced using the data collected from Quarter 1 (Jan to Mar) 2020.

Any figures from Quarters 2 to 4 (Apr to Dec) in 2020 should not be used to establish trends in smoking behaviours or measure against goals set out in the [Tobacco Control Plans](#). These data provide a snapshot of reported smoking in the initial nine months of the coronavirus pandemic and should be interpreted with caution.

There are differences when comparing estimates of smoking prevalence from different surveys. These differences are attributable to a range of factors, for example:

- different survey questions
- different methods of sampling
- different methods of weighting

10 . Related links

[Public Health England: Local Tobacco Control Profiles](#)

Web page | Updated as and when new data become available

Data on a wide range of indicators related to the smoking of cigarettes including different measures of prevalence in adults and young people, smoking-related mortality, and the wider impacts of smoking on health.