Flourish Survey 2024 – Smoking and Vaping

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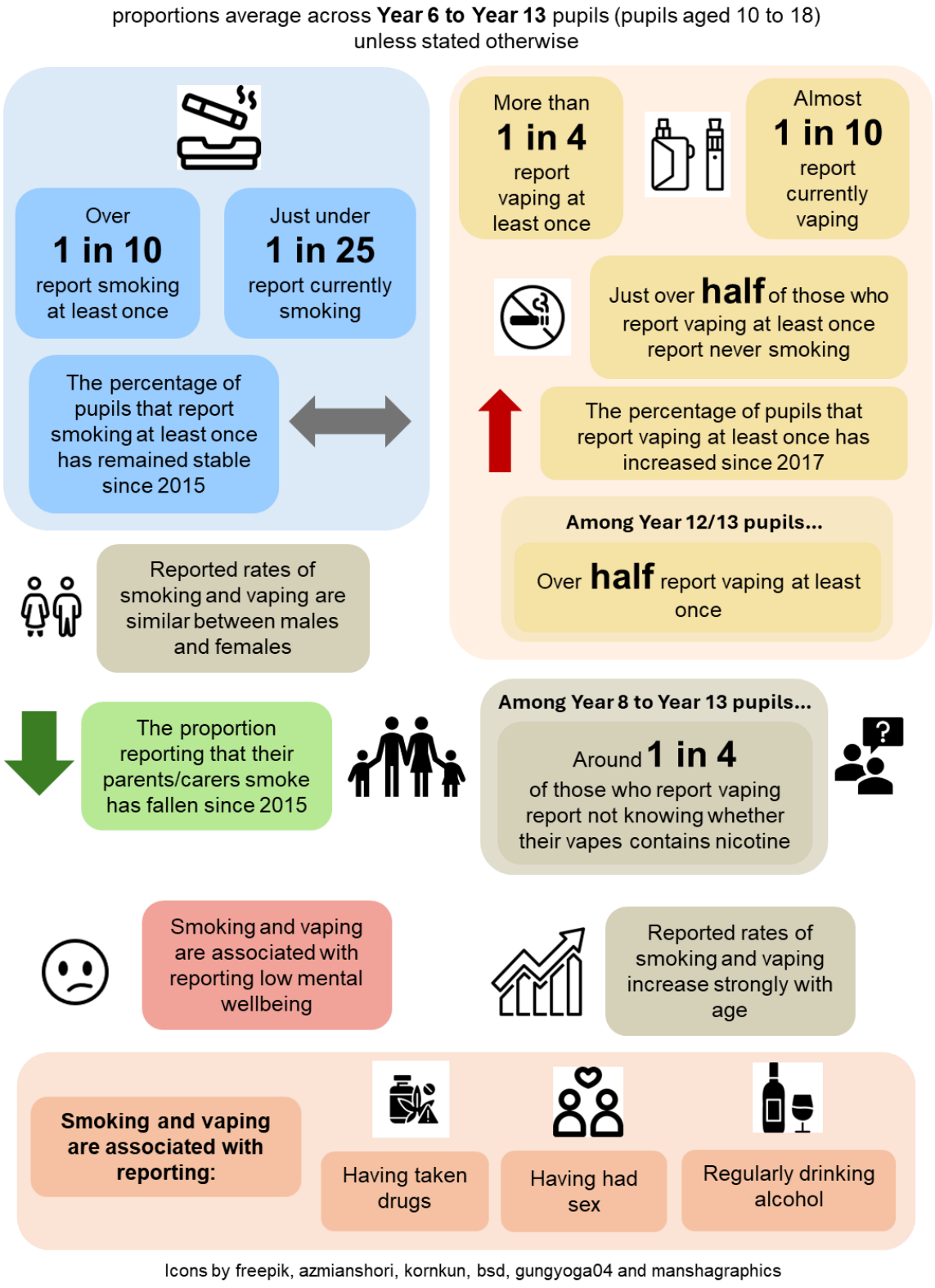
Contents

Overview – 2024 data



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Infographic text description

proportions average across Year 6 to Year 13 pupils (pupils aged 10 to 18) unless stated otherwise

- Over 1 in 10 report smoking at least once
- Just under 1 in 25 report currently smoking
- The percentage of pupils that report smoking at least once has remained stable since 2015
- More than 1 in 4 report vaping at least once
- Almost 1 in 10 report currently vaping
- Just over half of those who report vaping at least once report never smoking
- The percentage of pupils that report vaping at least once has increased since 2017
- Among Year 12/13 pupils….
    - Over half report vaping at least once
- Reported rates of smoking and vaping are similar between males and females
- The proportion reporting that their parents/carers smoke has fallen since 2015
- Among Year 8 to Year 13 pupils…
    - Around 1 in 4 report not knowing whether their vapes contain nicotine
- Smoking and vaping are associated with reporting low mental wellbeing
- Reported rates of smoking and vaping increase strongly with age
- Smoking and vaping are associated with reporting:
    - Having taken drugs
    - Having had sex
    - Regularly drinking alcohol

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The Survey

The results from the Flourish Survey begin to be reported on page 9; below, we first provide context to help interpret the results by discussing key details about the sample and analysis. This includes the sample's representativeness, variations in analysis by year group and how confidence intervals allow us to assess which differences in the results are likely to be real. Additionally, Appendix 1 provides further detail on the representativeness of the sample and Appendix 2 explains how year groups map to the age of pupils.

The sample

The analysis is based on a survey which in 2024 sampled 9,347 school pupils in Norfolk from 28 primary schools and 17 secondary schools/further education colleges.[1] The sample represents 12.3% of pupils in state-funded schools in eligible year groups (Year 4 to Year 13, equivalent to pupils aged 8 to 18). Three of the schools in the sample were independent schools. The survey was conducted by the School Health Education Unit (SHEU) which has run similar surveys in other parts of the country for many years. Where the similarity of question wording allows it, we have combined the 2024 data with that from previous Norfolk surveys conducted in 2015 and 2017.

While SHEU has found that results from its surveys are generally broadly consistent with those from other data sources, it is important to note that the dataset is not a truly random sample. Instead, schools self-select to take part in the survey. As such, while the analysis below results from a large Norfolk sample and offers unique insights into the lives of Norfolk pupils, the results may differ from a survey that had a truly random sample of Norfolk pupils.

A separate topic report provides a detailed comparison of the Flourish Survey sample with the known characteristics of pupils in state-funded schools in Norfolk. A number of key points result from this comparison. First, we do not break out the data by individual district as the data is unevenly distributed across districts, in particular, only primary schools took part in the Borough of Great Yarmouth. Second, the geographic distribution of the data and information on the prevalence of pupils receiving free school meals suggests that pupils from deprived backgrounds may be under-represented in the Flourish Survey sample. Third, between 2015, 2017 and 2024 the age distribution of the

[1] Two private schools served both primary and secondary pupils so 43 schools took part in total.

sample varied noticeably, hence, when making comparisons between these three years we control for age by performing the comparison for individual year groups.

Questions and year groups

The questionnaire for secondary pupils was more detailed than the primary questionnaire, particularly around alcohol, drugs, smoking/vaping and sexual health. There were limited questions on these topics for pupils in Years 4 and 5. Generally, we report results for Year 6 to Year 13 (pupils aged 10 to 18), the year groups shown the main questions on smoking/vaping prevalence. Where more involved questions were only included in the secondary questionnaire, we report the data for Year 8 to Year 13 (pupils aged 12 to 18).[2] For reasons explained in the relevant section, when reporting relationships between risk-taking behaviours it is appropriate to restrict the data further to only Year 10 (pupils aged 14 to 15). The year groups on which analysis is based are clearly indicated in the figure captions and text in each section.

All the percentages and figures in this report are based on the data available for the relevant survey questions. Not all pupils responded to all questions. As such, the number of responses on which percentages and figures are calculated varies within and across topics.

For clarity, the smoking questions in the survey specifically referred to smoking cigarettes (from a packet or roll ups), while the vaping questions include e-cigarettes.

As is standard, the survey was anonymous to ensure that pupils felt able to be honest in their responses. While this means it is not possible to contact pupils revealing issues of concern, the survey did contain multiple phone numbers and web addresses of organisations that pupils could contact to obtain topic specific support.

Comparisons with wider SHEU data

Alongside the data from the Norfolk sample, some data is available for equivalent surveys conducted by SHEU in other parts of the country. For specific important questions, and where an equivalent question is available in the wider SHEU data,

[2] Most Year 7 pupils were asked to respond to the primary questionnaire rather than the secondary questionnaire due to the more sensitive nature of some of the questions in the secondary questionnaire. As such, the secondary year groups for which the data aims to be representative are Year 8 to Year 13.

comparisons are made with the Norfolk sample. As the SHEU comparator data is only from areas where SHEU has been contracted to run the survey, it does not necessarily provide a fully representative national average. Similarly, the demographic and socio-economic characteristics of the areas in the SHEU comparator data may differ from Norfolk. Also, the most recent SHEU comparator data is from 2022 and is only available for Year 8 and Year 10.[3]

Assessing differences

Any differences we highlight in the text below are statistically significant at the 5% level. In the charts the black lines extending from the end of bars are (95%) confidence intervals. The smaller the confidence interval the greater the certainty we have about the true length of the bar/percentage. If the confidence intervals of two categories/groups do not overlap, we know that the difference between the categories is statistically significant, i.e. is likely to be real. If the confidence intervals of two different categories/groups overlap, further analysis would be required to determine if any difference is statistically significant (likely to be real).

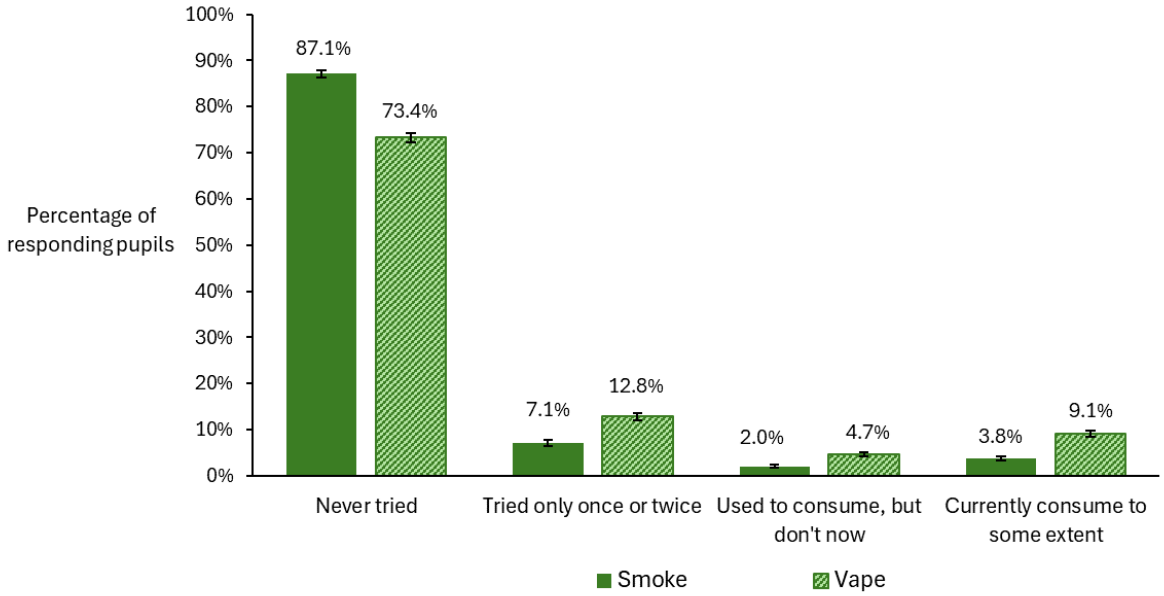
[3] We do not make a comparison with SHEU data from other parts of the country for Year 12/13, as SHEU's comparator Year 12 data involves far fewer observations than for Year 8 or Year 10.

Overall Prevalence

Headline rates

The most significant finding of the analysis is that reports of vaping are noticeably more prevalent than reports of smoking. Pooling the data for Year 6 to Year 13 (pupils aged 12 to 18), Figure 1 shows that 3.8% of pupils in the sample reported that they currently smoked to some extent, compared to 9.1% who report currently vaping. Similarly, the proportion who report smoking at least once in their life is 12.9%, compared to 26.6% for vaping. In other words, around 1 in 4 sampled pupils report vaping at some point, while almost 1 in 10 report currently vaping to some extent. That reporting vaping at least once is more prevalent than reporting smoking at least once is also true for all the individual year groups (see Figure 2).

Figure 1: Percentages of sampled pupils smoking and/or vaping - 2024 (Year 6 to Year 13 data combined)



The reported rates of having tried smoking at least once and having tried vaping at least once are broadly in line with national data once uncertainty is considered. The Smoking, Drinking and Drug Use among Young People in England survey[4] (from now on simply referred to as 'NHS survey data') found that in 2023 11% of 11-15 year old pupils had smoked at least once (reported confidence interval 10% to 13%). The NHS survey data

[4] See Smoking, Drinking and Drug Use among Young People in England, 2023 - NHS England Digital

figures that we report refer to England as a whole. The breakdown across those who used to smoke, have tried smoking and who currently smoke is also similar in the NHS survey data to the Norfolk sample.

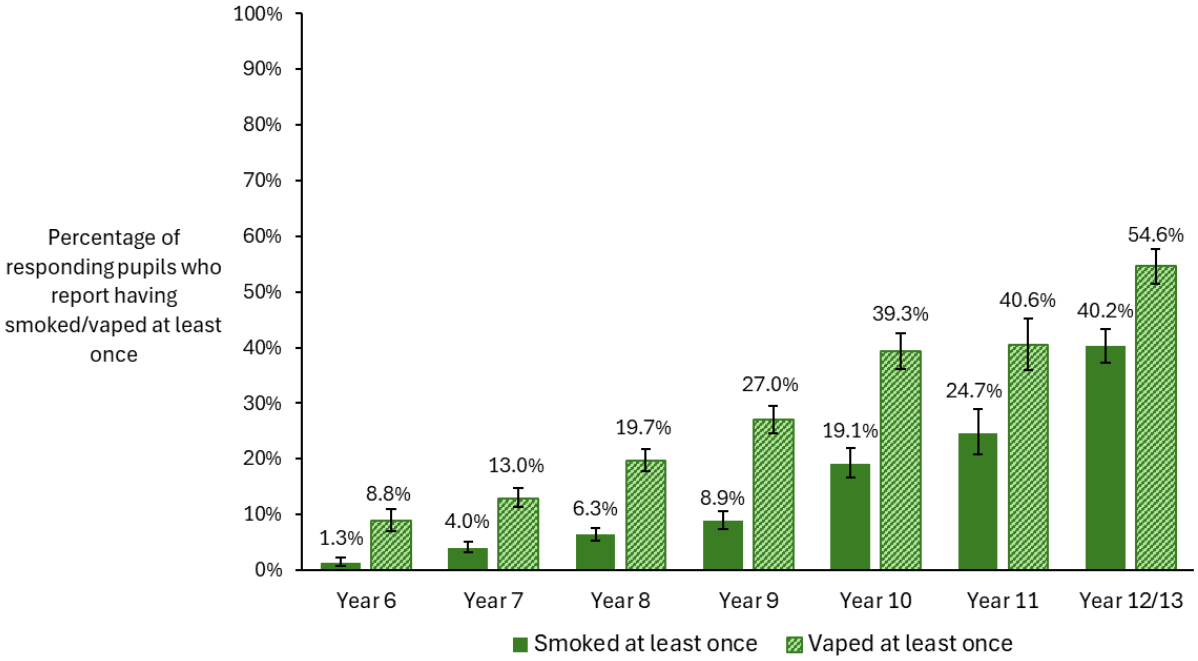
Furthermore, the NHS survey reports that in 2023 25% of 11-15 year old pupils reported having vaped at least once, while 9% of pupils reported currently vaping. The latter figure is virtually identical to the proportion found in the Norfolk sample.

In the analysis below we focus on the proportion who report smoking (vaping) at least once, as this has a firmer definition than ‘currently consumes’ and is possible to benchmark against data SHEU has collected in other parts of the country.

Prevalence by age

Another clear result, shown in Figure 2, is the increase in the proportion of sampled pupils who report having smoked or vaped as one moves from younger to older year groups. While only 4.0% of sampled pupils in Year 7 report having smoked and only 13.0% report having vaped, by Year 12/13 these figures increase to 40.2% and 54.6% respectively.[5] In other words, by Year 12/13 a majority of sampled pupils reported vaping at least once.[6]

Figure 2: Percentages of sampled pupils who have smoked and/or vaped at least once by year group – 2024 (Year 6 to Year 12/13 data separately)



The positive relationship between age and reporting smoking at least once shown in Figure 2 is mirrored in the NHS survey data. Also, the rates of smoking found for Year 10 and Year 11 pupils in the Norfolk sample (respectively 19.1% and 24.7%) are broadly in line with the 2023 NHS survey data result of 22% of 15-year olds reporting smoking at least once. Similarly, the NHS survey data finds positive relationship between age and reports of current vaping use.

[5] The oldest category in Figure 2 is Year 12/13 as the oldest year group recorded in the secondary questionnaire was 'Year 12+' and there are 276 18-year olds in the 2024 sample.

[6] For reference, if one looks at the rates of pupils in each year group reporting that they currently smoke or currently vape, the clear positive relationship with age remains. For smoking, 1.1% of sampled Year 8 pupils report currently smoking, rising to 3.7% in Year 10 and 17.4% in Year 12/13. For vaping, 5.4% of sampled Year 8 pupils report currently vaping, rising to 14.5% in Year 10 and 26.3% in Year 12/13.

Interestingly, Figure 2 also shows that the gap between the percentage who report vaping at least once and the percentage who report smoking at least once is proportionally larger for younger year groups. In Year 6 the rate of reporting vaping at least once is around 6.8 times the rate of reporting smoking at least once, whereas by Year 12/13 the equivalent figure is only 1.4.

Changes over time

Making comparisons

The clear association between reported smoking (vaping) rates and age in Figure 2, together with the sample being non-random, means that it is important to control for age when comparing the 2024 data with that from other years, or with SHEU's data from other parts of the country. Below the rates of reported smoking (vaping) are shown individually for Year 6, Year 8, Year 10 and Year 12/13. We report only selected year groups for brevity; Year 8 and Year 10 enable comparison with SHEU data, while Year 6 was chosen as the youngest year group for which data is available and Year 12/13 was chosen as the oldest year group available. No Year 12/13 data was available for the Norfolk sample in 2015.

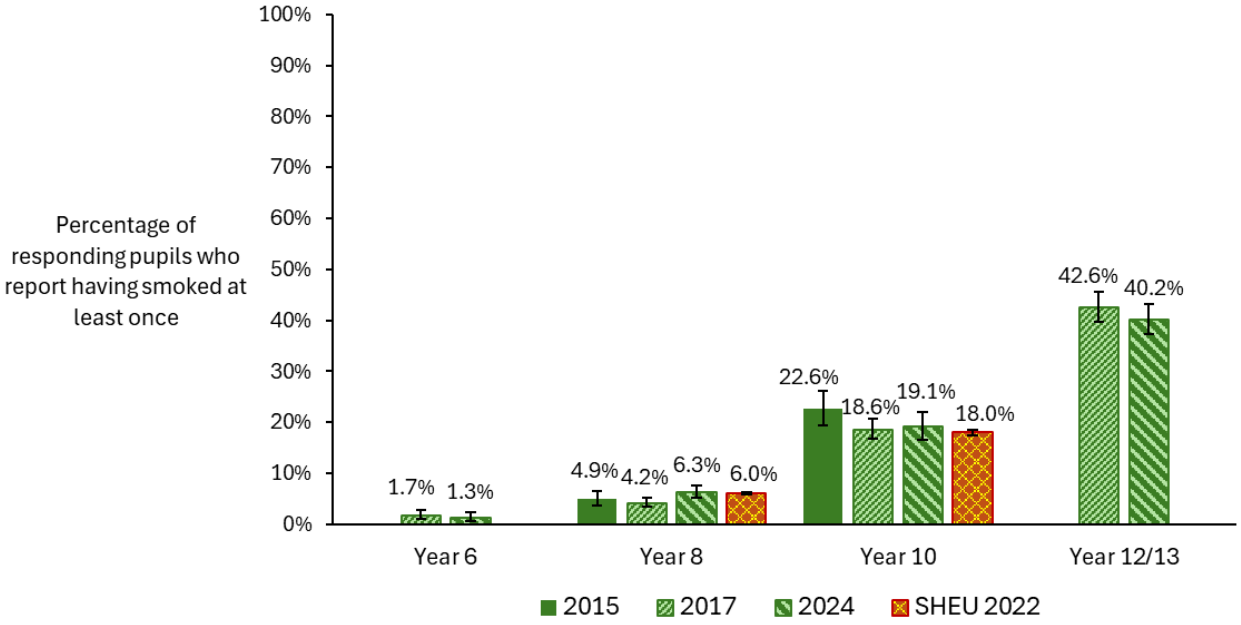
Regarding the comparison between the Norfolk sample and wider SHEU data, the most recent SHEU comparator data relates to 2022 rather than 2024.

Smoking

Figure 3 shows that the proportion of sampled pupils in each year group who report having smoked at least once is broadly stable over time, once one accounts for uncertainty. This finding of relative stability over time is also found for ages 12 to 15 when NHS survey data is compared between 2021 and 2023. Similarly, looking at the orange and yellow bars in Figure 3, one can see that reported smoking rates for the Norfolk sample are in line with the wider SHEU data.

However, the NHS survey data does show an increase in the proportion of 11-year olds who report having tried smoking at least once from 2% in 2021 to 6% in 2023. The Year 6 data in the Norfolk sample does not show a similar increase.

Figure 3: The percentage of sampled pupils reporting having smoked at least once by selected year group - 2015, 2017, 2024 and SHEU 2022 (Year 6, Year 8, Year 10 and Year 12/13 data separately)

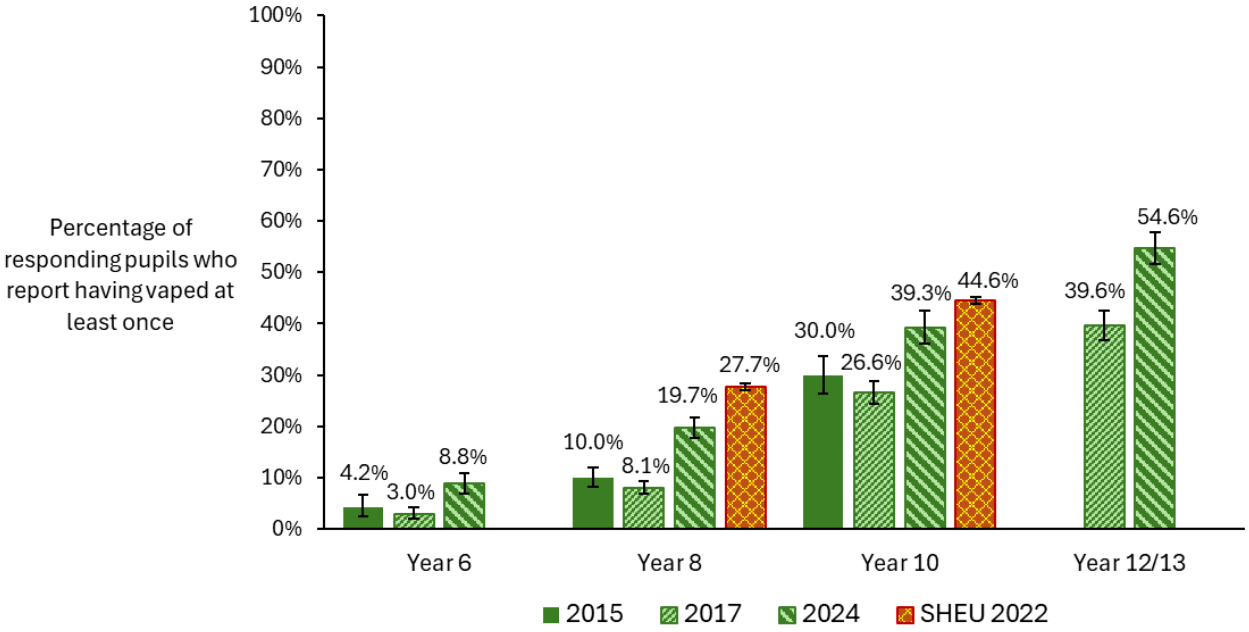


Vaping

In contrast to the relative stability of the prevalence of smoking, Figure 4 indicates that there has been a noticeable increase in the reported rates of vaping in all the year groups considered. For example, among sampled Year 10 pupils the percentage who report vaping at least once increased from 26.6% in 2017 to 39.3% in 2024. However, despite this increase, the reported rate of vaping at least once in the Norfolk sample is lower than in the comparator SHEU data from 2022. The percentage of Year 10 pupils who report vaping at least once in SHEU's 2022 comparator data was 44.6%.

While the overall reported rate of vaping among sampled Year 6 pupils remains low, it seems notable that the percentage reporting having vaped at least once almost trebled between 2017 and 2024 from 3.0% to 8.8%.

Figure 4: The percentage of sampled pupils reporting having vaped at least once by selected year group - 2015, 2017, 2024 and SHEU 2022 data (Year 6, Year 8, Year 10 and Year 12/13 data separately)



Interestingly, in the NHS survey data the overall reported rate of vaping at least once for 11-15 year olds did not show a statistically significant increase between 2021 and 2023. This potentially suggests that most of the increase in reported vaping found in the Norfolk sample between 2017 and 2024, may have occurred in the first half of this time period.

Variations across groups

Interpretation

Figure 5 and Figure 6 (on pages 16 and 17 respectively) show how the rates of smoking and vaping vary across sampled pupils by characteristics other than age. The characteristics used for the breakdown are the same in all the Flourish Survey topic reports and have been chosen to illustrate how the data varies across a range of minority groups. In all instances, the identifiers are based on pupils self-reporting their status and so are likely to identify a slightly different group of children than if official designations were used. The characteristics used in Figure 5 and Figure 6 to split pupils are: identifying as having a Special Educational Need or Disability (SEND)[7], receipt of free school meals[8], different ethnicities[9], identifying as a young carer[10], reporting low

[7] 2,058 individuals in the 2024 sample identify as having SEND (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This number excludes those answering 'I don't want to say' and represents 22.3% of the sample (when considering Year 4 to Year 13 and excluding non-responses). The number of respondents identifying as having SEND is considerably higher in 2024 than in 2015 or 2017. This is probably linked to a change in question design whereby in 2024 respondents are identified as having SEND if they indicate that they experience at least one of six impairments/difficulties (those identifying as having a long-term illness are not included in the SEND indicator). For most questions in the survey, the number responding will be different as some pupils will choose not to respond.

[8] 1,171 pupils in the 2024 sample report that they currently receive free school meals (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This number excludes those answering 'Don't know' or 'Don't want to say' and represents 15.4% of the sample (when considering Year 6 to Year 13 and excluding non-responses). In 2024 the free school meals indicator is only available for pupils in Year 6 and above. For most questions in the survey, the number responding will be different as some pupils will choose not to respond.

[9] 986 individuals in the 2024 sample identify as not having a solely white ethnicity (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This number excludes those answering 'Don't want to say' and represents 10.6% of the sample (when considering Year 4 to Year 13 and excluding non-responses). For most questions in the survey, the number responding will be different as some pupils will choose not to respond.

[10] 625 individuals in the 2024 sample identify as young carers (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This number excludes those answering 'Don't want to say' or 'Not sure' and represents 6.8% of the sample (when considering Year 4 to Year 13 and excluding non-responses). For most questions in the survey, the number responding will be different as some pupils will choose not to respond.

mental wellbeing[11], and gender identity[12]. It is worth remembering that some pupils will fall into multiple groups, e.g. both identify as a young carer and report receipt of free school meals.

When interpreting Figure 5 and Figure 6 and all other figures in this report, it is important to remember that the analysis only shows correlations, i.e. how things differ across groups, it does not demonstrate that the difference is caused by being in a different group. For example, Figure 5 shows those reporting low mental wellbeing report higher rates of smoking at least once. However, we do not know whether: (i) low mental wellbeing leads pupils to smoke, (ii) smoking leads pupils to have lower mental wellbeing, or (iii) some other factor is driving the patterns in both smoking and mental wellbeing.

Linked to this, Figure 5 and Figure 6 and all other figures in this report only report 'univariate' associations. In other words, they report how one characteristic (e.g. identifying as a young carer) is associated with one outcome variable (e.g. reporting smoking at least once). They do not control for any other characteristics, such as age. It is possible that the patterns shown in the figures could result from differences in other characteristics between two groups e.g. if those identifying as a young carer and those not identifying as a young carer differed in age. However, controlling robustly for all characteristics is much more involved than the present analysis allows with it requiring multivariate regression analysis.

In Figure 5 and Figure 6 the results should be read as follows. Each bar reports the percentage within the stated group that reports smoking (vaping) at least once. For example, in Figure 5 17.8% of pupils identifying as having SEND report smoking at least

[11] 3,155 pupils in 2024 have been classified as having low mental wellbeing (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This represents 39.9% of the sample when considering Year 4 to Year 13 and non-responses to the constituent questions are excluded. For most questions in the survey, the number responding will be different as some pupils will choose not to respond. Low mental wellbeing is identified according to an aggregate score from a range of questions according to recognised academic methods. For primary pupils and most Year 7 pupils the questions result in the Stirling Children's Wellbeing Scale (Stirling Scale), while for older pupils the questions result in the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS). For both scales, 'low' mental wellbeing is identified as being a score at least one standard deviation below the mean score on the respective scales as reported in academic studies. Both scales ask pupils to rate their experience of life in the couple of weeks before the survey.

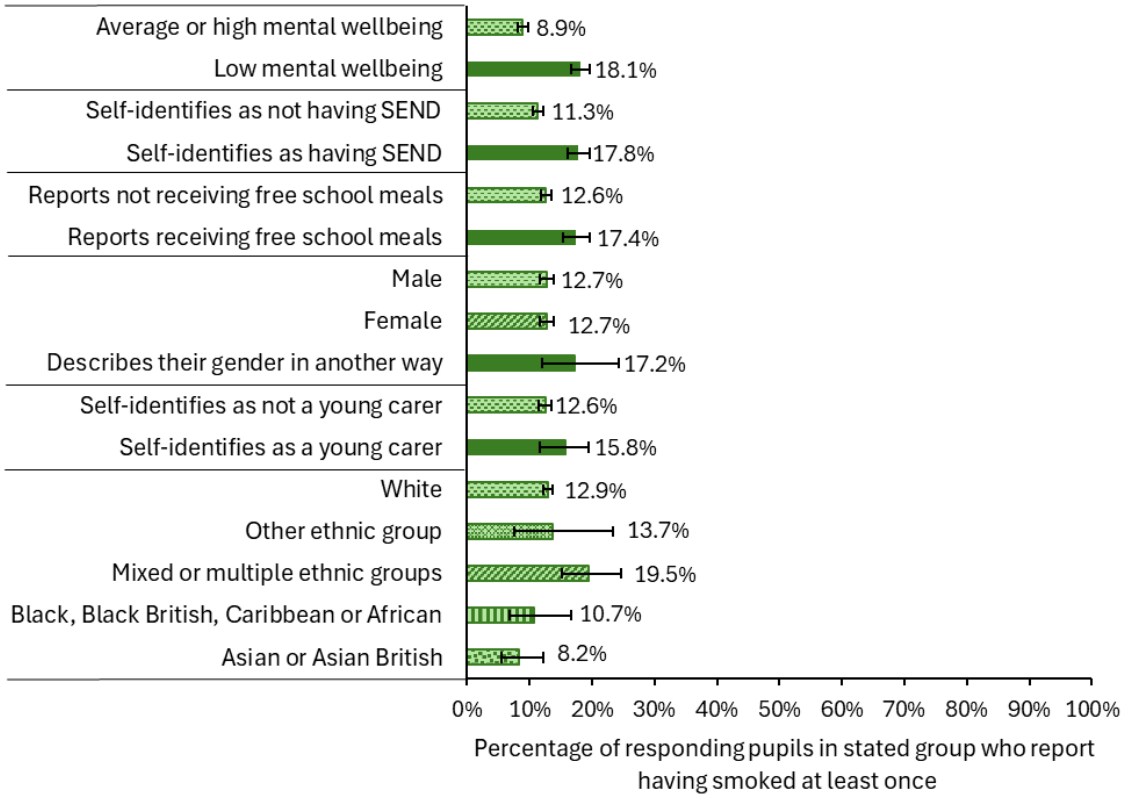
[12] 168 individuals in the 2024 sample describe their gender in another way beyond simply male or female (since only 12% of pupils are sampled the number for Norfolk as a whole would be much higher). This number excludes those answering 'I prefer not to say' and represents 1.9% of the sample (when considering Year 4 to Year 13 and excluding non-responses). Primary pupils as well as secondary pupils could identify as a gender other than male or female. The relevant question was framed as asking about gender identity and there was no separate question asking about sex at birth. For most questions in the survey, the number responding will be different as some pupils will choose not to respond.

once. Each characteristic described on the previous page is used to split the overall sample of Year 6 to Year 13 into mutually exclusive groups. In the case of those identifying as having SEND, there are two mutually exclusive groups: ‘Self-identifies as having SEND’ and ‘Self-identifies as not having SEND’. The horizontal lines on the vertical axis separate the different cuts of the data, and the statements about statistical significance refer to comparisons between the groups between two of the horizontal lines, e.g. Self-identifies as having SEND vs Self-identifies as not having SEND.

Variations

Figure 5 shows that reporting low mental wellbeing, identifying as having SEND, reporting receipt of free school meals or identifying as Mixed or multiple ethnic groups are associated with being more likely to report smoking at least once when compared against those who do not report each of these characteristics. Identifying as Asian or Asian British is associated with a lower reported rate of smoking than those identifying as a 'White' ethnicity. The largest observed difference is that the reported rate of smoking among those reporting low mental wellbeing is more than double the rate for those reporting average or high mental wellbeing (18.1% vs 8.9%). For the other characteristics, uncertainty means we cannot be sure that they are associated with a higher rate of smoking than their comparator group.

Figure 5: Percentages of sampled pupils reporting they have smoked at least once by selected groups - 2024 (Year 6 to Year 13 data combined)

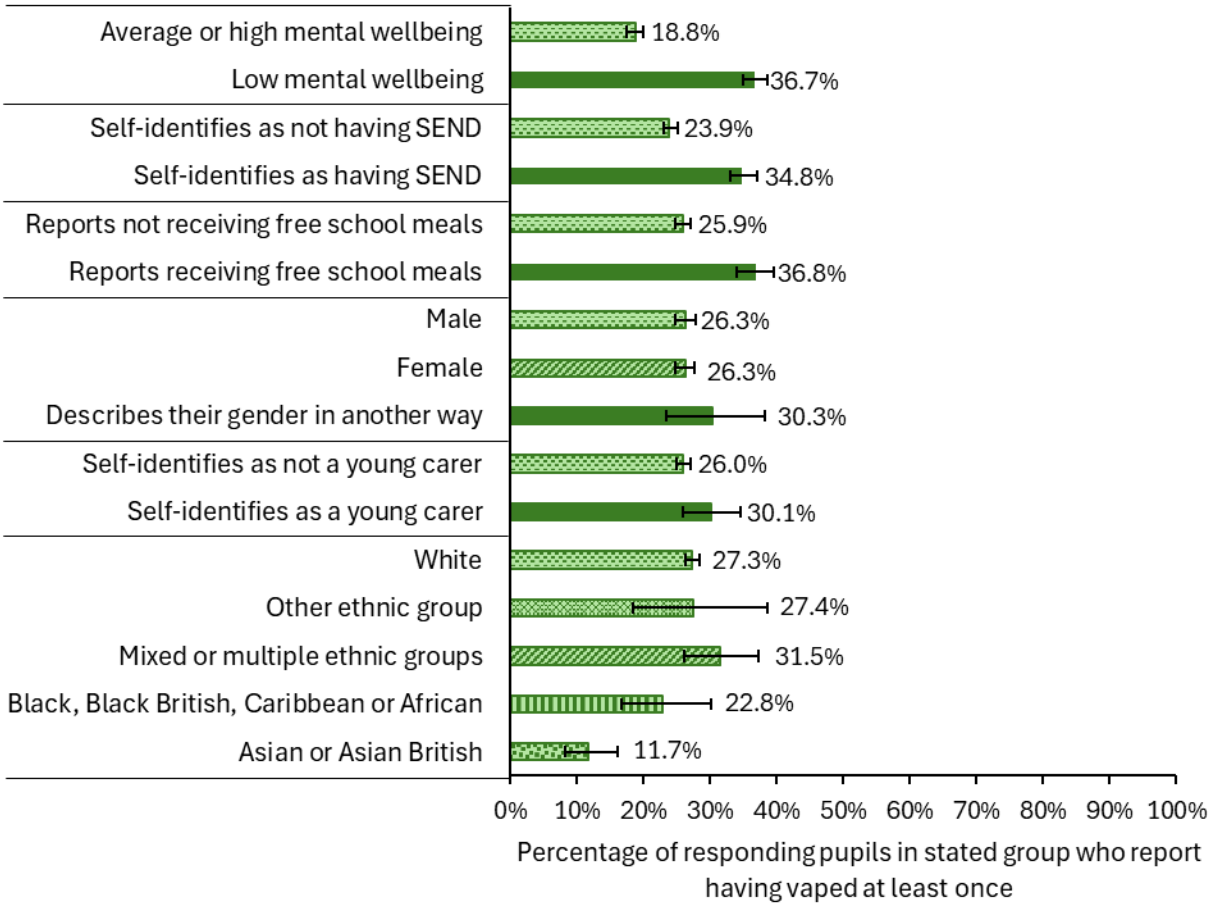


That reporting smoking at least once is lower for pupils from an Asian background matches the finding in the 2023 NHS survey data. The NHS survey data shows that in

2023 5% of Asian pupils, and 8% of Black pupils, aged 11-15 reported smoking at least once.

Turning to vaping, Figure 6 shows that reporting low mental wellbeing, identifying as having SEND or reporting receipt of free school meals are associated with being more likely to report vaping at least once. The largest difference is between those reporting low mental wellbeing and those reporting average or high mental wellbeing, 36.7% vs 18.8% respectively. The difference between White and Asian or Asian British ethnicities is also large, with 27.3% of White respondents reporting vaping at least once compared to only 11.7% of those identifying as Asian or Asian British.

Figure 6: Percentages of sampled pupils reporting that they have vaped at least once by selected groups - 2024 (Year 6 to Year 13 data combined)



Another result of note in Figure 5 and Figure 6 is that the reported rates of smoking (vaping) at least once are virtually identical between male and female pupils. 12.7% of males report smoking at least once compared to 12.8% of females, while 26.3% of males of report vaping at least once compared to 26.2% of females. Once uncertainty is

considered, any differences between males and females are also not obvious when the data is split into individual year groups.

That males and females report similar rates of smoking contrasts with the 2022 SHEU comparator data from other areas, which suggests that females have higher rates of smoking and vaping (at least in Year 10). 15.0% of Year 10 males reported smoking at least once in the 2022 SHEU comparator data compared to 20.9% of Year 10 females. Similarly, in the SHEU 2022 comparator data 39.0% of Year 10 males reported vaping at least once compared to 50.1% of Year 10 females.

However, the 2023 NHS survey data, like the Norfolk sample, found that the reported rate of smoking at least once was similar between males and females. Yet, the 2023 NHS survey did find a substantially higher reported rate of smoking among those identifying as ‘Another gender identity’. 27% of those with another gender identity reported smoking at least once compared to 10% of males and 11% of females. The magnitude of this difference is substantially higher for the Norfolk data in Figure 5.

Exposure to secondary smoke

Overall exposure

All pupils were asked questions about parental smoking and so the percentages reported in this section are based on combining data from Year 4 to Year 13 (pupils aged 8 to 18).

A positive finding is that the percentage of pupils reporting that their parents or carers smoke cigarettes has fallen over time from 33.7% in 2015 to 31.0% in 2017 and to 27.0% in 2024.

To compare the Norfolk sample with SHEU data from other parts of the country it is necessary to restrict attention to Year 8 and Year 10. Combining the data for just Year 8 and Year 10, the 2024 Norfolk parental smoking figure of 28.0% is higher than the SHEU 2022 comparator of 21.6%.

When comparing the reported rate of parental smoking above against the general adult rate of smoking obtained from other data sources it is important to note a mechanical reason for any discrepancy. Most pupils in the current survey have more than one adult they consider to be a parent/carer[13] and so will be aggregating across multiple adults when reporting parental smoking. In contrast, national statistics of adult smoking rates consider adults as individuals.[14] Also, the parental smoking statistic may overcome under-reporting issues that occur when adults are asked to self-report their smoking behaviour.

Variations by group

Turning to variations across the characteristics identified in the previous section, those identifying as having SEND, reporting receipt of free school meals, reporting low mental wellbeing or being a carer all reported higher rates of parental smoking than pupils not reporting each of these characteristics. In contrast, those identifying as Asian or Asian

[13] Where parents live separately, but have new partners, a pupil might consider the smoking behaviour of 4 adults.
[14] In 2023, the proportion of adults (aged 18 and over) in Norfolk reporting that they currently smoke was 12.2%, see Smoking Profile - Data | Fingertips | Department of Health and Social Care (phe.org.uk)

British and Black, Black British, Caribbean or African reported lower rates of parental smoking than those identifying as White. The reported rates of parental smoking across different gender identities showed little variation and may not be statistically significant. With the exception of those reporting receipt of free school meals all of these statements relate to Year 4 to Year 13 pupils. For the statement about free school meals the data relates to Year 6 to Year 13 pupils as the relevant free school meals question was only asked to these year groups in the questionnaire.

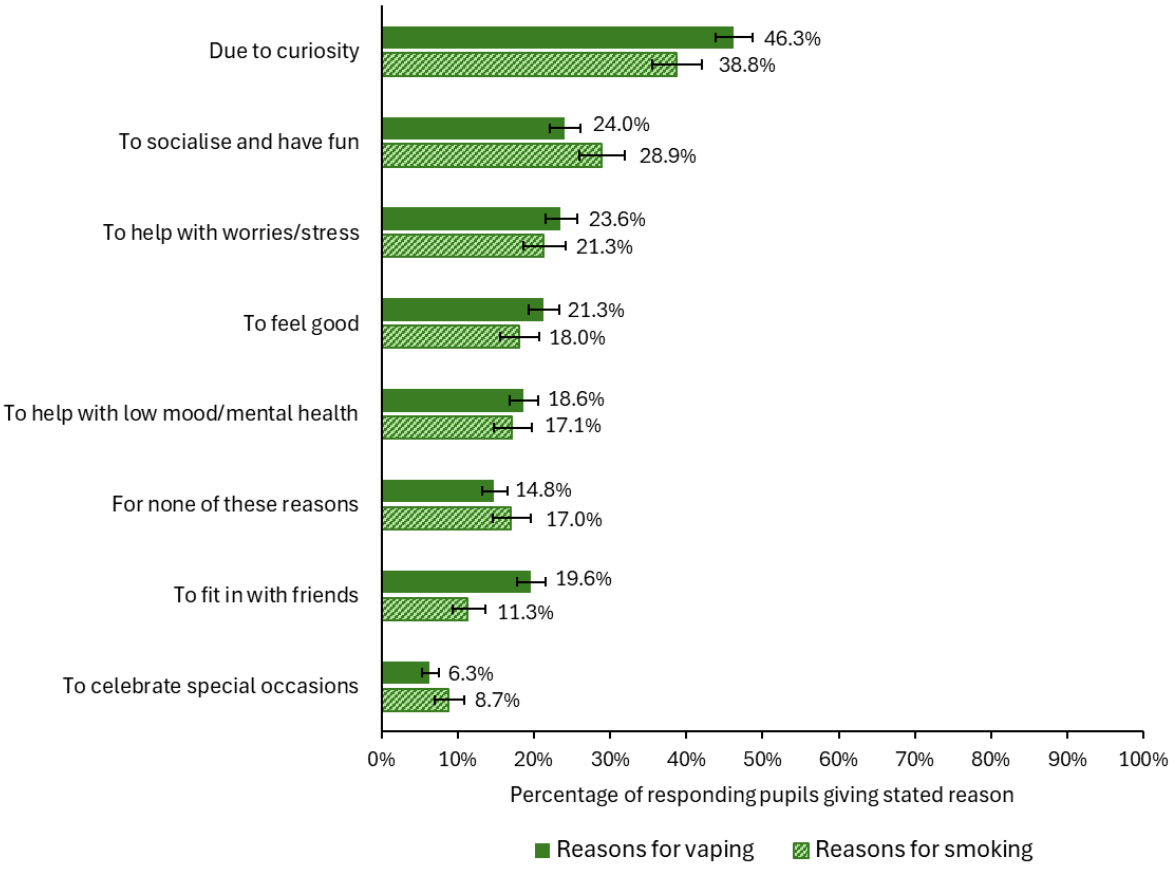
Two groups with particularly high exposure to parental smoking are those identifying as young carers and those reporting receipt of free school meals. 39.1% of Year 4 to Year 13 pupils who identify as young carers report parents/carers who smoked cigarettes compared to 25.0% of those who did not identify as young carers, while 46.9% of Year 6 to Year 13 pupils reporting receipt of free school meals reported that their parents smoked cigarettes compared to 21.8% of pupils who did not report receipt of free school meals.

Reasons for smoking and vaping

Reasons stated by pupils

Figure 7 (next page) shows the reasons sampled pupils reported for smoking and/or vaping. As the question was only asked in the secondary questionnaire, the data is restricted to combine Year 8 to Year 13 (pupils aged 12 to 18). The most common reported reason for both smoking and vaping at least once was some form of curiosity, while the next most common reasons were ‘To socialise and have fun’ and ‘To help with worries/stress’. One assumes that the importance of curiosity relates to the first few times an individual smoked or vaped rather than as an ongoing reason for individuals to smoke or vape over time.

Figure 7: Reasons stated by sampled pupils for smoking and/or vaping - 2024 (Year 8 to Year 13 data combined, only those who have smoked and/or vaped at least once answered the questions and multiple responses were possible)[15]



Overall, the pattern of reasons indicated for smoking and vaping are broadly similar, although, a higher proportion of vapers than smokers reported curiosity and to fit in with friends as reasons for their behaviour.

Social factors

Moving beyond the reasons stated by pupils when explicitly asked why they smoke or vape, one can look at correlations with other variables. Again, we can only identify associations between variables, rather than demonstrate that a variable causes smoking and/or vaping.

[15] Only those who had smoked at least once were asked about reasons for smoking and only those who had vaped at least once were asked about reasons for vaping. Pupils selected from a set of reasons stated in the questionnaire.

When assessing the role of social pressures in influencing a pupil's decision to smoke and/or vape one can see whether there are any differences according to respondents' level of worries about: (i) peer pressure, (ii) keeping up with what's online, and (iii) the way they look. Since questions about these worries were asked to primary as well as secondary pupils, we report results for Year 6 to Year 13 pupils.

Overall, the picture is mixed. Pupils who had worries about the way they look reported higher of both smoking and vaping than pupils who did not have these worries. Among Year 6 to Year 13 pupils reporting that they worried about the way they looked a lot or quite a lot, 16.4% reported smoking at least once and 34.6% reported vaping at least once. In contrast, among pupils reporting that they worried about the way they looked only a little, hardly ever or never, only 9.6% reported smoking at least once and 20.0% reported vaping at least once.

Those Year 6 to Year 13 pupils who worried about keeping up with what's online were more likely to report vaping at least once, but no more likely to report smoking at least once. Among those who worried quite a lot or a lot about keeping up with what's online 30.0% reported vaping at least once, compared to 25.4% of those who reported worrying a little, hardly ever or never about keeping up with what's online.

Parental Influence

There is also evidence consistent with reporting parents/carers who smoke increasing the likelihood a pupil reports smoking or vaping. Among those Year 6 to Year 13 pupils who report parents or carers that smoke, 20.3% report that they have smoked at least once and 38.3% report that they have vaped at least once. Among pupils who report parents or carers who do not smoke, the rates are substantially lower, being 10.1% and 22.4% respectively.

One possible reason for a link between parental smoking and pupil smoking is that 44.3% of sampled Year 8 to Year 13 pupils[16] report that their first source of information or help about smoking would be their family. In contrast, only 9.2% of these pupils would consider school teachers or lessons to be their first source of information about smoking, while 14.7% indicated friends would have this role and 19.2% stated that they have no one/nowhere to get information about smoking.

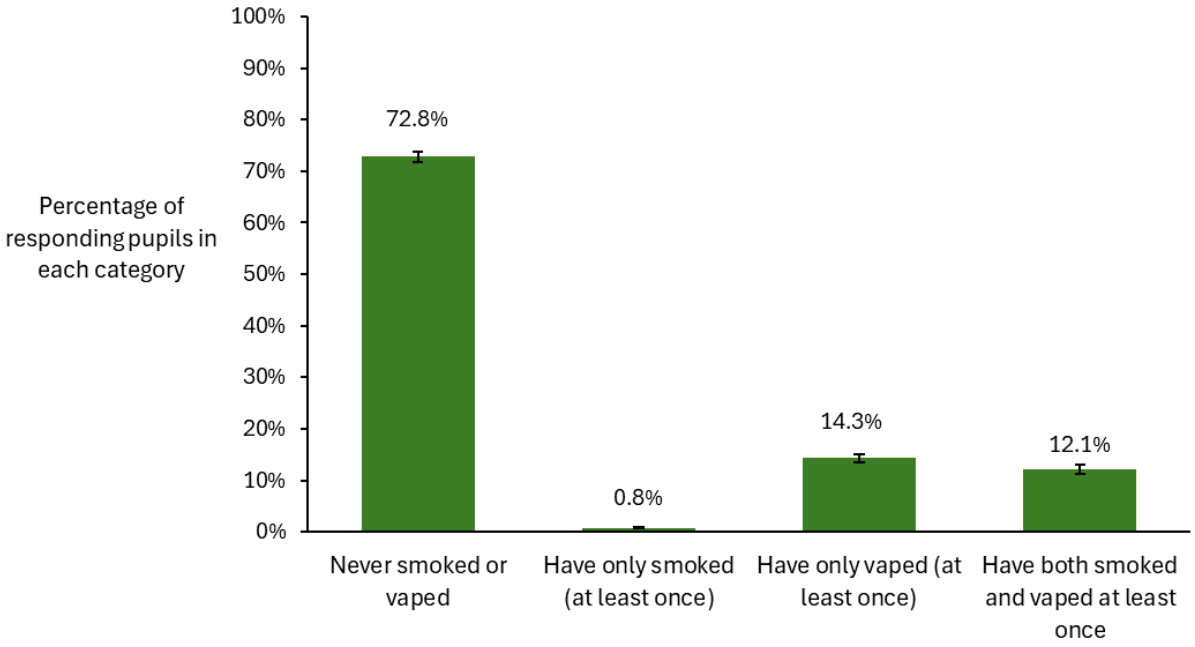
[16] Again, the relevant question was only asked in the secondary questionnaire, hence the restriction to these year groups.

Links between smoking and vaping

A major topic of interest is how smoking and vaping relate to each other, given that vapes and e-cigarettes were originally intended and marketed as a tool to help adults quit smoking. The results below suggest that vaping among pupils can be, but is not always, a phenomenon independent of smoking.

For example, Figure 8 reports that overall 14.3% of sampled Year 6 to Year 13 pupils report vaping at least once, but also report having never tried smoking. Looking solely at sampled Year 6 and Year 13 pupils who report vaping at least once, 54.1%, or a small majority, also report never smoking.

Figure 8: Percentages of sampled pupils that have smoked and/or vaped at least once - 2024 (Year 6 to Year 13 data combined)



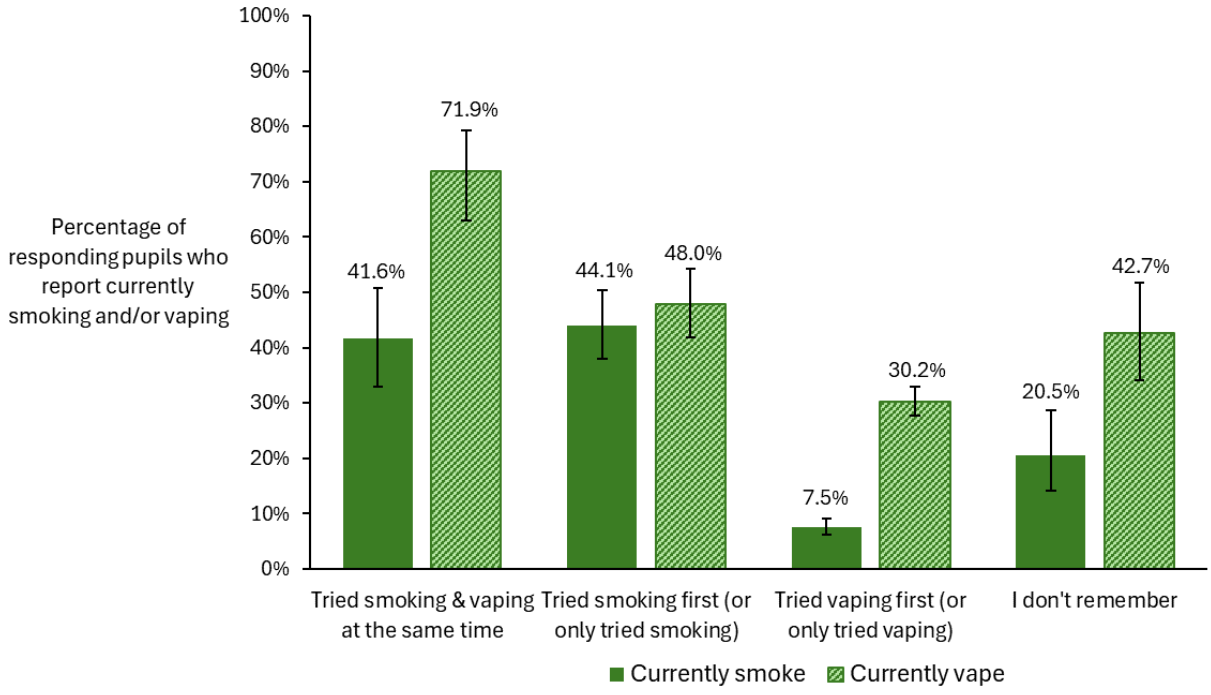
Equally, Figure 8 shows that the vast majority of sampled Year 6 to Year 13 pupils who report smoking at least once also report vaping at least once. Only 0.8% of all sampled Year 6 to Year 13 pupils report smoking at least once, but never vaping. Of those pupils who report smoking at least once, 93.8% also report vaping at least once.[17]

[17] If one restricts the sample to Year 10 to Year 13 pupils, there are some changes to Figure 8, although, the two key qualitative results remain: (i) a notable proportion of pupils (18.3%) report only trying vaping and (ii) the vast majority of those reporting smoking at least once also report vaping at least once.

A strong association between smoking and vaping is also found in the 2023 NHS survey data. Based on a regression model (i.e. statistical analysis where the association of multiple variables with smoking is assessed simultaneously), the NHS survey reports that reporting current use of e-cigarettes had the strongest association with an increased likelihood of reporting current smoking among all the variables considered. Similarly, the NHS survey reports that among pupils aged 11-15 who report regular cigarette consumption, 84% reported vaping at least once.

Despite almost all of those who report having tried smoking also reporting having tried vaping in the Norfolk sample, it is not clear that vaping is a strong pathway leading on to smoking. Figure 9 shows that only 7.5% of sampled Year 6 to Year 13 pupils who report trying vaping first or report only having tried vaping currently smoke. This compares to 44.1% of those who report trying smoking first or report only ever having tried smoking that currently smoke.

Figure 9: Percentages of sampled pupils who report currently smoking and/or vaping by whether they tried smoking or vaping first - 2024 (Year 6 to Year 13 data combined, data only relates to pupils who report smoking and/or vaping at least once)



However, of the sampled pupils who report first trying smoking and vaping at the same time, 41.6% currently smoke and 71.9% currently vape.

The contents of vapes

In terms of pupils understanding whether vaping might be addictive, it is worrying that among Year 8 to Year 13 pupils who reported vaping at least once, 25.4% indicated that they did not know whether the vapes they used usually contained nicotine. This also suggests that pupils have a general lack of knowledge about the substances contained in vapes and any potential harms associated with them.

Interestingly, 11.0% of Year 8 to Year 13 pupils who reported vaping at least once stated explicitly that their usual vape did not contain nicotine. However, by itself this result is difficult to interpret. It could be that these pupils are consciously avoiding nicotine as an addictive substance, or another sign that pupils have limited understanding of vape contents, or perhaps these pupils are vaping other active substances, e.g. cannabis.

Potential issues for smokers and vapers

In this section it is once again important to remember that associations between smoking (vaping) and other indicators/behaviours are being reported, the data does not allow us to say that smoking (vaping) causes these other issues/behaviours. The current data does not allow us to say whether or not one risky behaviour is a 'gateway' leading onto other risky behaviours; to address this issue one would require data which takes repeat observations from the same individual pupils at different points in time. As such, to understand potential causal relationships, one should refer to the relevant academic literature.

For this analysis we restrict attention to data for Year 10 pupils (pupils aged 14 to 15).[18] This is done because in Figure 2 reports of smoking (vaping) increase markedly with age. If this restriction was not imposed, most of those identified as not smoking (vaping) would be from younger age groups than those identified as smoking (vaping). In turn, this may over-estimate the relationship between smoking (vaping) and other risk-taking behaviours since other risk-taking behaviours also show a relationship with age.

One consequence of focusing the analysis on a single year group is that, for variables showing a clear relationship with age, e.g. risk-taking behaviours, the percentages reported would be mechanically higher/lower if a different year group were chosen. However, in this instance, we are less interested in the headline rate of a particular behaviour, e.g. reporting having had sex at least once, than in the difference in the rate of the behaviour between those who report never smoking (vaping) and those who report smoking (vaping) at least once.

Another mechanical result of restricting attention to Year 10 pupils is that there are fewer observations with which to perform the analysis. This means that the confidence intervals become wider and so differences between groups need to be larger for them to be identified as statistically significant. As a robustness check, we therefore also report whether the associations also occur when the analysed data is extended to cover Year 10 to Year 13 (pupils aged 14 to 18).[19]

[18] This year group is used as it contains more observations than Year 11 and Year 12/13 cannot be used as it covers multiple year groups. We restrict the analysis in Figure 11 to Year 10 to be consistent with Figure 10 rather than because the health indicators show clear relationships with age.
[19] Obviously, this robustness check suffers the earlier concern regarding over-estimating the relationship between two variables each with a clear association with age.

Risk-taking behaviours

Figure 10 shows clear associations between smoking and vaping and other risk-taking behaviours, namely, drinking alcohol, taking drugs and having sex.

Figure 10: Percentages of sampled pupils who report: (i) drinking alcohol at least once a month, (ii) taking illegal drugs at least once, or (iii) having sex at least once, by whether they report vaping and/or smoking at least once - 2024 (Year 10 data only)

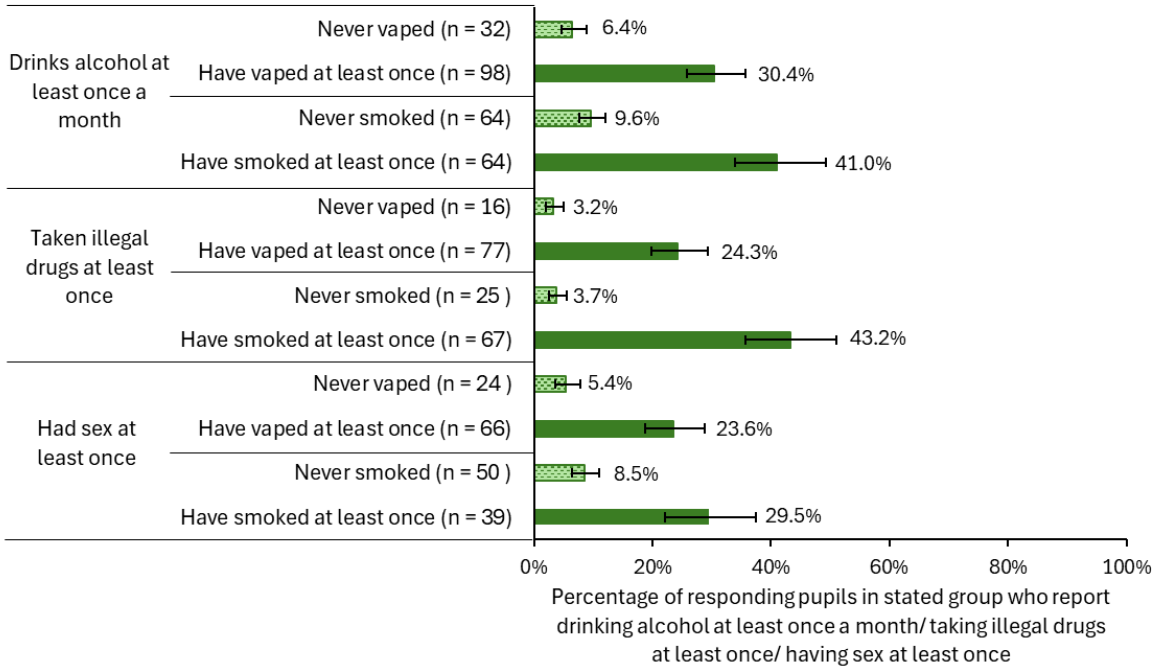


Figure 10 and Figure 11 should be read in the following way. The figures are split according to the outcome being measured (on the far left of the vertical axis) and the characteristics of the pupils being considered (e.g. reporting never having vaped vs reporting having vaped at least once). Each bar represents the percentage of pupils with a particular characteristic that report the individual outcome listed on the far left of the vertical axis. As such, the first line of the chart indicates that among sampled Year 10 pupils who report never having vaped 6.4% report drinking alcohol at least once a month. The characteristics of the pupils are used to split the overall sample of Year 10 pupils into mutually exclusive groups. The horizontal lines on the vertical axis separate the different cuts of the data, and the statements about statistical significance refer to comparisons between the groups between two of the horizontal lines, e.g. Never vaped vs Have vaped at least once.

In all instances, sampled Year 10 pupils who report smoking (vaping) at least once report much higher rates of: (i) drinking alcohol at least once a month, (ii) having taken illegal drugs at least once, and/or (iii) having had sex at least once, compared to those who report never smoking (vaping).[20] The difference is particularly stark when it comes to illegal drugs where the percentage who report taking illegal drugs at least once is more than 10 times greater among those who report smoking at least once than among those who report never smoking. For example, 43.2% of sampled Year 10 pupils who report smoking at least once also report taking an illegal drug at least once, compared to only 3.7% of those who report never smoking. If the analysis is repeated using all sampled Year 10 to Year 13 pupils, all the differences reported for the Year 10 data remain and are again large in magnitude.

In Figure 10 ‘n’ is the number of Year 10 pupils in the sample within the relevant group that report the outcome variable. For example, n = 32 indicates that within the sample there are 32 Year 10 pupils that report that they had never vaped and also report that they drink alcohol at least once a month. To be clear, n is not the number of individuals in a group who experience this issue for Norfolk as whole. The total number of individuals in a group experiencing this issue across Norfolk as a whole will be considerably higher as: (i) data from other year groups needs to be included, and (ii) the sample represents only around 12% of pupils in Norfolk.

Nevertheless, it is worth noting that among those who report vaping at least once, not only are these pupils more likely to report drinking alcohol regularly, taking illegal drugs and having had sex than sampled pupils who report never vaping, but ‘n’ is also noticeably higher. This indicates that the actual number of Year 10 pupils who engage in these other risky behaviours, not just the proportion, is likely to be higher among those who report vaping at least once than among those who report never vaping.

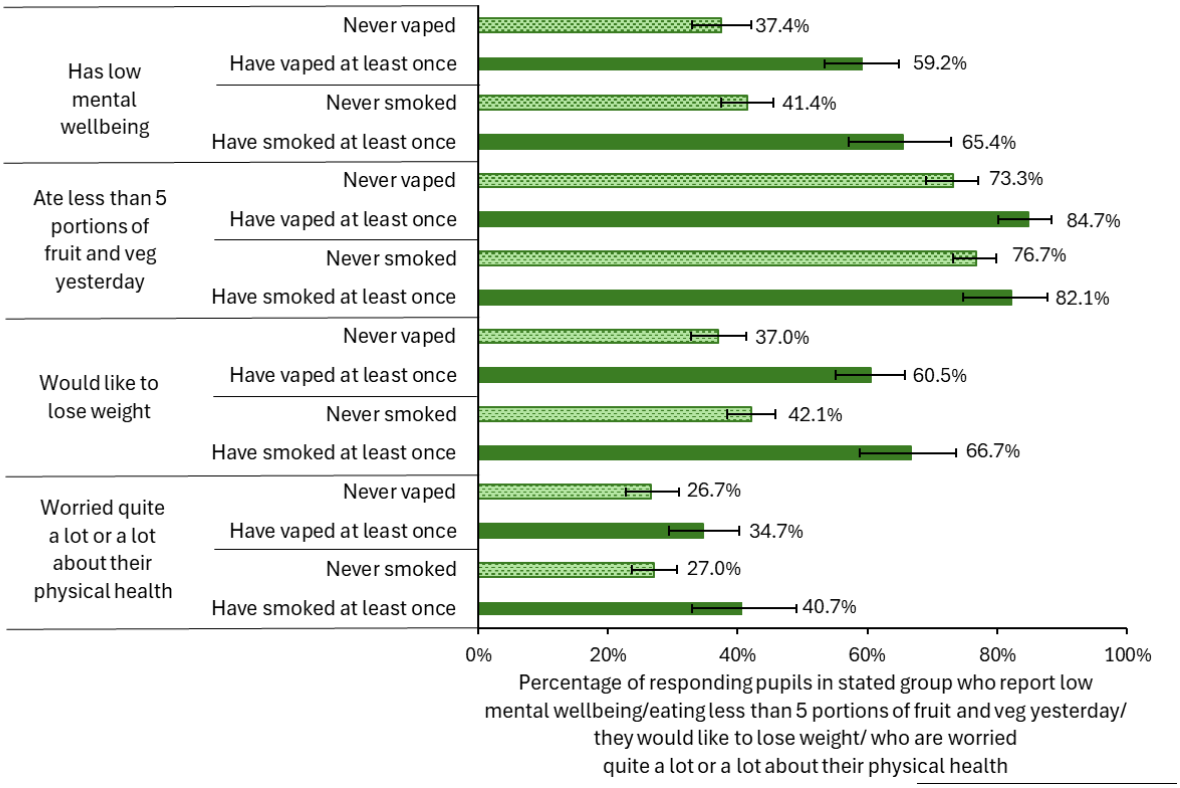
The association of smoking and vaping with drinking and taking drugs is also found in the 2023 NHS Survey. In regression models involving multiple variables, the NHS Survey describes how reporting smoking and vaping each increase the probability of an individual reporting drinking alcohol in the week before the survey and, separately, the probability of a pupil reporting taking drugs in the month before the survey. Both of these results are statistically significant.

[20] If we repeat the analysis when combining data from Year 10 to Year 13, the main qualitative result remains: those who report smoking and/or vaping at least once are much more likely to engage in the other risky behaviours than those who report never smoking and/or vaping. As one would expect, the precise percentages reporting each risky taking behaviour increase once older pupils are included in the analysis.

Health indicators

Figure 11 reports four health indicators broken down by whether a pupil has reported smoking (vaping) at least once. Overall, Year 10 pupils who report smoking (vaping) at least once appear more likely to report concerns about their health than pupils who report never smoking (vaping).

Figure 11: Percentages of sampled pupils who report: (i) low mental wellbeing, (ii) eating less than 5 portions of fruit and veg on the day before the survey, (iii) they would like to lose weight, or (iv) being worried quite a lot/a lot about their physical health, by whether or not they report vaping and/or smoking at least once - 2024 (Year 10 data only)



The two exceptions to this general trend are that: (i) we cannot be sure of a difference between those who report never smoking and those who report smoking at least once in terms of the proportion who report eating less than five portions of fruit and veg on the day before the survey, and (ii) we cannot be sure of a difference between those who

report never vaping and those who report vaping at least once in terms of the proportion who report being worried quite a lot or a lot about their health.[21]

In terms of the statistically significant results, first, sampled Year 10 pupils who report smoking (vaping) at least once are more likely to report that they have low mental wellbeing. Combined with Figure 5 and Figure 6, this confirms that the association between reports of smoking (vaping) and reported low mental wellbeing exists in both directions. In Figure 11, 59.2% of those who report vaping at least once report low mental wellbeing compared to only 37.4% of those who report they have never vaped. Second, Figure 11 shows that sampled Year 10 pupils who report smoking (vaping) at least once are more likely to report wanting to lose weight than those who report never smoking (vaping).

When Figure 11 is repeated using data from sampled Year 10 to Year 13 pupils, aside from the specific percentages changing, for all the poor health indicators there is then a statistically significant difference between pupils who report that they smoke (vape) and pupils who report that they do not smoke (vape).

[21] As a check, we have repeated the analysis in Figure 11 with all the data from Year 10 to Year 13. When this is done, those who report smoking (vaping) at least once are more likely to report each and every concern about their health than those who report never smoking (vaping).

Appendix 1: Assessing the representativeness of the sample

A separate topic report provides a detailed comparison of the 2024 Flourish sample with data for the population of schools and pupils in Norfolk. While the sample data is broadly in line with the population data for some characteristics, such as ethnicity, for other characteristics there are differences to the population data. These differences are clearest in terms of the age distribution of responding pupils and the geographic distribution of schools taking part in the survey.

Regarding age, the data is concentrated in Year 7 to Year 10 (pupils aged 11 to 15) rather than being evenly distributed across year groups. To avoid differences in age distributions impacting comparisons between years, and with the wider SHEU comparator data for 2022, we generally make these comparisons according to individual year groups.

Regarding the geographic distribution of the 2024 data, only primary schools chose to take part in the Borough of Great Yarmouth and in Norwich none of the Year 7 to Year 11 data comes from state-funded schools. Furthermore, pupils from King's Lynn and West Norfolk are over-represented in the data for secondary schools and colleges, while pupils from Norwich are over-represented in the primary data and pupils from Breckland are under-represented in the primary data. This uneven geographic distribution of data means that we do not break out results by district.

Also, it appears that the sample probably under-represents pupils who are eligible for free school meals. This, combined with the geographic distribution of the data, means that the sample may under-represent children from deprived backgrounds. However, this does not mean the data should be ignored, rather thought should be given to whether a particular variable is more or less likely to be observed among pupils from deprived backgrounds. For example, where a behaviour is thought to be more common among pupils from a deprived background, the results in this report are likely to be a minimum for the true prevalence of the behaviour among the full population of Norfolk pupils.

In terms of the validity of comparisons between 2015, 2017 and 2024, as noted previously, we control for differences in the age distribution of pupils.[22] Nevertheless, there are other differences in the compositions of the samples between years. The slightly greater ethnic diversity of the sample and the large increase in the proportion of pupils reporting receipt of free school meals between 2017 and 2024 are broadly mirrored by changes in population data between 2016-17 and 2023-24. In other words, for these two characteristics, the population of pupils in Norfolk is changing rather than it being a clear issue with the sample's representativeness. Regarding the gender breakdown of the sample and the proportion of pupils identifying as having SEND, it is possible that there are changes in the sample composition between years that do not match the population data; although, in both instances, methodological issues cloud the picture.[23]

Overall, the analysis is representative of the subset of pupils who are educated within schools with management that might consider undertaking a pupil health survey worthwhile. The Norfolk population data indicates that the sample under-represents pupils taught in schools rated by Ofsted as Requires Improvement. We cannot rule out the possibility that differences in results between years, and with SHEU data from other parts of the country, result from differences in the characteristics of pupils being sampled. The results in this and the other topic reports are all unweighted.

[22] The size of the Flourish sample has also varied considerably between years being 3,155 in 2015 and 11,417 in 2017; however, these changes in sample size are reflected in the size of the confidence intervals reported in figures and they should not have a clear impact on the sample's representativeness.
[23] For gender, the sample appears to becoming less representative over time with the proportion of females in the sample increasing. However, drawing firm conclusions is complicated by the population data being about sex rather than gender identity; in other words, the population data only records pupils as male or female. For SEND status, the increase in the proportion of the sample self-identifying as having SEND exceeds the increase observed in the population data between 2016-17 and 2023-24 by some margin; the large increase in the Flourish data probably relates to the question wording in the Flourish questionnaire changing between 2017 and 2024.

Appendix 2: Mapping year groups to age

Generally, the topic reports based on the Flourish Survey break data out by school year group rather than age for two reasons: (i) key events in pupils' lives are determined by school year group, e.g. the switch from primary to secondary school and GCSE exams, and (ii) SHEU reports comparator data from other parts of the country for selected year groups.

For readers who are unfamiliar with school year groups Table 1 provides a mapping to the age of pupils. Year 6 marks the end of primary school, while Year 7 marks the start of secondary school. GCSE exams are taken in Year 11 with pupils moving to sixth form or further education providers for Year 12/13. As discussed in the first section of the report, the questions pupils see in the Flourish Survey vary to some extent by the year group they are in.

Table 1: Age of pupils in school year groups included in the Flourish Survey

School year group	Age of pupils
Year 4	8-9
Year 5	9-10
Year 6	10-11
Year 7	11-12
Year 8	12-13
Year 9	13-14
Year 10	14-15
Year 11	15-16
Year 12/13	16-18

The Flourish Survey questionnaire does not enable pupils in Year 12 and Year 13 to be separated. Also, in rare circumstances individual pupils of a particular age may be in a different year group if they have been moved up or down a year.