



# Young People and the Use of E-cigarettes in Wales

Dr Rosanne Palmer, ASH Wales

Britt Hallingberg, PhD Candidate, DECIPHER, Cardiff University

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## Aim of the project

The objective of this project was to explore the awareness and use of e-cigarettes among 13-18 year olds in Wales.

## Background

The electronic or e-cigarette is a relatively recent development, increasingly widely used among the adult population as an alternative to tobacco cigarettes<sup>1</sup>. They are designed to deliver nicotine without burning tobacco. Most e-cigarettes consist of three main components: a battery, an atomiser and a (replaceable) nicotine cartridge. When a user sucks on the device, the air flow is detected, causing the liquid in the cartridge to be heated so that it evaporates. This vapour delivers the nicotine to the user.

Whilst the potential public health benefits of e-cigarettes as an alternative to tobacco cigarettes amongst adults have been recognised, a number of safety and health concerns have been raised. These include uncertainty over the long-term health implications of use, concerns over product safety and a current lack of evidence that they act effectively as a smoking cessation device, as they allow an individual's nicotine addiction to be maintained<sup>2</sup>.

With regard to young people, specific concerns have been raised that e-cigarettes could act as a gateway to tobacco smoking, if young people who do not use normal cigarettes experiment with e-cigarettes and thereby develop a nicotine addiction<sup>3</sup>. The wide range of different flavours available are also viewed as making the product potentially more appealing to young people, especially if combined with aggressive marketing techniques. A further concern relates to whether the ever-increasing use of e-cigarettes, which are not covered by the smoke-free premises regulations, are leading to a perceived renormalisation of smoking as an activity. Although increasingly e-cigarettes are moving away from resembling normal cigarettes, initially many were very similar in appearance.

Whilst research among adults in the UK suggests that e-cigarettes have little attraction for adult non-smokers, with negligible evidence of use among those who had never smoked<sup>4</sup>, the possibility of e-cigarettes being viewed as novelty items or being attractive due to sweet flavourings may be increased among young people.

To date, little research has been conducted specifically upon this issue of usage by young people. Most of the research to date has been conducted on contents and components of e-cigarettes or upon adult usage. A survey commissioned by ASH in 2013 indicated that only 1% of young people who had never smoked had tried e-cigarettes once or twice and 0% reported continued use of e-

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<sup>1</sup> R West and J Brown: "Latest trends on smoking in England from the Smoking Toolkit Study", last updated 26 February 2014, pp7-8. Available at: <http://www.smokinginengland.info/sts-documents/> (Under: Monthly tracking of key performance indicators)

<sup>2</sup> R Borland (2011): "Electronic cigarettes as a method of tobacco control", *BMJ*, 343:d6269 doi:10.1136/bmj.d6269; A K Regan et al: "Electronic nicotine delivery systems: adult use and awareness of the 'e-cigarette' in the USA", *Tobacco Control*, 22: pp19-23; doi:10.1136/tobaccocontrol-2011-05044.

<sup>3</sup> M L Goniewicz & W Zielinska-Danch (2012): "Electronic cigarette use among teenagers and young adults in Poland", *Pediatrics*, 130 e879; doi:10.1542/peds.2011-3448

<sup>4</sup> M Dockrell et al (2013): "E-cigarettes: Prevalence and Attitudes in Great Britain", *Nicotine and Tobacco Research*, Vol 15 (10): pp1737-1744

cigarettes<sup>5</sup>. Research conducted in the United States aimed at identifying the beliefs that predicted subsequent e-cigarette use also found that a relatively small number of (baseline) non-smoking respondents reported ever using an e-cigarette (2.9%) when compared with (baseline) former smokers (11.9%) or (baseline) current smokers (21.6%)<sup>6</sup>.

Findings in a survey conducted among young people (15-24 year olds) in Poland also returned similar results with regard to non-smokers. Whilst around one-fifth of respondents reported having tried an e-cigarette at some point, this dropped to 3.2% among those who had never smoked a cigarette. This percentage fell even further, to 1.4%, when asked if they had used an e-cigarette in the previous 30 days<sup>7</sup>, indicating that for many non-smokers who had tried one, this had not led to long-term use.

Anecdotal reports suggest a different picture with an increasing number of professionals working with young people across Wales report growing e-cigarette use. This project therefore conducted an on-line survey of young people in Wales with regard to awareness and usage of e-cigarettes among 13-18 year olds.

## Methods

In order to meet the objective, a short on-line survey was developed consisting of a maximum of 9 questions. The survey questions were piloted with a group of young people during a session delivered by The Filter<sup>8</sup> to check for errors or misunderstandings. Questions were translated and the survey was issued in a bilingual English/Welsh format. As the survey was electronic, certain skips were built in so that if a respondent answered 'No' to a specific question they did not have to answer questions that were irrelevant to their situation. For questions regarding sources of information about e-cigarettes, or motivations for trying an e-cigarette, response options were not mutually exclusive, allowing respondents to pick as many as applied to their situation.

The survey was circulated through a number of channels, being promoted through the social media presence of ASH Wales and The Filter, the ASH Wales newsletter and The Filter's professional networks, covering a range of educational and non-educational institutions, including Pupil Referral Units and youth clubs.

In total 740 individuals completed the online survey. Respondents who were not 13-18 years of age or did not report an age were excluded from the analyses. This resulted in a sample of 671 individuals that were investigated and represented in the findings given here. The categorical responses for each survey question were reported as percentages. Not all respondents answered every question, therefore the percentages reported reflect the total number of respondents that answered that specific survey question (described as 'n'). All analyses were conducted using SPSS statistical software. A series of cross-tabulations were run on the data set to break down results by age and smoking status.

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<sup>5</sup> ASH (2013): *Use of e-cigarettes in Great Britain among adults and young people*. Available at: [http://www.ash.org.uk/files/documents/ASH\\_891.pdf](http://www.ash.org.uk/files/documents/ASH_891.pdf)

<sup>6</sup> K Choi & J L Forster (2014): "Beliefs and Experimentation with Electronic Cigarettes. A Prospective Analysis Among Young Adults", *American Journal of Preventive Medicine*, 46 (2): pp175-178.

<sup>7</sup> M L Goniewicz & W Zielinska-Danch (2012)

<sup>8</sup> The Filter Wales is a smoking prevention and cessation project for young people aged 11-25, hosted by ASH Wales and funded by the Big Lottery Foundation.

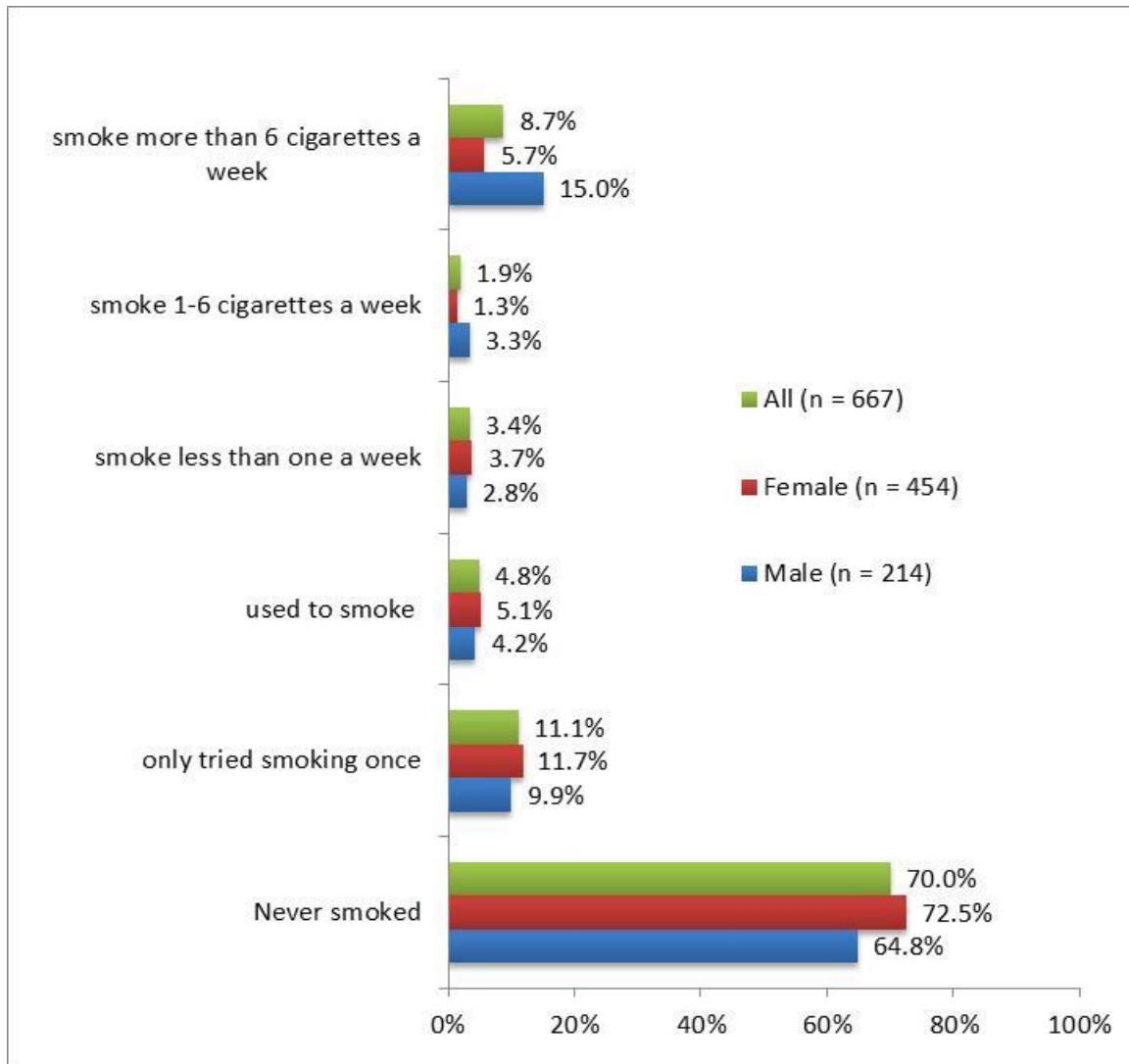
## *Findings*

Between the 4<sup>th</sup> of November 2013 and the 31<sup>st</sup> of January 2014, 740 people completed the online survey. Of these, 671 respondents were between 13-18 years of age. The results shown in this report are based on this smaller sample. More than half of the respondents were from South Wales (53.1%), while 27.4% were from West Wales, 17.6% were from North Wales and 1.9% were from Mid Wales. Females represented a large majority of the sample (68.1%).

### *Smoking Status*

Respondents were asked about their current use of cigarettes (see Figure 1). 70% of all respondents reported that they had never smoked a cigarette. This was higher among females (72.5%) than males (64.8%). A higher percentage of males (15%) reported smoking more than six cigarettes a week compared to females (5.7%).

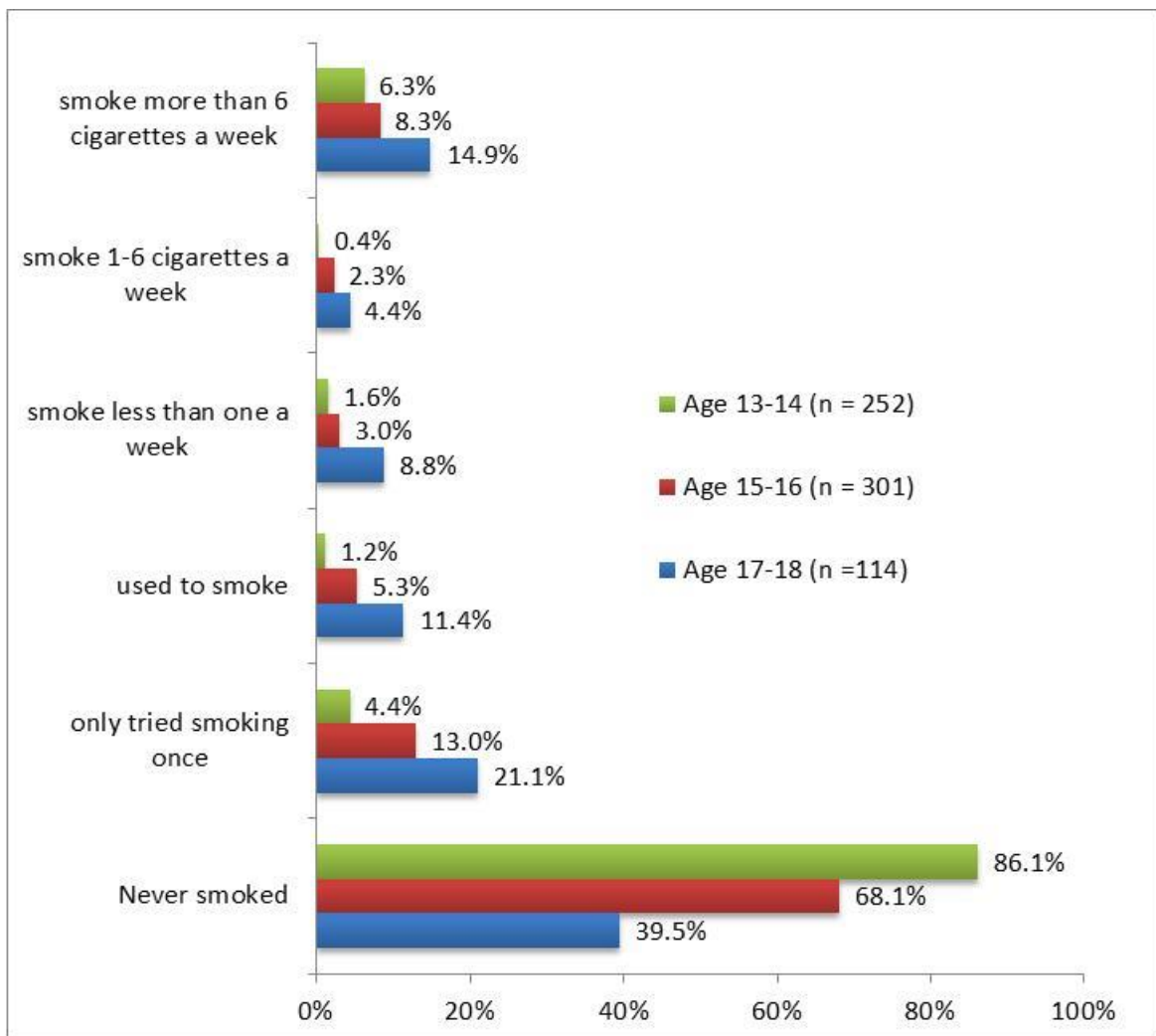
**Figure 1: Normal cigarette smoking status for all participants as well as females and males (n = 667)<sup>9</sup>**



Smoking status also differed according to age (see Figure 2). A higher percentage of respondents aged 13-14 years of age reported that they never smoked (86.1%) compared to older respondents 17-18 years of age (39.5%). Compared to all other age groups, respondents aged 17-18 years old reported higher percentages of smoking only once (21.1%), previously smoking (11.4%), smoking less than one cigarette a week (8.8%), smoking one to six cigarettes a week (4.4%) and smoking more than six cigarettes a week (14.9%).

<sup>9</sup> All percentages are calculated from the number of respondents for each specific question.

Figure 2: Normal cigarette smoking status according to age group (n=667)

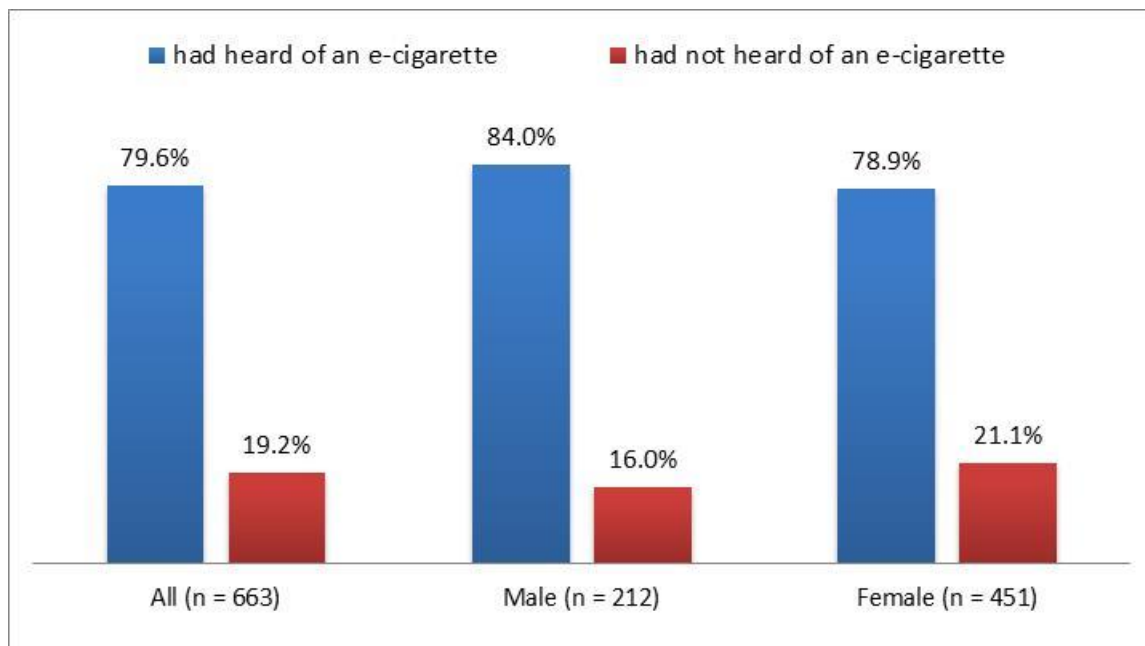




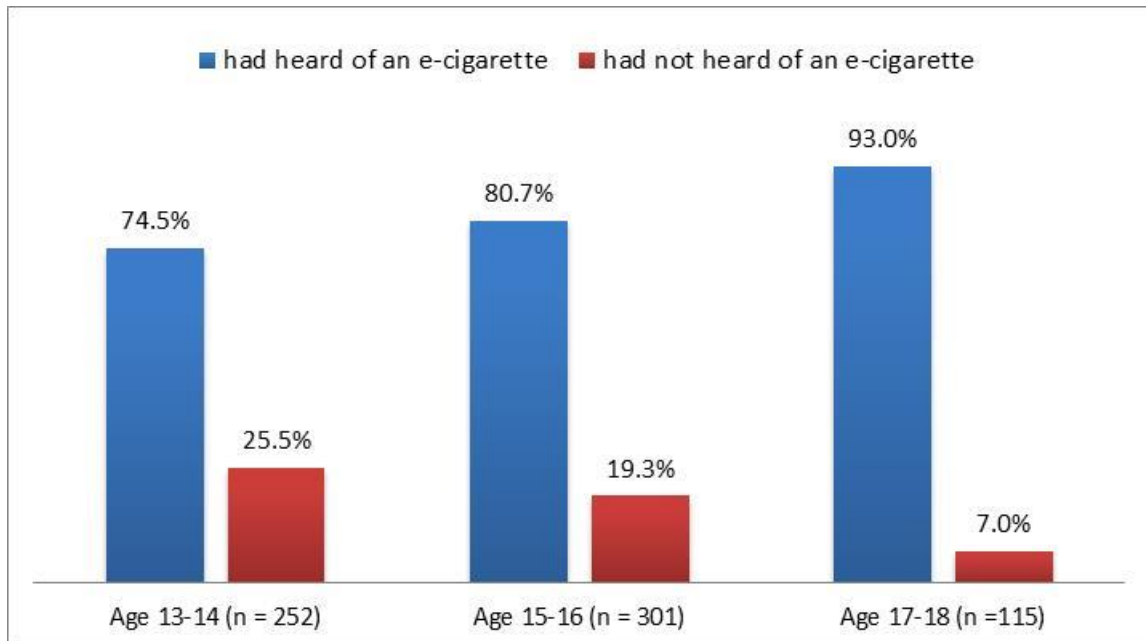
### *E-cigarette awareness*

Before respondents were presented with questions about their e-cigarette use, they were first asked whether they had ever heard of an e-cigarette. Of those who responded to this question (n = 663), 79.6% had heard of an e-cigarette (see Figure 3). This rate was higher among males (84.0%) than females (78.9%). This percentage also varied according to age group (see Figure 4). A higher percentage of respondents aged 17-18 had heard of an e-cigarette (93.0%) compared to younger respondents aged 15-16 (80.7%) and aged 13-14 (74.5%).

**Figure 3: Percentage of all respondents, females and males that had heard of an e-cigarette (n = 663)**



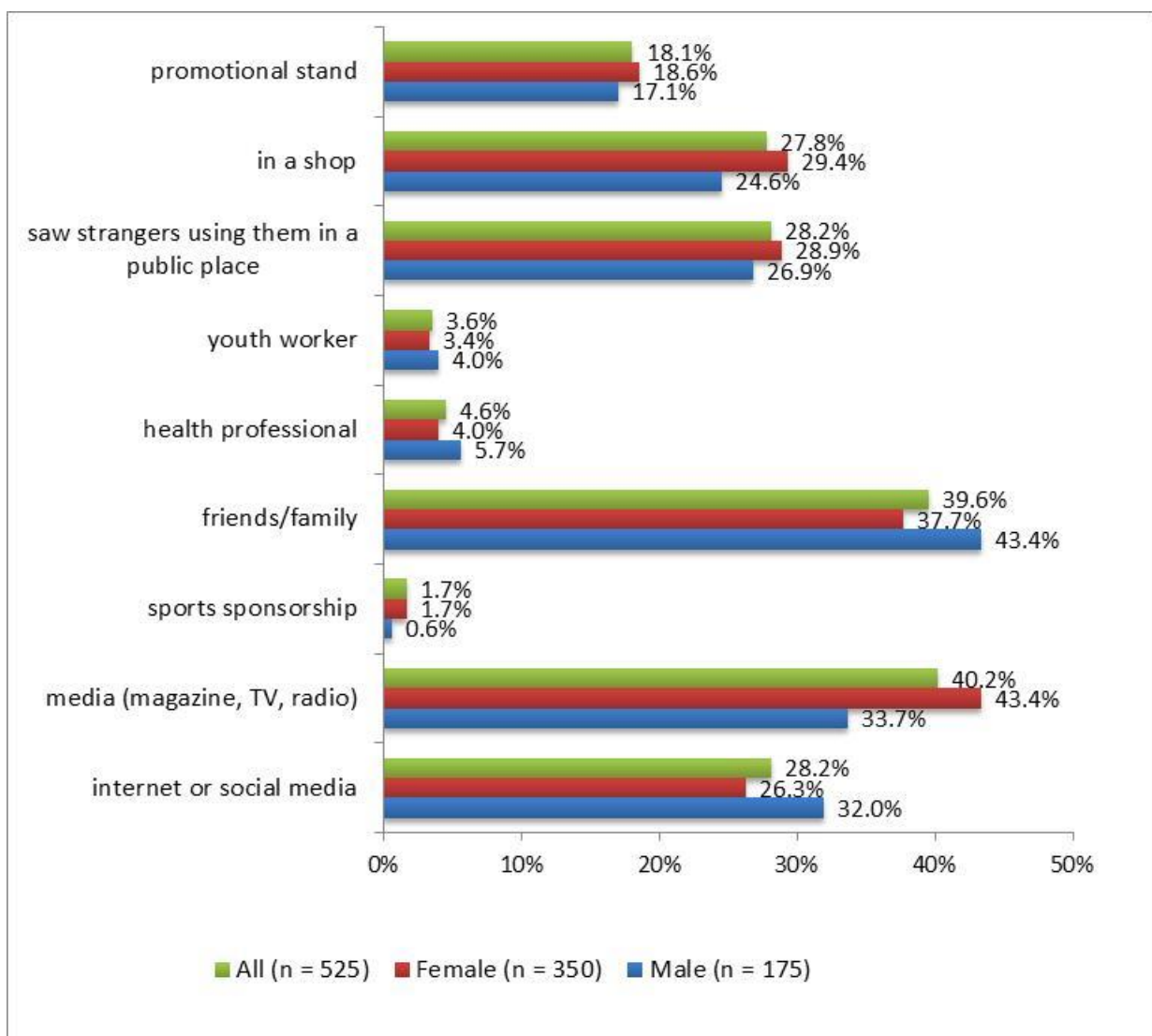
**Figure 4: Percentage of different age groups that had heard of an e-cigarette (n = 668)**



Respondents were asked to identify the sources from where they had first heard about e-cigarettes (n = 525). Nine options (not mutually exclusive) were provided and are shown in Figure 5. The most common sources reported were the media (40%) and friends or family (39.6%). Other sources of awareness came from the internet (28.2%), shops (27.8%) or strangers using them in a public place (28.2%).

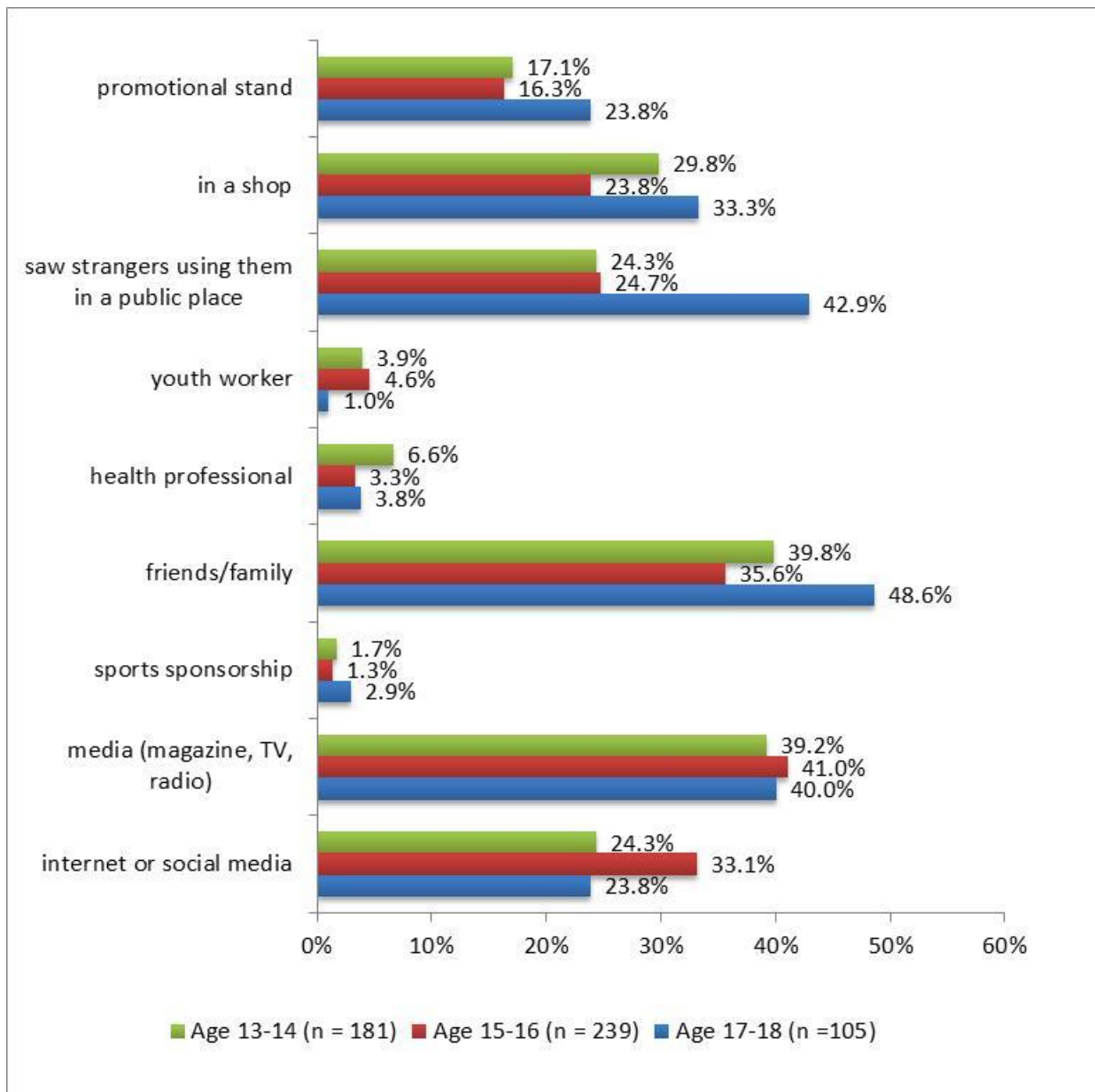
A higher percentage of males reported their friends and family (43.4%) as well as the internet or social media as a source (32.0%) compared to females (37.7% and 26.3% respectively). A higher percentage of females however reported media (magazine, TV and radio) as a source (43.4%) compared to males (33.7%).

**Figure 5: Sources of hearing about e-cigarettes for the first time for all participants, females and males (response options are not mutually exclusive) (n = 525)**



Sources of hearing about e-cigarettes also varied by age (see Figure 6). A higher percentage of older respondents aged 17-18 reported friends/family as a source (48.6%) and saw strangers using them in public (42.9%) compared to those aged 15-16 (35.6% and 24.7% respectively) and those aged 13-14 (39.8% and 24.3% respectively). A higher percentage of younger respondents aged 13-14 reported health professionals as a source (6.6%) compared to those aged 15-16 (3.3%) and aged 17-18 (3.8%). A higher percentage of respondents aged 15-16 also reported the internet or social media as a source (33.1%) compared to younger respondents aged 13-14 (24.3%) and older respondents aged 17-18 (23.4%).

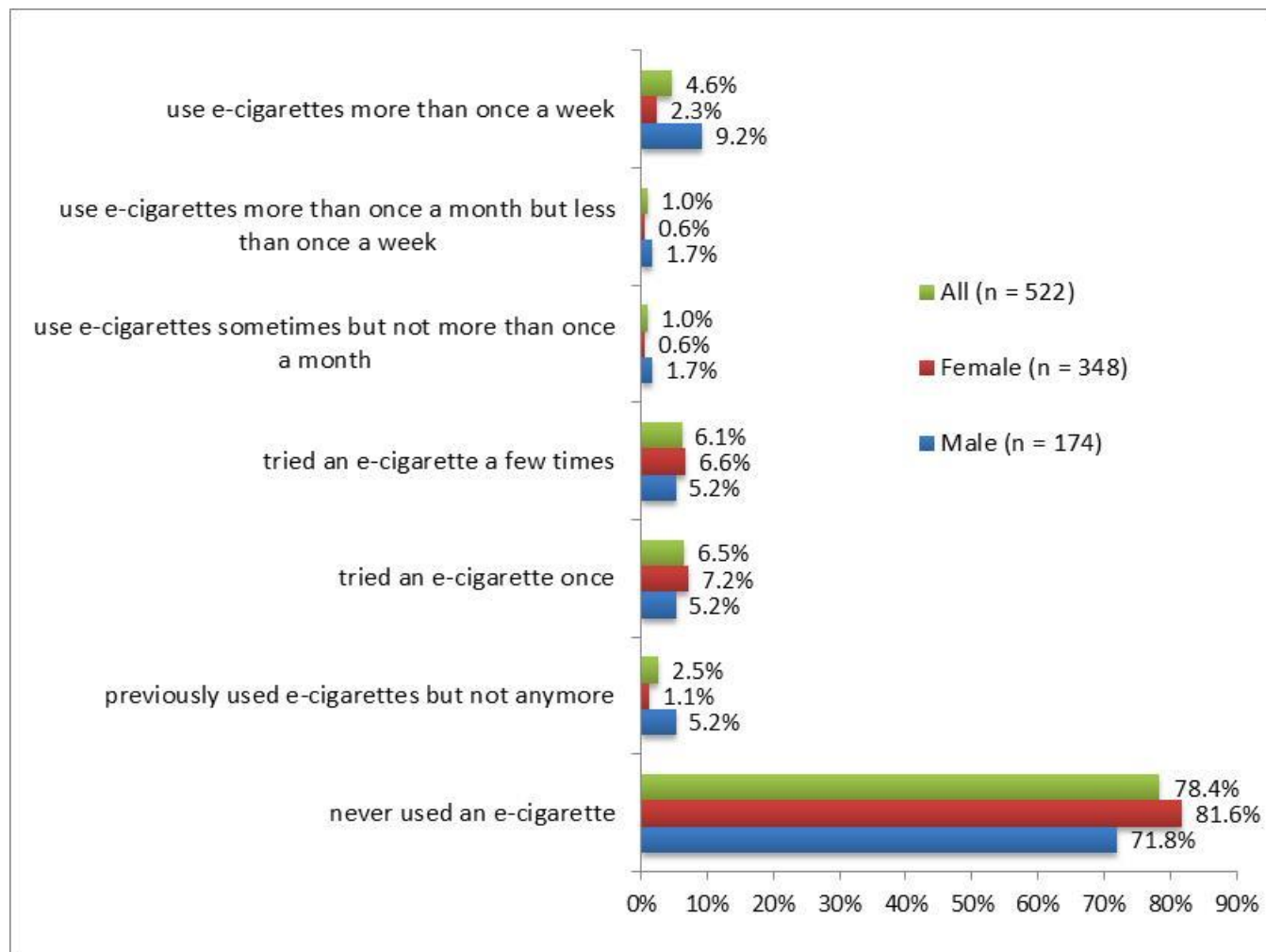
**Figure 6: Sources of hearing about e-cigarettes for the first time according to age group (n = 525)**



### E-cigarette usage

Respondents who had heard of an e-cigarette were also asked about their e-cigarette use (n = 522). In total, 78.4% of respondents had never used an e-cigarette while 15.1% had tried them in the past<sup>10</sup> and 6.6% currently used them<sup>11</sup> (see Figure 7). A higher percentage of females (81.6%) reported that they never used an e-cigarette compared to males (71.8%). A detailed description of their reported use is presented in Figure 7. A higher percentage of males reported using e-cigarettes more than once a week (9.2%) compared to females (2.3%).

**Figure 7: Use of e-cigarettes among all participants, females and males (n = 522)**

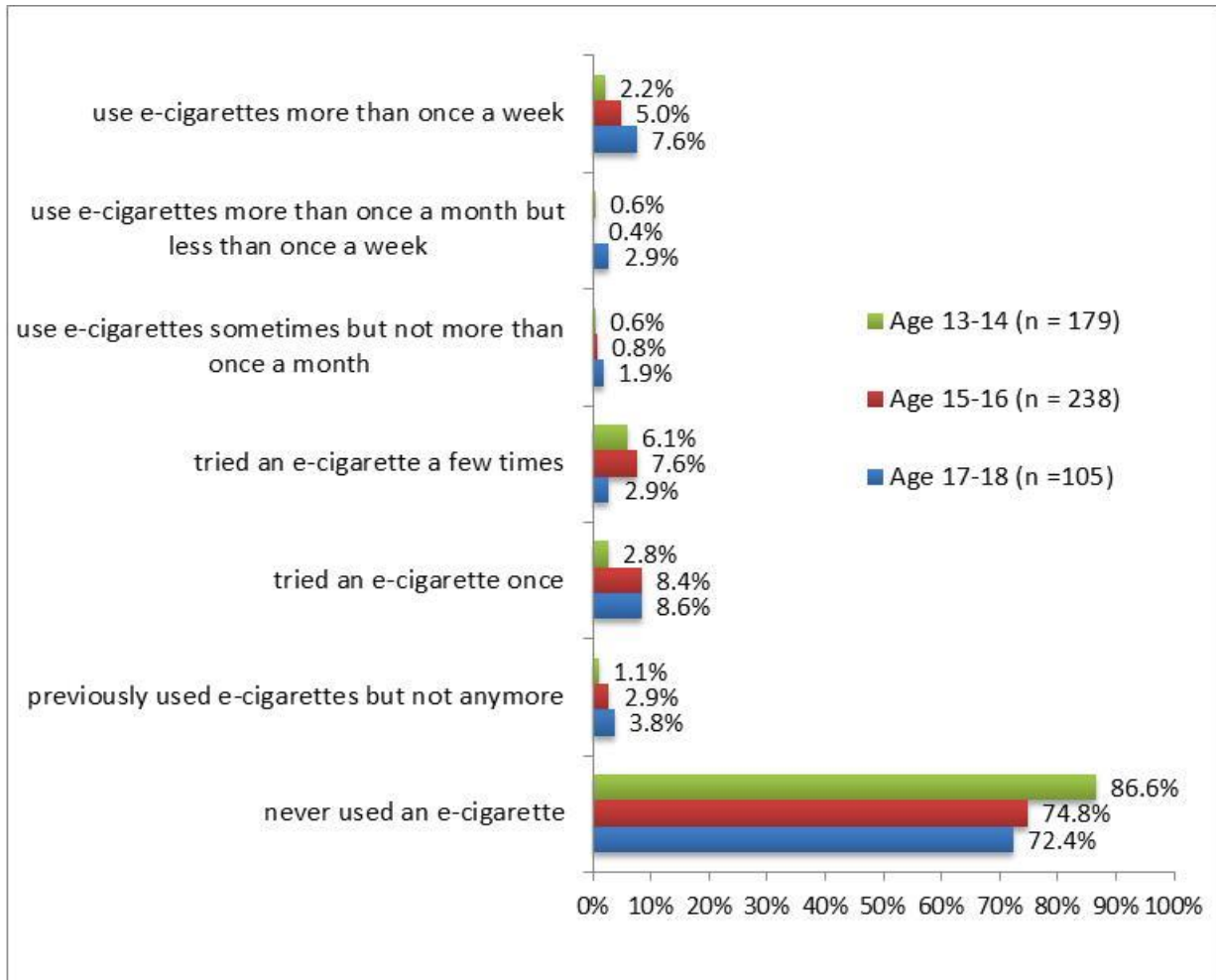


<sup>10</sup> Past e-cigarette use was based on the summed percentage of those who tried an e-cigarette once, those who tried an e-cigarette a few times as well as those who previously used e-cigarettes but not anymore.

<sup>11</sup> Current e-cigarette use was the summed percentage of those who currently use e-cigarettes more than once a week, those who use them more than once a month but less than once a week and those who use them once a month or less.

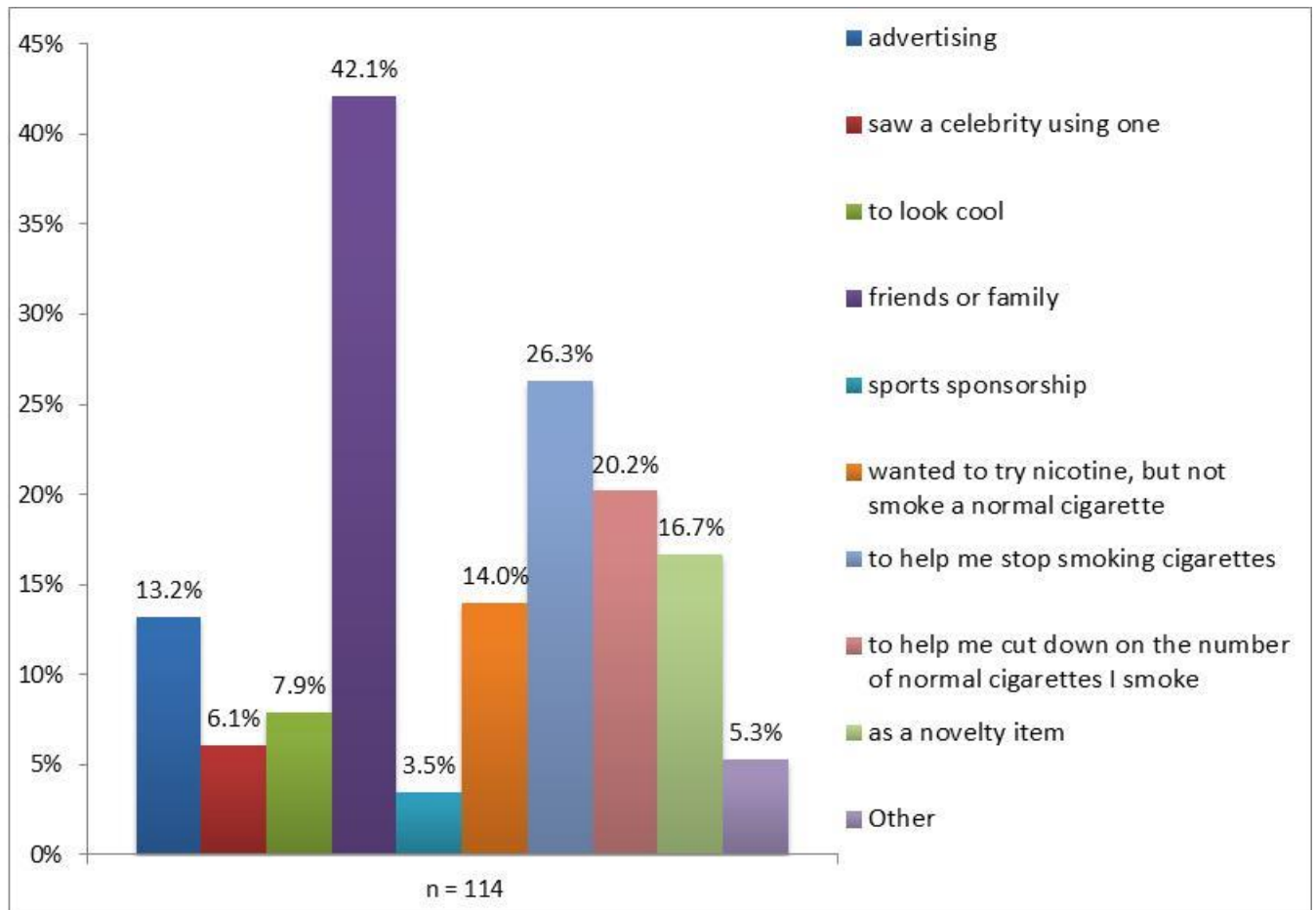
Rates of e-cigarette use also varied when the respondent group (n=522) was broken down according to age group (see Figure 8). A higher percentage of respondents aged 13-14 had never used an e-cigarette (86.6%) compared to respondents aged 15-16 (74.8%) and aged 17-18 (72.4%). Older respondents aged 17-18 reported a higher percentage of using e-cigarettes more than once a week (7.6%) compared to younger respondents aged 15-16 (5.0%) and aged 13-14 (2.2%).

**Figure 8: Use of e-cigarettes according to age group (n = 522)**



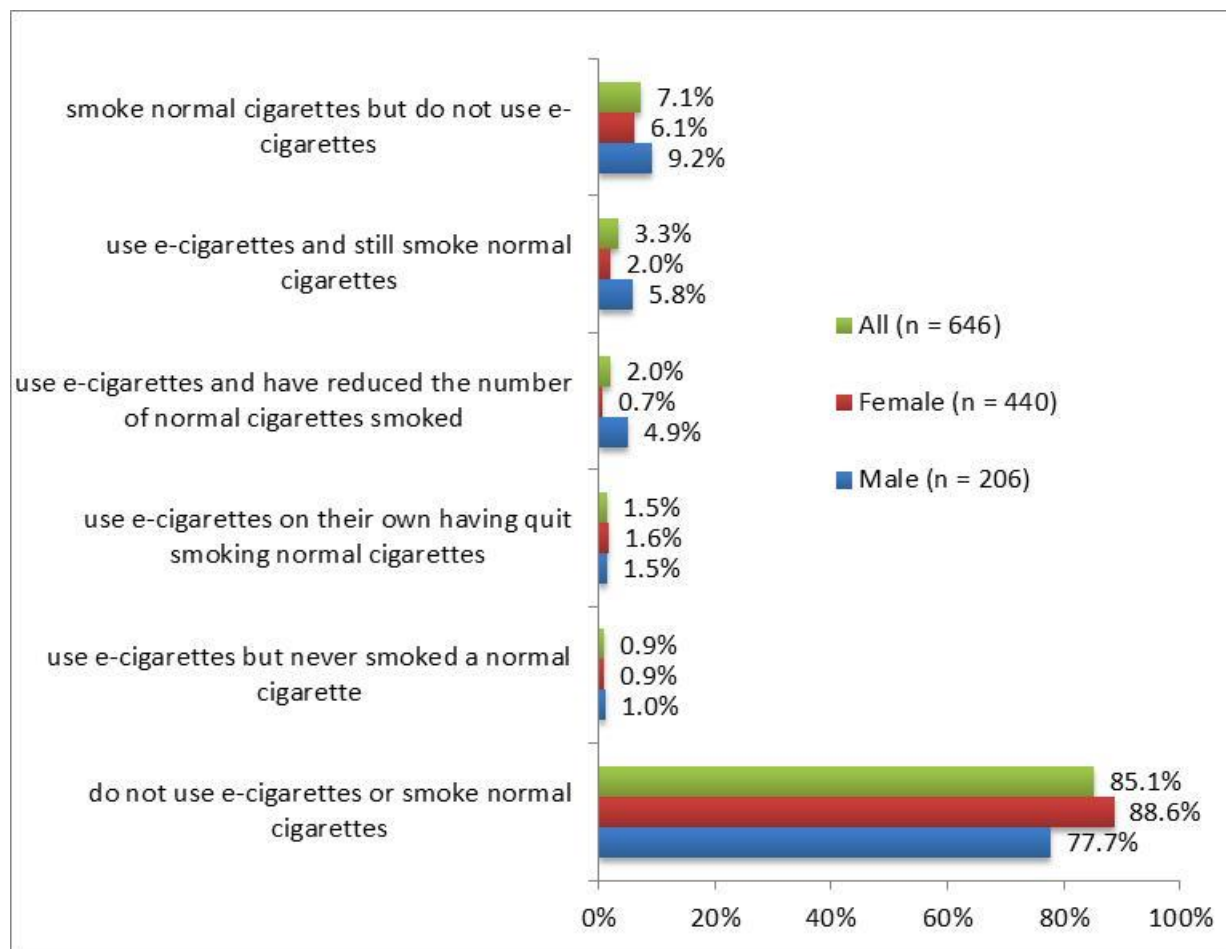
Respondents that had tried an e-cigarette were also asked why they had tried an e-cigarette for the first time. Ten response options (not mutually exclusive) were provided and are displayed in Figure 9. Of those who responded (n = 114), the most frequent reason for e-cigarette use provided was due to friends and family (42.1%). 26.3% of respondents tried e-cigarettes to help stop smoking cigarettes and 20.2% also reported that they tried e-cigarettes to help them cut down on the number of normal cigarettes.

**Figure 9: Reasons why participants tried an e-cigarette for the first time (categories are not mutually exclusive) (n = 114)**



All respondents were then asked about their current use of normal cigarettes and e-cigarettes (n = 646). Figure 10 presents the different categories of smoking patterns. 85.1% of respondents reported that they do not currently use e-cigarettes or normal cigarettes. This percentage was higher among females (88.6%) compared to males (77.7%). 7.1% of respondents reported that they smoke normal cigarettes but do not use e-cigarettes. This percentage was higher among males (9.2%) than females (6.1%). In total 5.3% of all respondents reported current use of both e-cigarettes and smoking normal cigarettes<sup>12</sup>. Again, this percentage was higher among males (10.7%) than females (2.7%). A small percentage of respondents use e-cigarettes but never smoked a normal cigarette (0.9%) and currently use e-cigarettes on their own having quit smoking normal cigarettes (1.5%).

**Figure 10: Use of normal cigarettes and e-cigarettes for all participants, females and males (n = 646)**



<sup>12</sup> This represents the summed percentage of those who reported using e-cigarettes and still smoked normal cigarettes as well as those who use e-cigarettes and have reduced the number of normal cigarettes smoked.



Current e-cigarette and normal cigarette use also varied according to age group (see Figure 11). A higher percentage of respondents aged 13-14 (89.6%) and 15-16 (86.7%) reported not using e-cigarettes or normal cigarettes compared to respondents aged 17-18 (71.2%). A higher percentage of 17-18 year olds reported that they smoked normal cigarettes but not e-cigarettes (15.3%). Compared to the other age groups a higher percentage of 17-18 year olds also reported using e-cigarettes while reducing the number of normal cigarettes smoked (6.3%) as well as e-cigarette use on their own having quit smoking normal cigarettes (5.4%). A higher percentage of respondents aged 15-16 reported using e-cigarettes and still smoking normal cigarettes (4.1%) compared to younger respondents aged 13-14 (2.9%) and older respondents aged 17-18 (1.8%).

**Figure 11: Use of normal cigarettes and e-cigarettes according to age group (n = 646)**

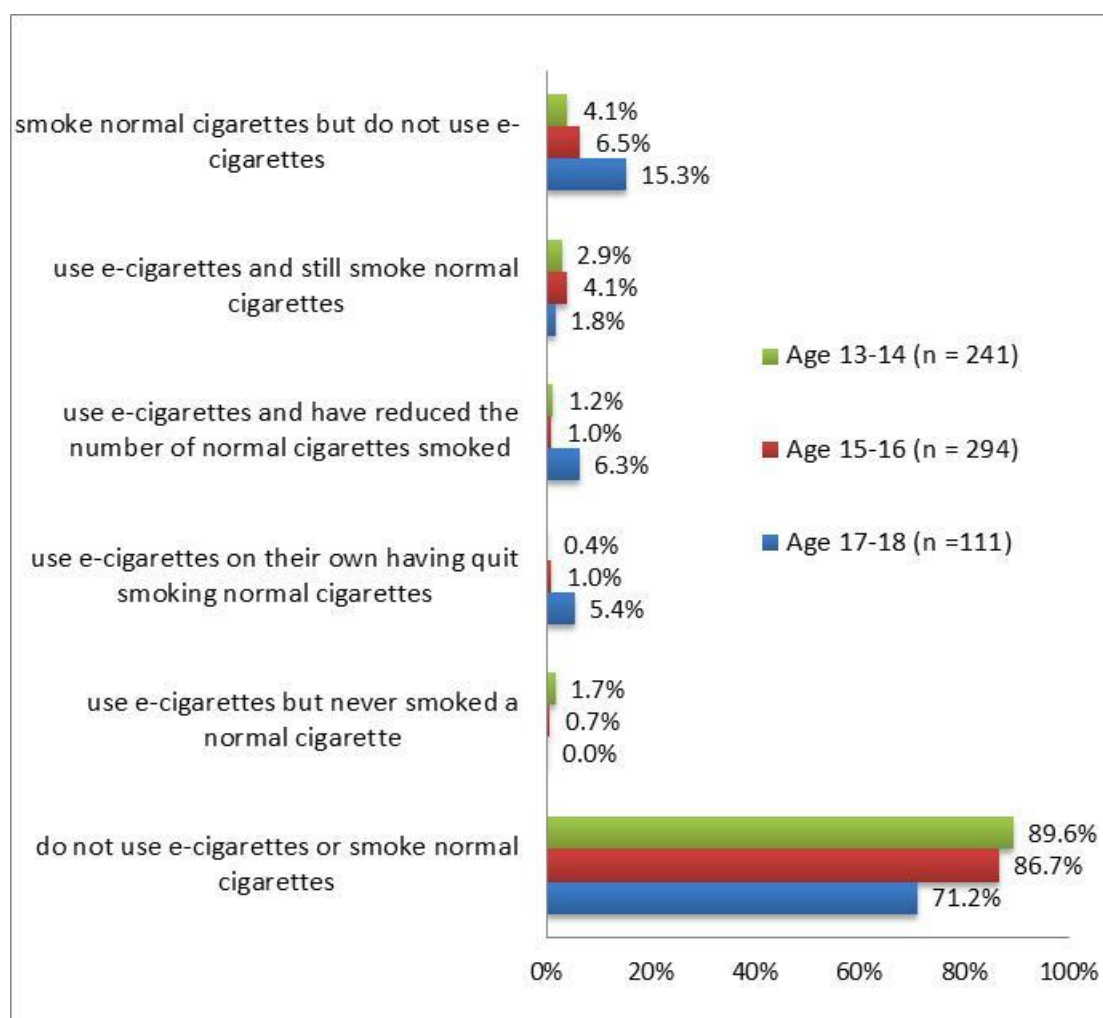
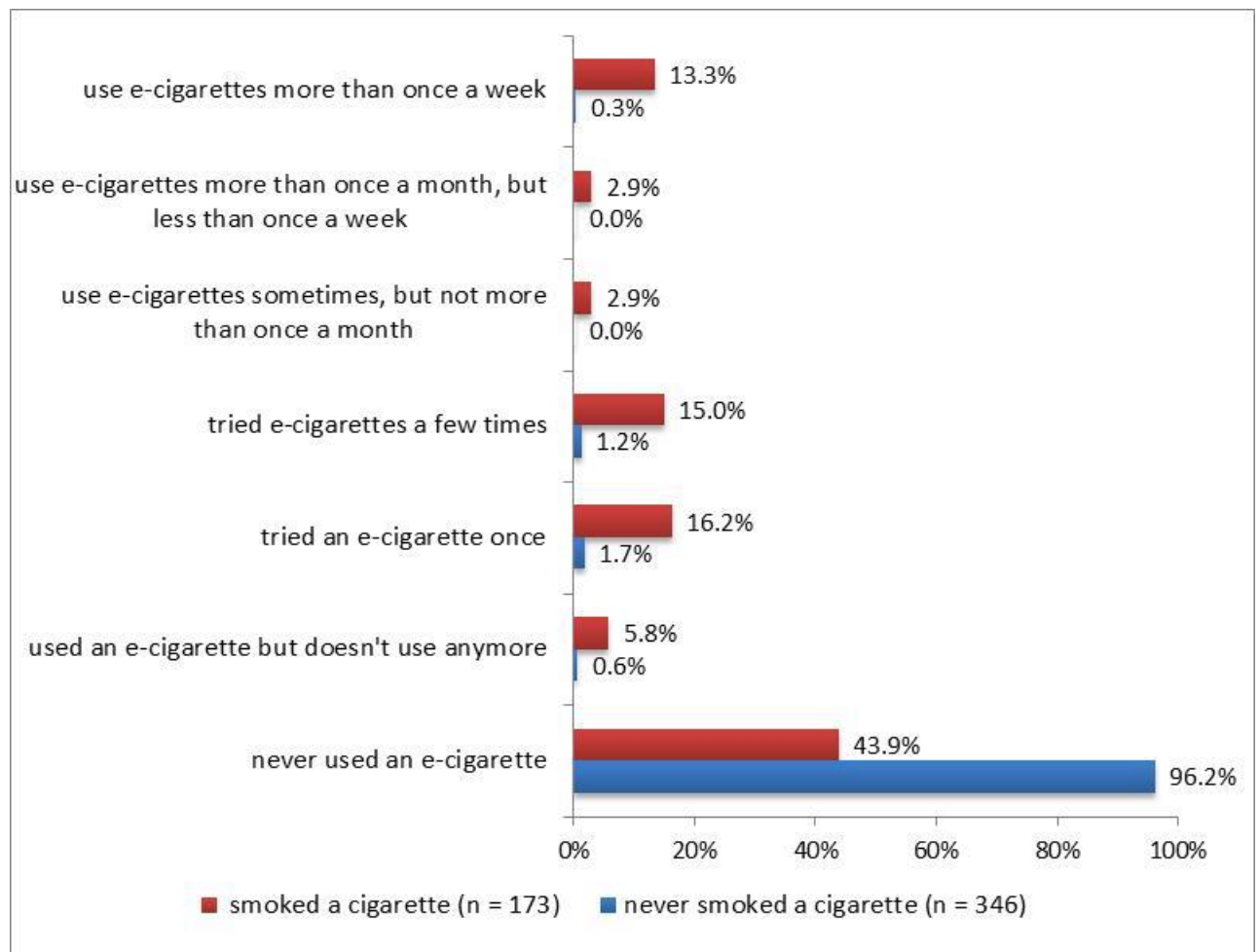


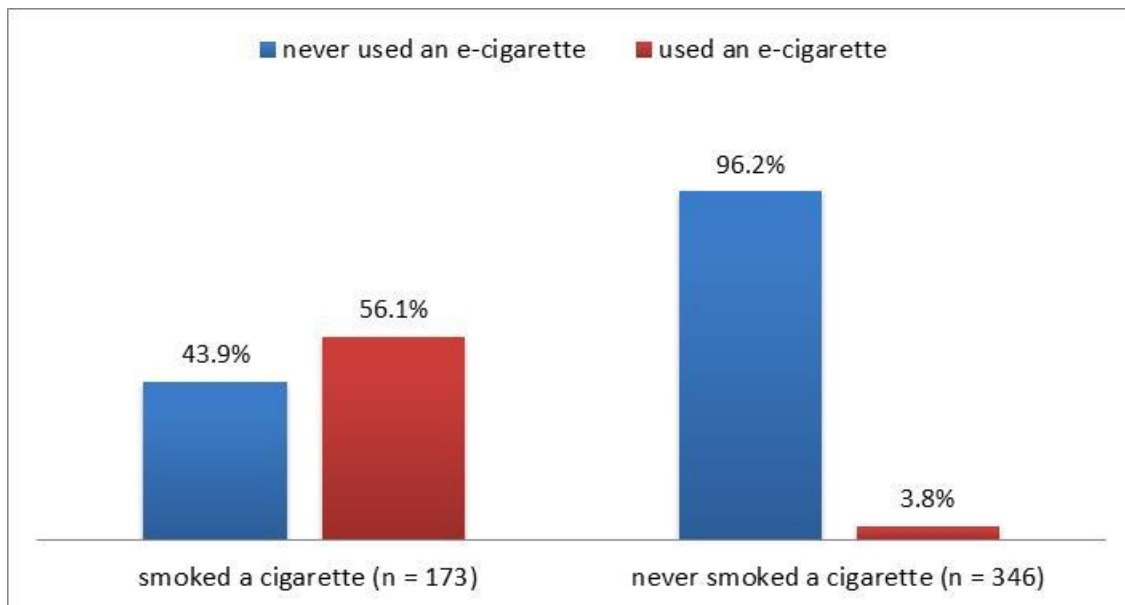
Figure 12 displays respondents' e-cigarette use for those who never smoked a cigarette (n = 346) and those who had smoked a cigarette (n = 173). Of those who never smoked a cigarette, 96.2% had never tried an e-cigarette while 43.9% of those who had smoked a cigarette had never used an e-cigarette. Of those who had smoked a cigarette, 13.3% reported they used an e-cigarette more than once a week, 2.9% reported that they used e-cigarettes less than once a week and 2.9% used e-cigarettes once a month or less. Of those who had never smoked a cigarette, 0.3% reported e-cigarette use more than once a week, 1.2% had tried an e-cigarette a few times, 1.7% had tried an e-cigarette once and 0.06% had used an e-cigarette in the past.

**Figure 12: E-cigarette use among those who have never smoked a normal cigarette and those who have smoked a normal cigarette (n = 519)**



Similarly, those who had smoked a normal cigarette and those who had never smoked a normal cigarette were compared on their use of e-cigarettes (see Figure 13). Of those who smoked a normal cigarette (n = 173), 56.1% had used an e-cigarette. Of those who had not smoked a cigarette (n = 346) 3.8% had used an e-cigarette at some point.

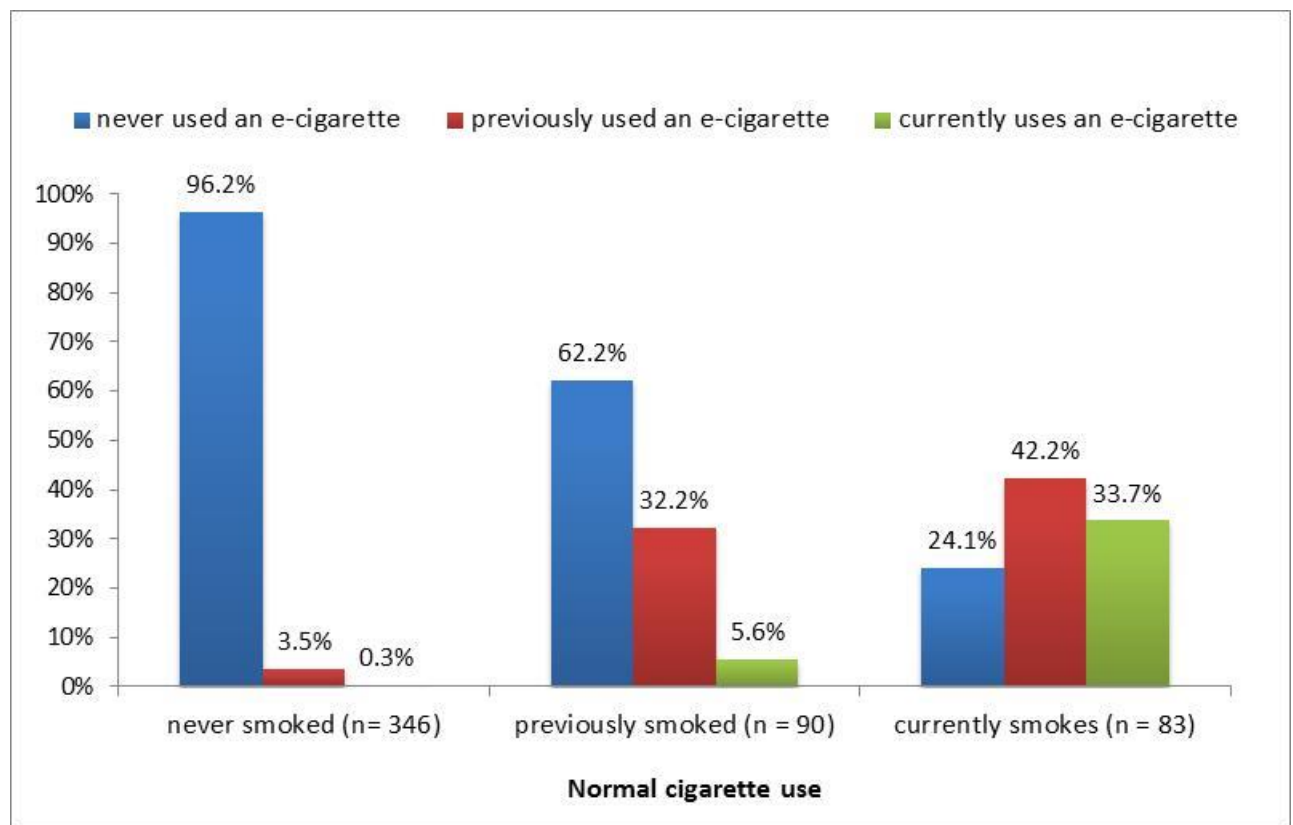
**Figure 13: E-cigarette use among those who have smoked a cigarette and those who have never smoked a cigarette (n = 519)**



E-cigarette use was also investigated according to smoking status<sup>13</sup>. Respondents were categorised into three groups: 1) those who never smoked a normal cigarette, 2) those who reported previously smoking normal cigarettes<sup>14</sup> and 3) those who reported currently smoking normal cigarettes. Within each of these groups three e-cigarette use patterns were compared: those who had never used an e-cigarette, those who had previously used an e-cigarette<sup>15</sup> and those who currently use an e-cigarette. Figure 14 below shows these group comparisons.

Nearly all respondents that had never smoked (n = 346) reported that they had never used an e-cigarette (96.2%). Of those who had previously smoked normal cigarettes (n = 90), 62.2% had never used an e-cigarette while 32.2% had used e-cigarettes previously and 5.6% currently use e-cigarettes. Of those who currently use normal cigarettes (n= 83) 42.2% previously used an e-cigarette, 33.7% currently use e-cigarettes and 24.1% had never used an e-cigarette.

**Figure 14: Percentage of those who report e-cigarette use according to normal cigarette use status (n = 519)**



<sup>13</sup> This comparison was limited to respondents who had heard of an e-cigarette and answered both survey responses about normal cigarette use and e-cigarette use (n = 519)

<sup>14</sup> Those that used a normal cigarette previously or had tried them at least once were categorised as having previously used normal cigarettes.

<sup>15</sup> Those that used an e-cigarette previously or had tried them at least once were categorised as having previously used e-cigarettes.

## *Discussion – Principal Findings*

A particular issue of interest was to identify whether young people who have never tried a normal cigarette have been experimenting with e-cigarettes and thereby risk becoming addicted to nicotine and becoming consumers of normal cigarettes. In line with findings from elsewhere, the findings from this survey suggested that e-cigarette usage among young people who have never smoked a tobacco cigarette remains very limited. This suggests that while there is the possibility of e-cigarettes acting as a gateway to nicotine addiction and the smoking of tobacco, the data collected to date suggest that if this is happening, it is currently only on a very small scale.

Usage is markedly higher among those who currently or have ever smoked, but of these, there is evidence that e-cigarettes may be being used for smoking cessation or harm reduction purposes. However, as respondents were not asked to identify a primary motivation for using an e-cigarette, it is not possible to determine the extent to which cessation/reduction is triggering e-cigarette use among young people.

Another finding of interest is the role being played by friends and family as both a source of information and as a reported reason for trying an e-cigarette. These findings suggest that the social environment of the respondent is contributing to the degree of exposure to e-cigarettes and the decision to use, or experiment with, them.

## *Limitations*

This study faces inevitable limitations due to the self-selecting nature of the sample, despite the fact that the results are broadly aligned with results from research where a representative sample has been surveyed. The decision was taken to use a self-selecting sample from an on-line survey due to the small number of respondents that would have been surveyed in a representative sample for Wales by the leading market research companies. There are thus at least two sources of potential bias within the sample: firstly, these are the young people who chose to respond to the survey; and secondly, the use of ASH Wales' and The Filter's social media channels may have encouraged socially active young people who are never-smokers to respond. However, this later bias may have been counteracted by the completion of the survey by a number of youth clubs and pupil referral units from across Wales. Consequently, the results of this survey may not be generalisable.

In addition, as the survey relies on self-report, there may be a reporting bias in the results. As the survey was conducted on-line, there is a further element of the doubt about the accuracy of the self-report. However, questions on age, gender and area of residence were made compulsory within the survey to try and avoid contamination of the results

## *Recommendations for further research:*

The findings of this survey suggest a number of areas for future research that are essential to make an evidence-based contribution to the on-going policy debate around the regulation of e-cigarettes with regard to young people:

- The use of e-cigarettes as smoking cessation or harm reduction devices by young people who are already smokers needs to be explored further. This is essential if the sale of e-cigarettes to

under-18s is to be banned, as is currently planned in the UK as there would be adverse consequences to banning a product that young people may actually be using to stop smoking. Again, anecdotally, this behaviour has been reported but evidence is required in order to inform the debate.

- The data also suggests that there may be gender differences in terms of usage, in particular. As with the research conducted in Poland, males are more likely to have used or be using cigarettes than females.
- Further research is also required to explore the relationship between socio-economic background and propensity to use, or experiment with, e-cigarettes, in view of the percentage of respondents who suggested that friends and family had influenced their level of knowledge or their decision to try an e-cigarette.
- Qualitative research into the perceptions of e-cigarettes and the terminology used to discuss them by young people would add a further dimension to the debate by exploring whether, in fact, young people find the product as attractive as the gateway model suggests.