



# Young people and the use of e-cigarettes in Wales

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## i. Acknowledgements

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## ii. Executive summary

The aim of this report is to provide an insight into the awareness and use of electronic cigarettes (e-cigarettes) among young people aged 13-18 living in Wales.

The survey was circulated over the period November 2014 and January 2015, and responses from 952 young people formed the basis of the results.

The vast majority of respondents, over 90% in total, reported that they were aware of e-cigarettes. Family and friends represented both a major source of information about e-cigarettes and a frequently reported reason for using them for the first time. Use of e-cigarettes was far more prevalent among respondents who had previously smoked or currently smoke tobacco cigarettes. Of the 608 young people who had never smoked tobacco cigarettes just 9.4% (n = 57) had ever tried an e-cigarette with just over half of these (n =30) having tried an e-cigarette once and 18 having tried an e-cigarette a few times. Regular use by never smokers was negligible at 0.16% (n = 1). Of those respondents who reported using both e-cigarettes and tobacco cigarettes at some point (n = 84), 98% had first used tobacco cigarettes suggesting the absence of any gateway theory.

The findings from this report are similar to those from other UK based surveys assessing e-cigarette use among young people, with limited regular use among those who have never smoked tobacco.

A limitation of the survey is its cross-sectional design meaning it is not possible to identify any cause-and-effect relationships. Research of a longitudinal nature is required in order to provide information in this area. Other recommendations include exploring further the use of e-cigarettes as smoking cessation or harm reduction devices by young people, together with identifying whether a relationship exists between the socio-economic status of the respondent and their propensity to use, or experiment with, e-cigarettes.

## 1. Aim

The aim of this research was to explore the awareness and reported use of electronic cigarettes (e-cigarettes) among 13-18 year olds in Wales.

## 2. Background

Smoking an e-cigarette is known as 'vaping'. E-cigarettes are designed to deliver nicotine without burning tobacco. Most consist of three main components: a battery, an atomiser and a (replaceable) nicotine cartridge. When a user inhales 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. Over the past decade e-cigarettes have evolved and gained increasing popularity. In 2014 ASH estimated that there were approximately 2.1 million e-cigarette users in Great Britain, an increase from 700,000 in 2010.<sup>2</sup> Based on the most recent population data for Wales this equates to approximately 100,000 e-cigarette users in Wales.

The advent of e-cigarettes has caused much debate in the public health community, with some taking a precautionary approach and others viewing them in a more positive light. Supporters consider them to be an effective smoking cessation device which are less harmful than tobacco cigarettes, whereas critics raise doubts over the long-term health implications of use and product safety. With regards to young people in particular, arguments have been raised that e-cigarettes could act as a gateway to tobacco smoking, whereby young people who do not use tobacco cigarettes experiment with e-cigarettes and subsequently develop a nicotine addiction. Over 8,000 different e-cigarette flavours are available which is 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 tobacco cigarettes, initially many were very similar in appearance.

## 2.1. Literature review

Research on e-cigarettes is still at a very early stage and some of the evidence reported is conflicting. In order to determine the long-term impact of e-cigarettes in terms of their effectiveness as a smoking cessation tool, their potential to act as a gateway into conventional smoking and repercussions for health/safety more research is required; especially research of a longitudinal nature.

Below is a brief overview of the principal findings from some recently published studies that use a cross sectional survey design to explore the awareness/use of e-cigarettes among young people. This is not an exhaustive literature review and has been included here to provide some context for the findings presented in section 4 of this report.

The 2013/14 ASH Wales survey<sup>1</sup> found that just under 80% of respondents had heard of e-cigarettes. Use of the device among those who had never smoked a tobacco cigarette was very limited. Of the respondents who had never smoked a tobacco cigarette, 96.2% had never tried an e-cigarette. Usage of e-cigarettes was markedly higher among those who currently or had ever smoked (43.9%), but among this group, there was evidence that e-cigarettes may be being used for smoking cessation or harm reduction purposes. High awareness and use of e-cigarettes was also reported in the CHETS Wales 2 study<sup>3</sup>, which found 67% of the 10 and 11 year olds surveyed reporting that they had heard of e-cigarettes, with as many as 6% reporting that they had used an e-cigarette at least once. This study makes no distinction between single and multiple use of e-cigarettes among respondents meaning it is not possible to distinguish between experimental and regular use.

In a UK wide survey undertaken by ASH England just over two thirds (67%) of 11-18 year olds and 83% of 16-18 year olds had heard of e-cigarettes in 2013. By March 2014, this had risen to 84% of 11-18 year olds and 90% of 16-18 year olds. Overall, of those children who were aware of e-cigarettes, the number of 11-18 year olds who had ever tried one increased from 5% in 2013 to 8% in 2014. Of those who had heard of e-cigarettes and had never smoked a cigarette, 98% reported they had never tried e-cigarettes and 2% had tried them “once or twice”. Similar to the findings from the aforementioned ASH Wales survey, this suggest that only a small percentage of young people who had never smoked a tobacco cigarette had tried an e-cigarette.

A number of international studies have also investigated young people's awareness and use of e-cigarettes. The University of Michigan's Monitoring the Future study,<sup>4</sup> a national survey of approximately 50,000 American secondary students reported that more teens used e-cigarettes than tobacco cigarettes. 9% of 8th-graders reported they had used an e-cigarette in the past 30 days, while only 4% reported use of a tobacco cigarette. Among 10th graders, 16% reported they had used an e-cigarette and 7% reported use of a tobacco cigarette. Among 12th-graders, 17% reported e-cigarette use and 14% reported use of a tobacco cigarette. The study did not investigate frequency of e-cigarette use meaning the high prevalence reported may be skewed by a large number of young people trying an e-cigarette just the once.

Analyses have also been conducted with data from the 2011, 2012, and 2013 National Youth Tobacco Surveys, a nationally representative survey of students in grades 6-12 in the United States. Bunnell et al<sup>5</sup> reported a 3-fold increase in the number of youth using e-cigarettes who had never smoked tobacco, from 79,000 to more than 263,000 from 2011 to 2013. E-cigarette use was also associated with increased intentions to smoke tobacco cigarettes, with this being the case for 43.9% among ever e-cigarette users compared to 21.5% among never users.

Based on a cross sectional study of American youth, Dultra and Glantz<sup>6</sup> found e-cigarette use was increasing, rather than reducing, tobacco usage amongst young people. In 2012, 61.2% of ever e-cigarette users had never been regular smokers and 49.8% of current e-cigarette users were current cigarette smokers. In 2012, of 6.5% of the sample that had tried e-cigarettes, 4.1% used e-cigarettes only, with half of those defined as current users only smoking e-cigarettes. The study also found that ever e-cigarette users were significantly more likely to be male, white and older.

In contrast to the study conducted by Dultra and Glantz, a Canadian study<sup>7</sup> of youth and young adults aged 16 - 30 showed that former and current tobacco smokers were the most likely groups to try e-cigarettes, with 80.4% of smokers saying that the reason for e-cigarette usage was to quit tobacco cigarettes. Only 0.8% of non-smokers reported they had used an e-cigarette in the last 30 days, with 5.2% of non-smokers ever trying an e-cigarette.

Parental e-cigarette use has also been shown to be important for young people's e-cigarette use. An American cross sectional survey of 410 7<sup>th</sup> grade students from two diverse school districts in Southern California found that students were over

two times more likely to smoke e- cigarettes if their parents owned one.<sup>8</sup> Among those that defined themselves as e-cigarette users, 17.8% owned their own e- cigarettes and 28.9% had one or both parents who owned an e-cigarette. Living with someone who smoked cigarettes also doubled the chances of smoking e- cigarettes for students who reported never smoking tobacco cigarettes.

Analyses of data from the 2012 National Youth Tobacco Survey found that after controlling for smoking history, age, gender, race and ethnicity, young people in the United States who lived with someone who smoked had a 30% increased rate of trying e-cigarettes.<sup>9</sup> 70.9% of respondents who used e- cigarettes believed that e- cigarettes were less harmful than tobacco cigarettes, whilst those who had never used e-cigarettes were less likely to share this belief, with 27.5% reporting that they thought e-cigarettes were less dangerous.

### 3. Methods

The questions used in the current 2014/15 survey were similar to those used in the 2013/14 version. Information was collected on the respondent's age, gender and location, their awareness of e-cigarettes and the extent of their use. In addition, the 2014/15 survey included a question aimed at investigating the possible gateway effect of e-cigarettes. Respondents that used both e-cigarettes and tobacco cigarettes were asked which they started smoking first. In contrast to the 2013/14 survey which was solely disseminated online, it was possible for respondents to complete the 2014/15 survey either online electronically or by completing paper-based questionnaires returned by post. The survey was disseminated to schools and youth clubs across Wales by Healthy Schools coordinators, the Wales Tobacco Control Alliance (WTCA), the Wales Tobacco or Health Network (WTHN) and The Filter, ASH Wales' youth development team. In an attempt to minimise contamination of results from e-cigarette proponents, distribution of the survey was not pursued via social media.

The survey was circulated over the period November 2014 and January 2015. In total 1,105 young people completed the survey. Respondents who were not between the ages of 13-18 or did not report an age were excluded from the analyses, resulting in a sample of 952 young people which was analysed further.



## 4. Findings

Just over half of the responses received were by young people aged 13-14 (50.1%), with those by individuals aged 17-18 comprising 11.6% of the total. More females (53.8%) completed the survey than males (46.2%), with the majority of respondents residing in the Local Authorities of Rhondda Cynon Taf (26.7%), Merthyr Tydfil (20.1%) and Caerphilly (17.2%). Very few responses (< 1.0%) were received from young people living in Gwynedd, Denbighshire, Powys, Pembrokeshire, Blaenau Gwent, Monmouthshire or Newport.

### 4.1. Smoking status

Respondents were asked about their current use of tobacco cigarettes. 63.9% of respondents reported never having smoked. This claim was higher among females (65.6%) than males (61.8%, see Figure 1). A higher percentage of males (12.5%) reported smoking more than six cigarettes a week relative to females (7.4%).

After stratifying smoking status by age, never having smoked was more prominent among younger respondents (Figure 2). 75.5% of 13-14 year olds reported never having smoked compared to 42.7% of 17-18 year olds. For every other smoking status category respondents aged 17-18 reported a higher percentage although the difference between the three age ranges in this case is very small (<1%).

Figure 1: Tobacco cigarette smoking status by gender (n = 952)

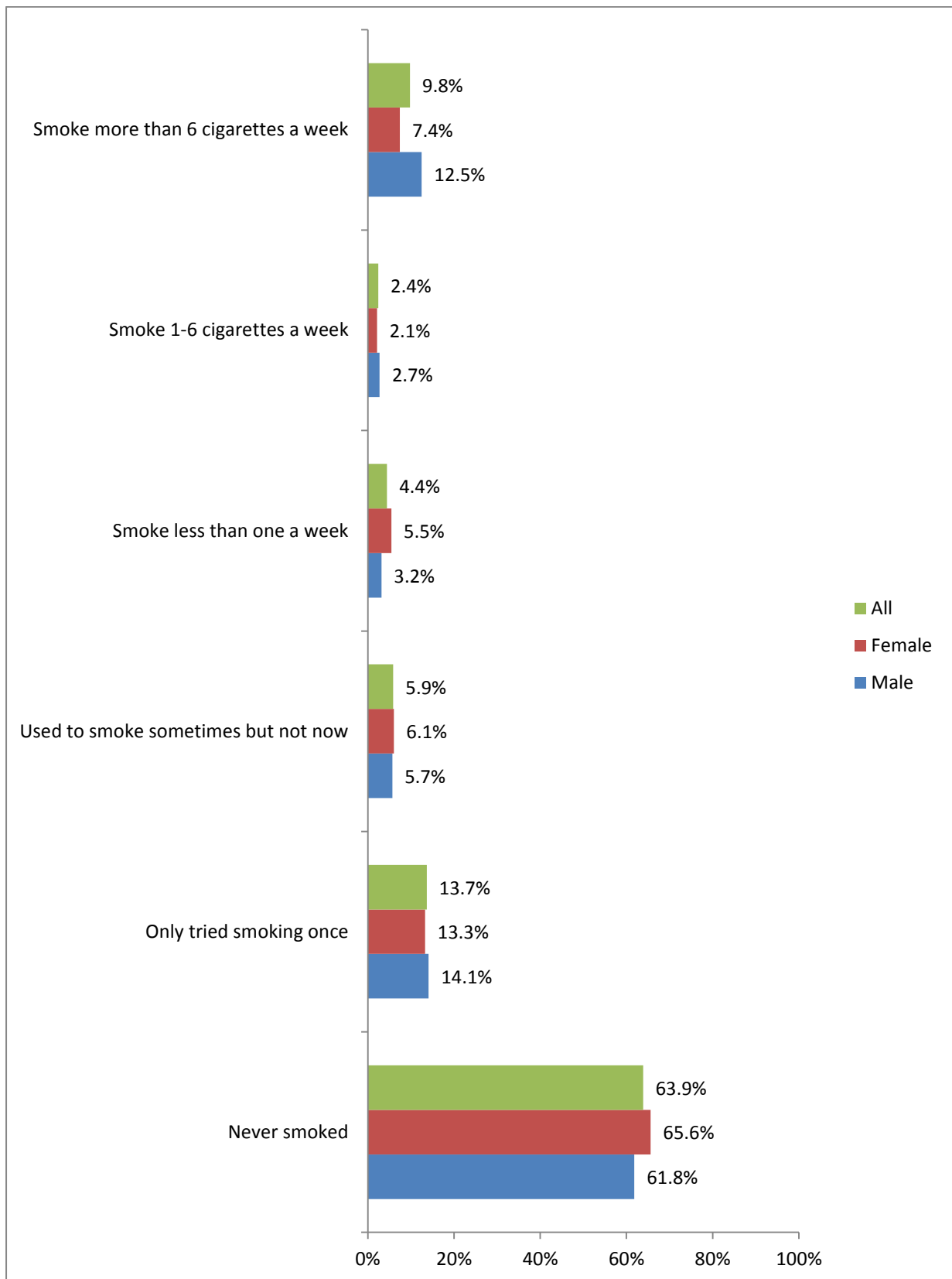
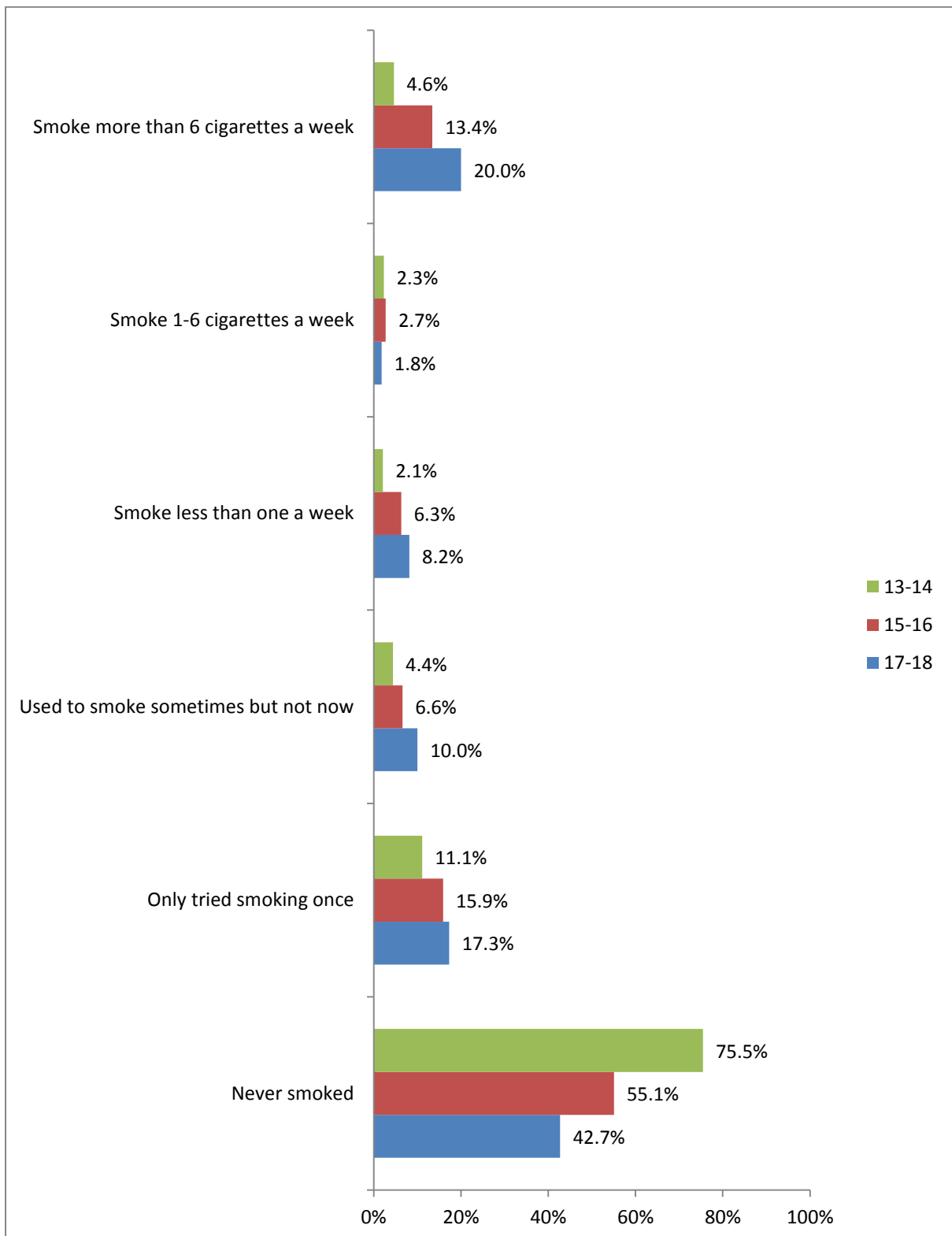


Figure 2: Tobacco cigarette smoking status by age (n = 952)



## 4.2. E-cigarette awareness

Before respondents were asked about their e-cigarette use they were questioned on whether they had ever heard of e-cigarettes. The vast majority (90.8%) had done so, with little difference between males (91.4%) and females (90.2%) (Figure 3). Similarly, there was no variation according to the age of the respondent (Figure 4). Whilst awareness of e-cigarettes was highest among those aged 17-18 (95.5%) a very high percentage of 13-14 (91.4%) and 15-16 (88.5%) year olds had heard of e-cigarettes too.

Figure 3: Awareness of e-cigarettes by gender (n = 952)

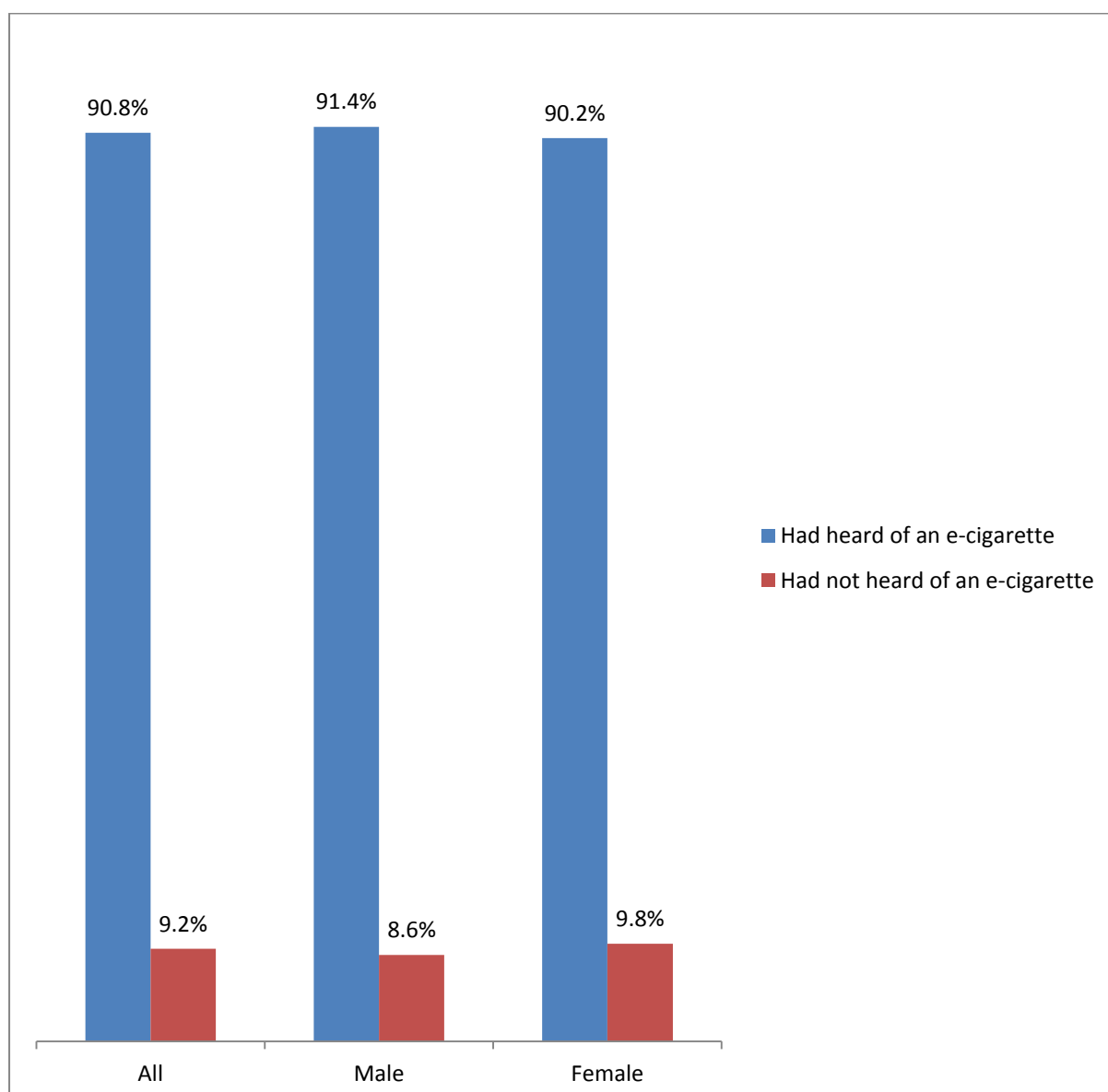
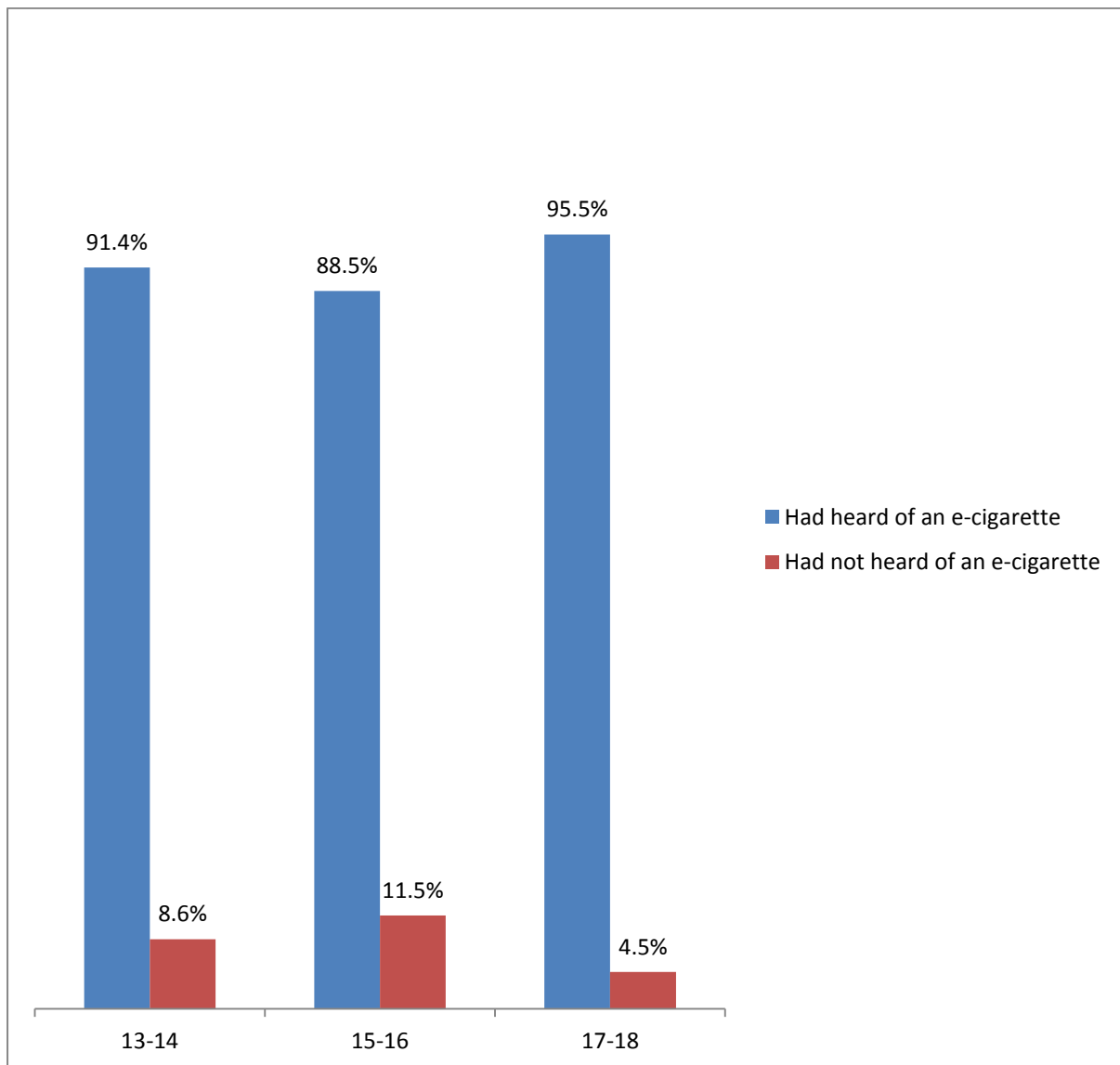


Figure 4: Awareness of e-cigarettes by age (n = 952)



Those respondents who were aware of e-cigarettes were asked to identify the sources from where they had first heard about them. Nine options (not mutually exclusive) were provided and are shown in Figure 5. The most common source reported was friends and family (42.6%). Other prominent sources included seeing strangers using them in a public place (38.3%), the media (36.7%) and in a shop (32.5%). Respondents were least likely to find out about e-cigarettes from health professionals (1.5%) and youth workers (3.1%). Compared to females, a higher percentage of males had heard about e-cigarettes from the internet or social media and sports sponsorship. Compared to males, a higher percentage of females had heard about e-cigarettes from all the other available sources.

Figure 5: Sources of information about e-cigarettes by gender (n = 864)

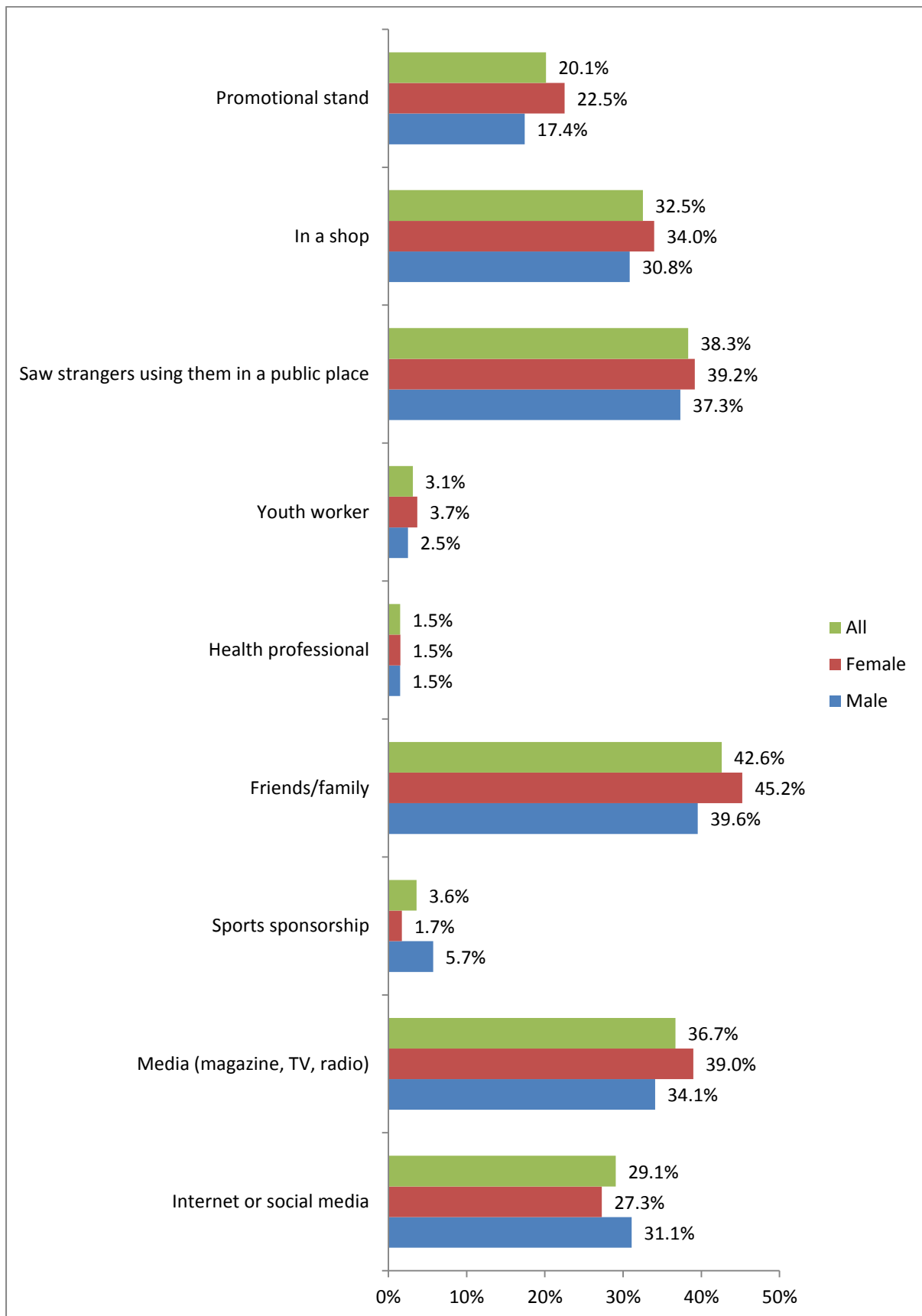
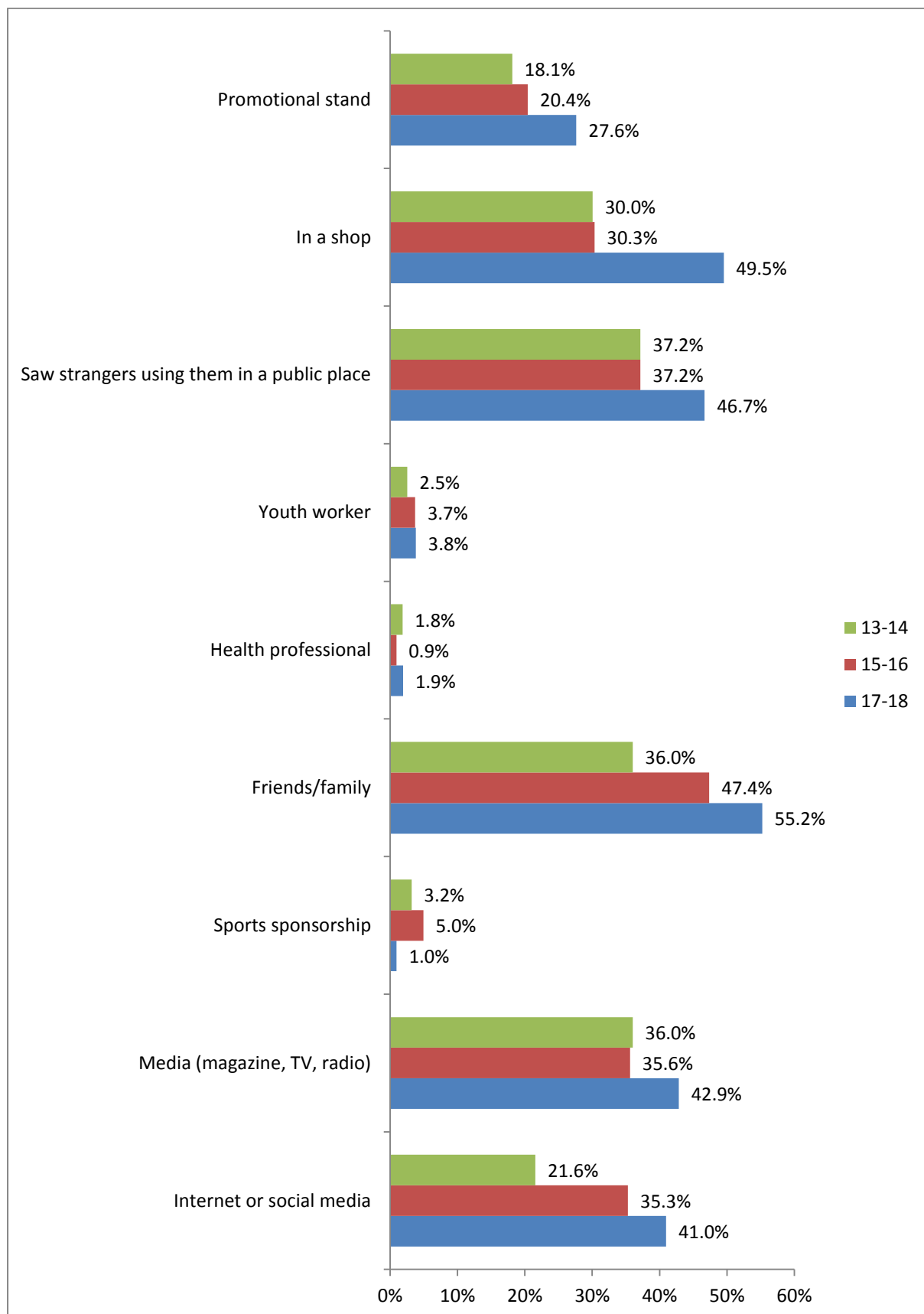


Figure 6: Sources of information about e-cigarettes by age (n = 864)



Friends and family were the main source of e-cigarette information for respondents in the age range 15-16 (47.4%) and 17-18 (55.2%) (Figure 6). For those aged 13-14 strangers using e-cigarettes in a public place (37.2%) was the most prominent source for raising awareness of e-cigarettes.

### 4.3. E-cigarette usage

All respondents who had heard of e-cigarettes were asked about their e-cigarette use (n = 864). Just under two-thirds of those who answered this question reported never having used an e-cigarette (65.4%). Of the remainder (n = 299) 25.9% had tried e-cigarettes in the past, with 8.7% reporting that they currently use e-cigarettes. A breakdown of e-cigarette use by gender is provided in Figure 7. A higher percentage of females (70.8%) reported never having smoked an e-cigarette compared to males (59.2%), whilst the opposite is true for respondents who use e-cigarettes more than once a week (males: 8.7% ; females: 2.4%). Figure 8 shows e-cigarette use by age group. 13-14 year olds (71.3%) were more likely than 15-16 and 17-18 year olds (58.5%, 61.9% respectively) to report having never used an e-cigarette. The younger age group were also least likely to use e-cigarettes more than once a week compared to those of an older age (13-14: 3.4% ; 15-16: 7.4% ; 17-18: 6.7%).



Figure 7: Use of e-cigarettes by gender (n = 864)

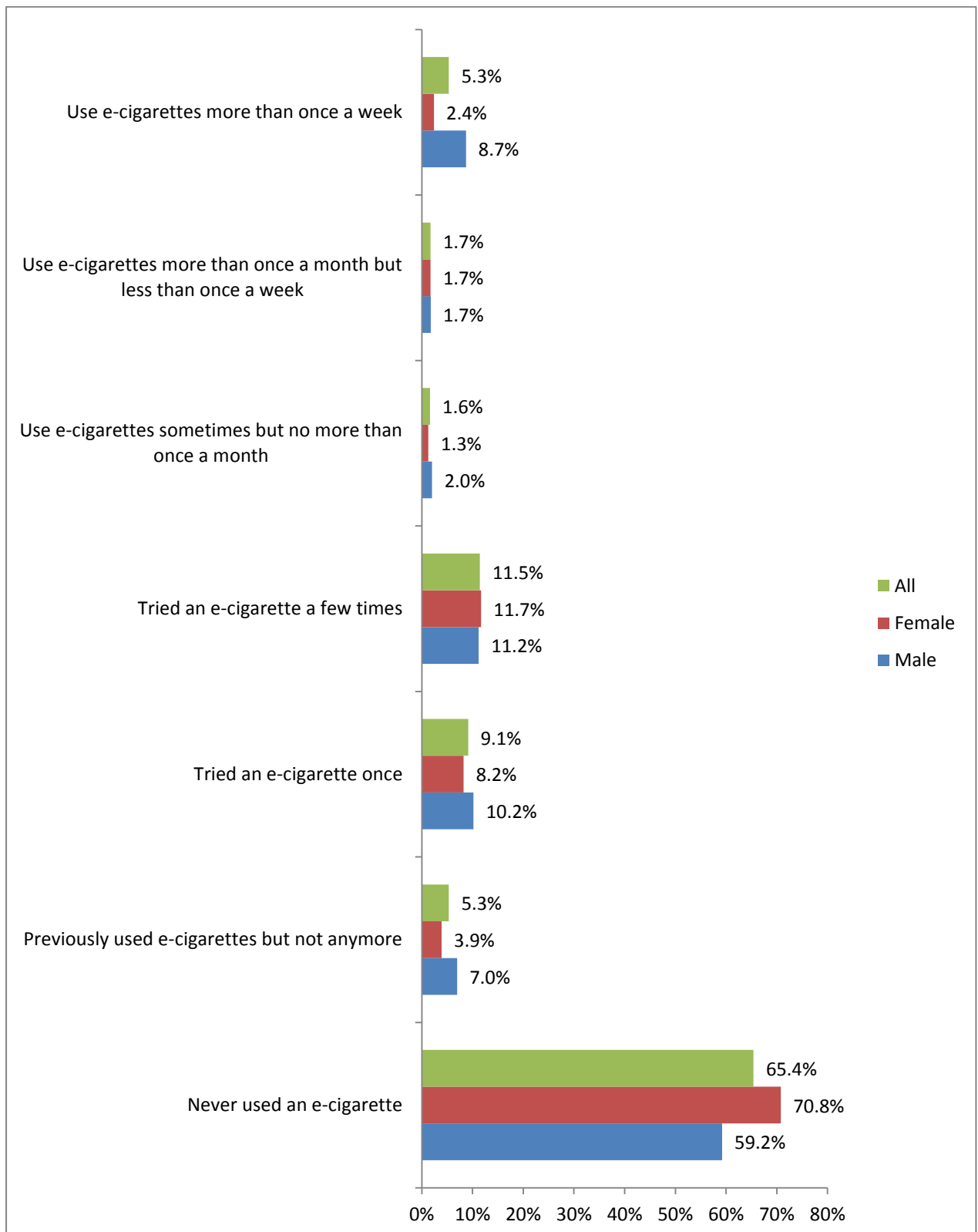
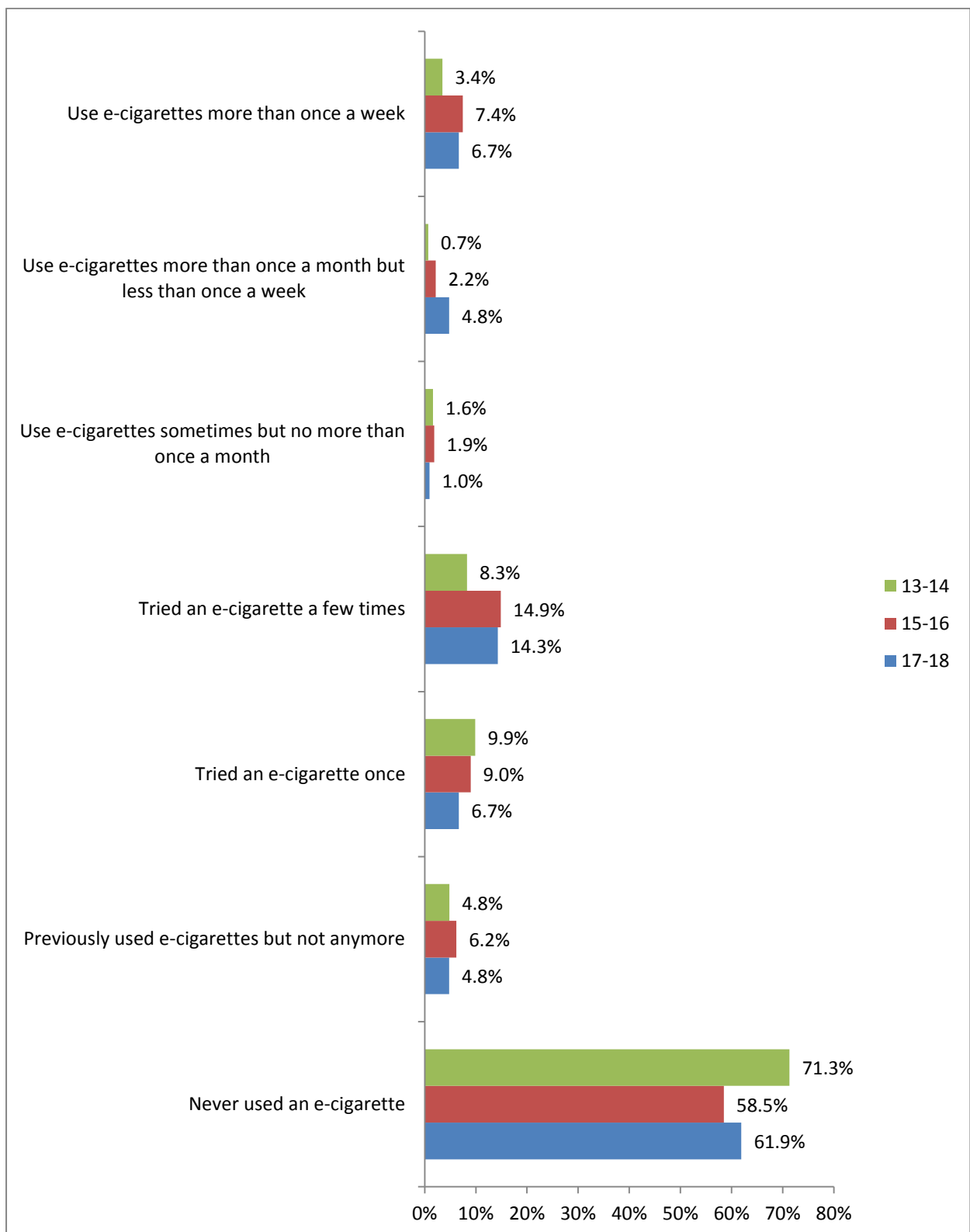
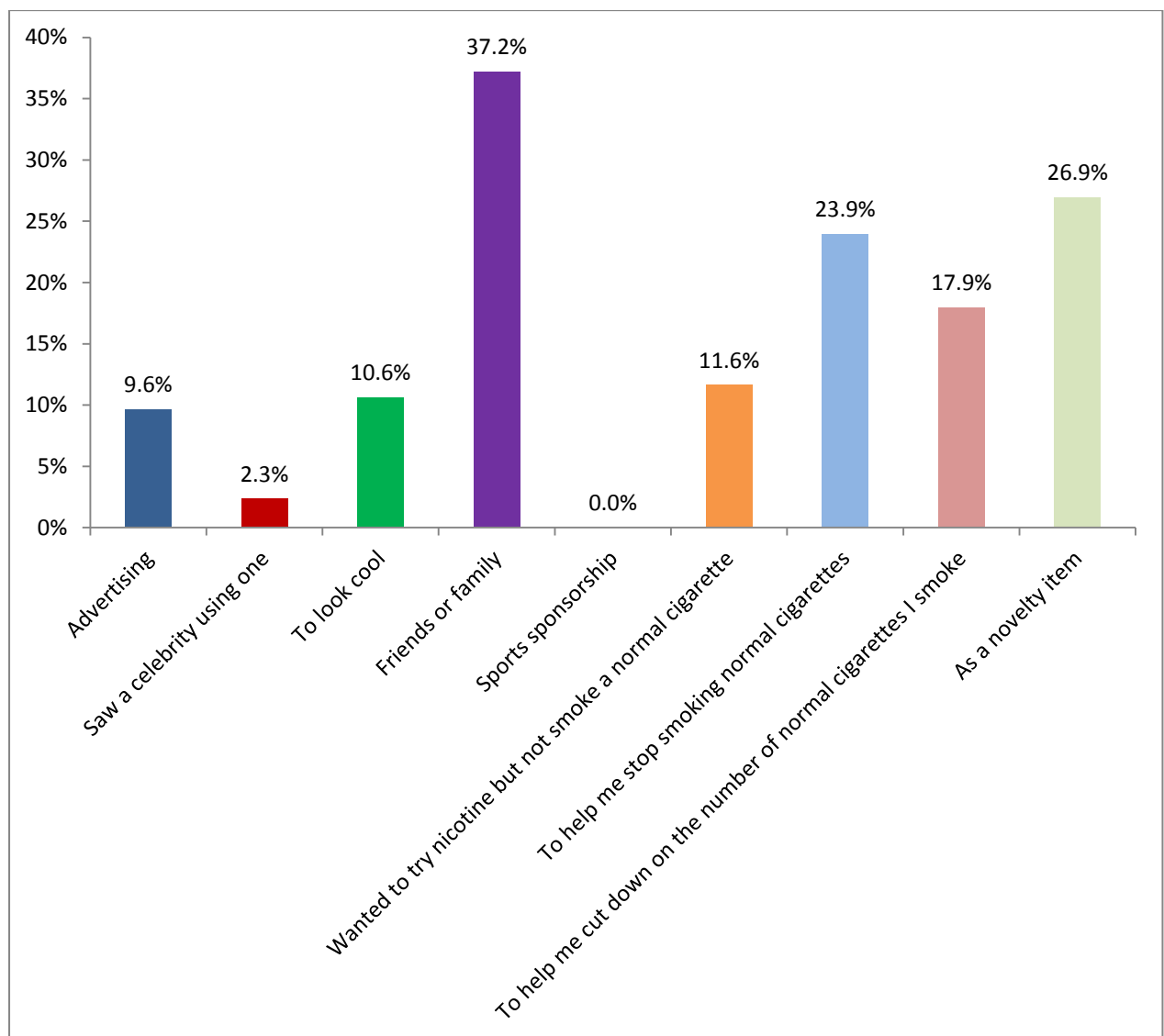


Figure 8: Use of e-cigarettes by age (n = 864)



Respondents who had tried an e-cigarette were asked why they had tried an e-cigarette for the first time. Nine response options (not mutually exclusive) were provided and are displayed in Figure 9. Over one third of respondents cited the influence of friends and family (37.2%), with this answer the most frequently given. Another popular reason provided included the novelty of e-cigarettes and the willingness to try something new/different (26.9%). Supporters of e-cigarettes cite their effectiveness as a smoking cessation device and interestingly a relatively high percentage of respondents indicated that their reason for using e-cigarettes for the first time was to help them to stop smoking tobacco cigarettes (23.9%) and to cut down on the number of tobacco cigarettes they smoke (17.9%).

Figure 9: Reasons why respondents used e-cigarettes for the first time (n = 301)



All young people who completed the survey (n=952) were asked about their current use of tobacco cigarettes and e-cigarettes. Just over 80% of respondents reported using neither, with this being the case for slightly more females (83.8%) than males (77.3%) (Figure 10). In total 6.8% of all respondents reported dual use of both e-cigarettes and tobacco cigarettes. This percentage was higher among males (9.8%) than females (4.3%). The number of young people who used e-cigarettes having never smoked tobacco cigarettes was low, comprising just 2.5% of the total sample (males: 2.3% ; females: 2.7%).

Figure 10: Use of tobacco cigarettes and e-cigarettes by gender (n = 952)

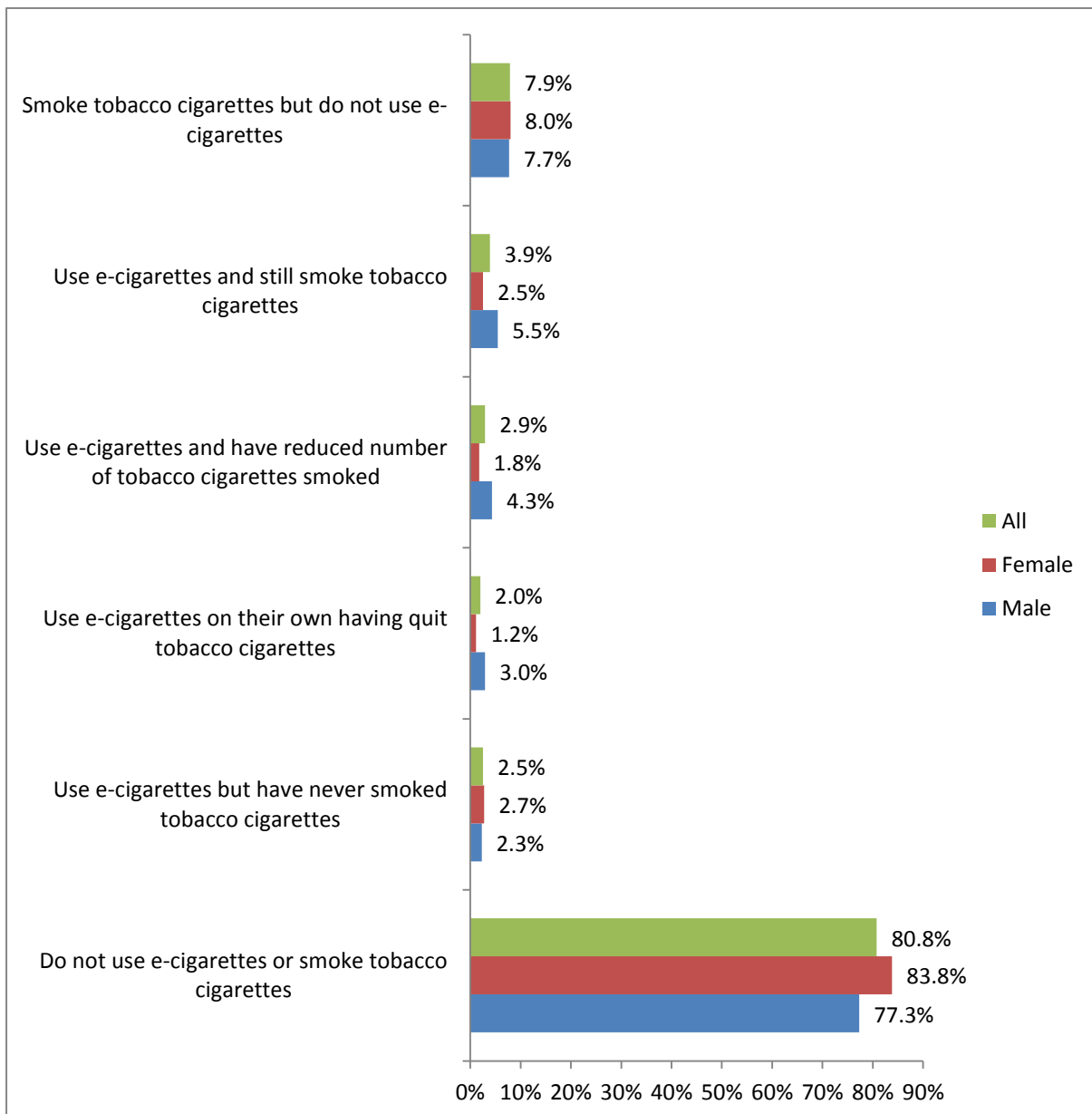


Figure 11 shows the variation in the use of tobacco cigarettes and e-cigarettes by age. Respondents aged 13-14 reported the highest percentage of not using tobacco cigarettes or e-cigarettes (87.2%) compared to the older age groups (15-16: 75.3% ; 17-18: 70.9%), whereas the older the age of the respondent the more likely they were to report dual use of tobacco and e-cigarettes (13-14: 3.4% ; 15-16: 8.8% ; 17-18: 15.5%).

Figure 11: Use of tobacco cigarettes and e-cigarettes by age (n = 952)

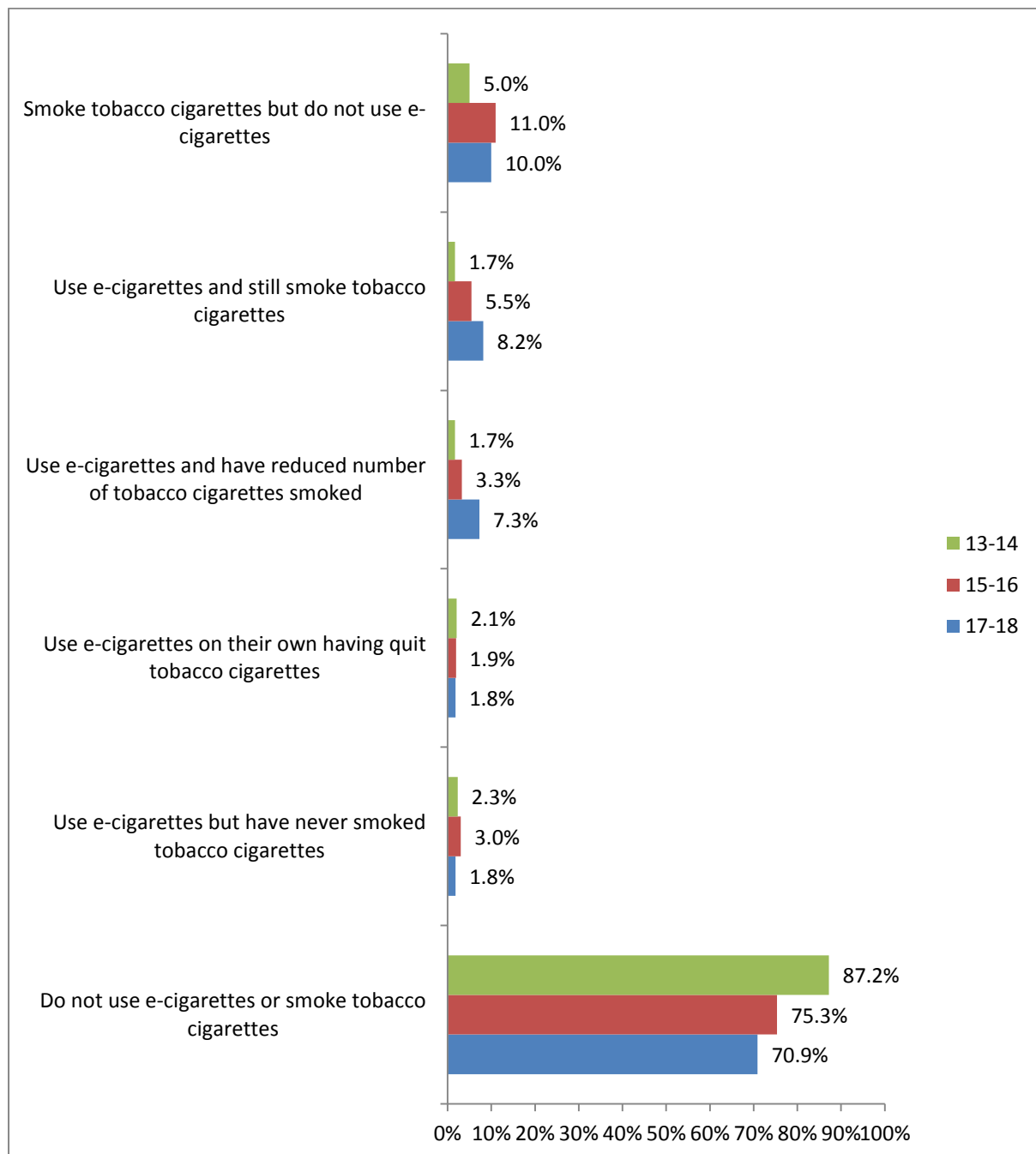
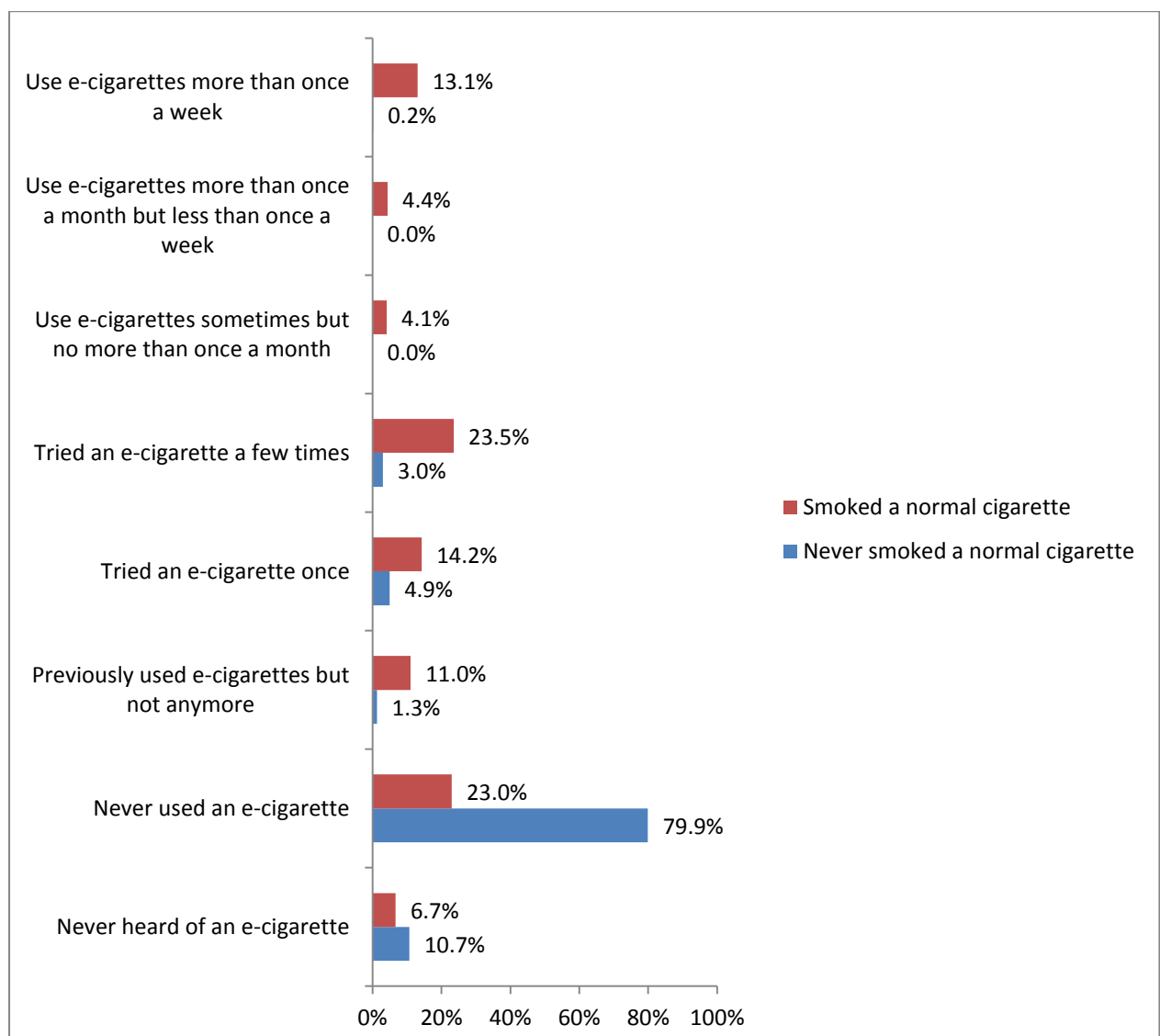


Figure 12 below stratifies e-cigarette awareness and use according to the smoking status of the respondent. A higher percentage of those who had never smoked a tobacco cigarette had never heard of an e-cigarette compared to respondents who smoke tobacco cigarettes (10.7% vs 6.7%). Furthermore, not only is awareness of e-cigarettes lower among those who had never smoked but this group of individuals were also much more likely to have never used an e-cigarette. This is the case for around 80% of these respondents as opposed to just 23% of those who do smoke tobacco cigarettes. Among the respondents who had never smoked a tobacco cigarette just 9.4% had ever tried an e-cigarette, with just over half of these young people only having tried an e-cigarette once.

Figure 12: Awareness and use of e-cigarettes according to the smoking status of the respondent (n = 952)



In Figure 13 below respondents who had heard of e-cigarettes (n = 864) are stratified by e-cigarette use and whether they have smoked a tobacco cigarette. Of those who had smoked a tobacco cigarette (n = 321) 75.4% had used an e-cigarette. In comparison of those who had not smoked a tobacco cigarette (n = 543) just 10.5% had used an e-cigarette.

Figure 13: E-cigarette use among those who have smoked a tobacco cigarette and those who have not (n = 864)

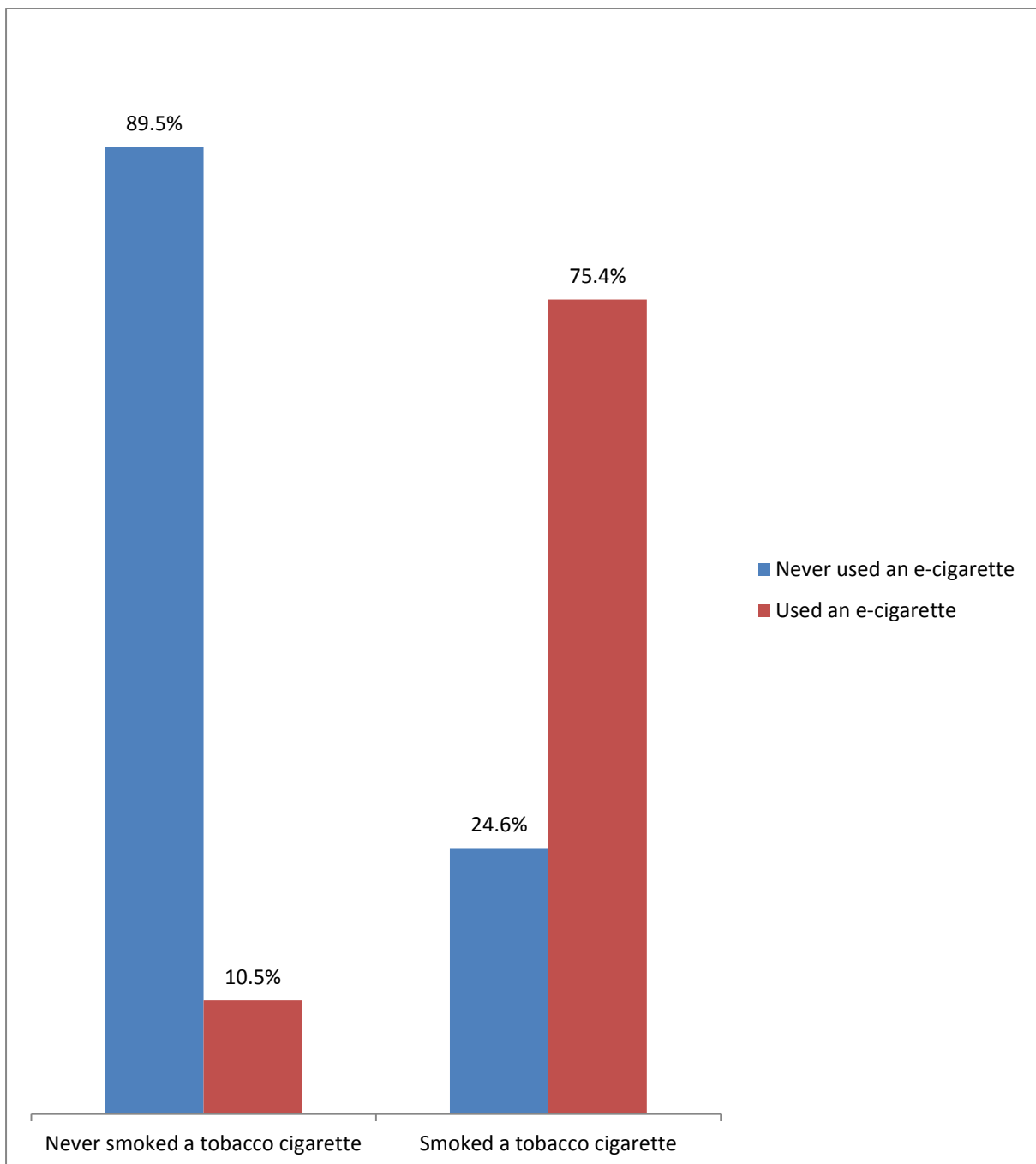
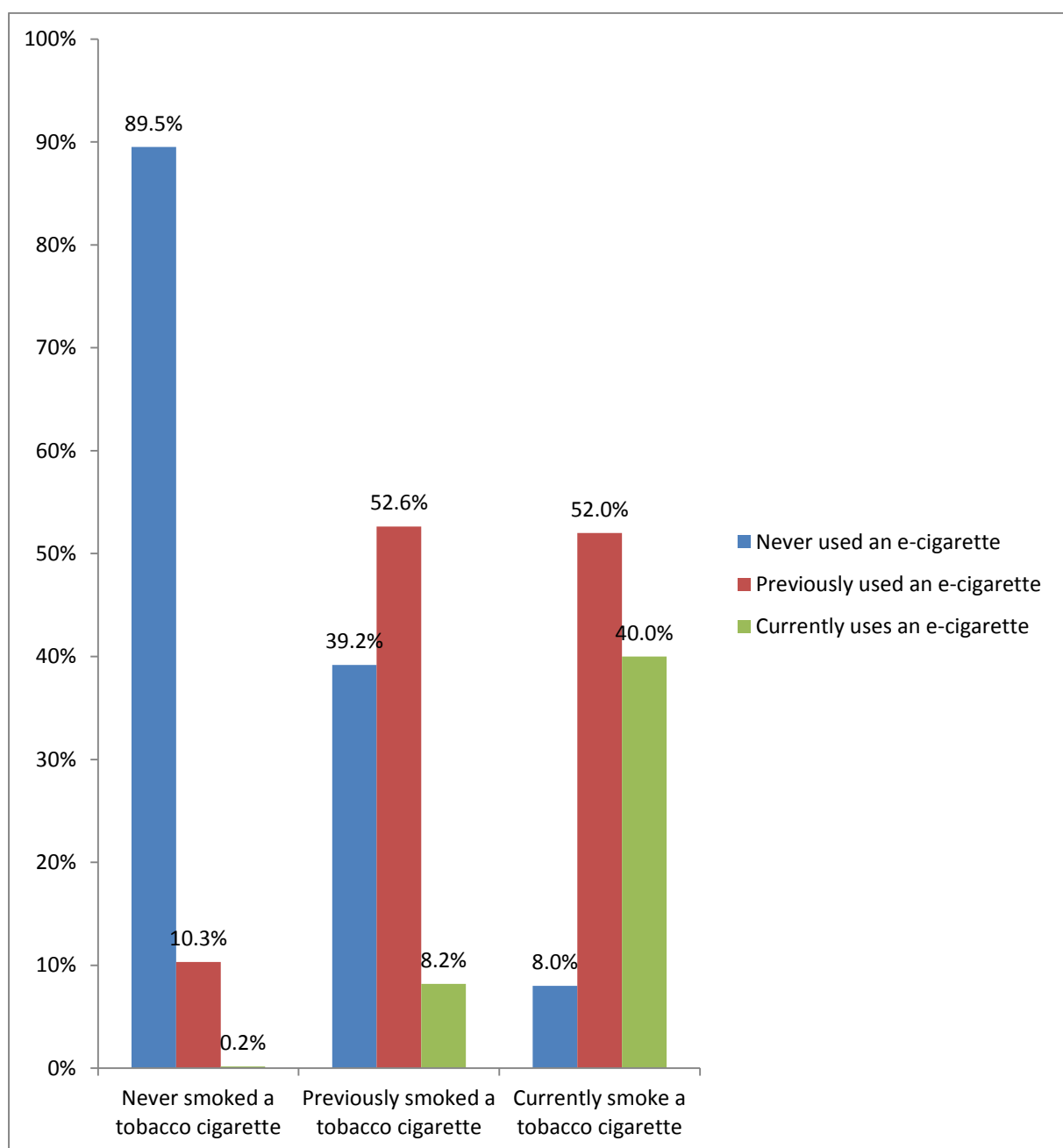


Figure 14 shows respondents categorised into three groups: i) those who never smoked a tobacco cigarette; ii) those who reported previously smoking tobacco cigarettes; and iii) those who reported currently smoking tobacco cigarettes. Within each of these groups three e-cigarette use patterns were compared: those who had never used an e-cigarette, those who had previously used an e-cigarette and those who currently use an e-cigarette.

Figure 14: Percentage of those who report e-cigarette use according to normal cigarette use status (n = 864)

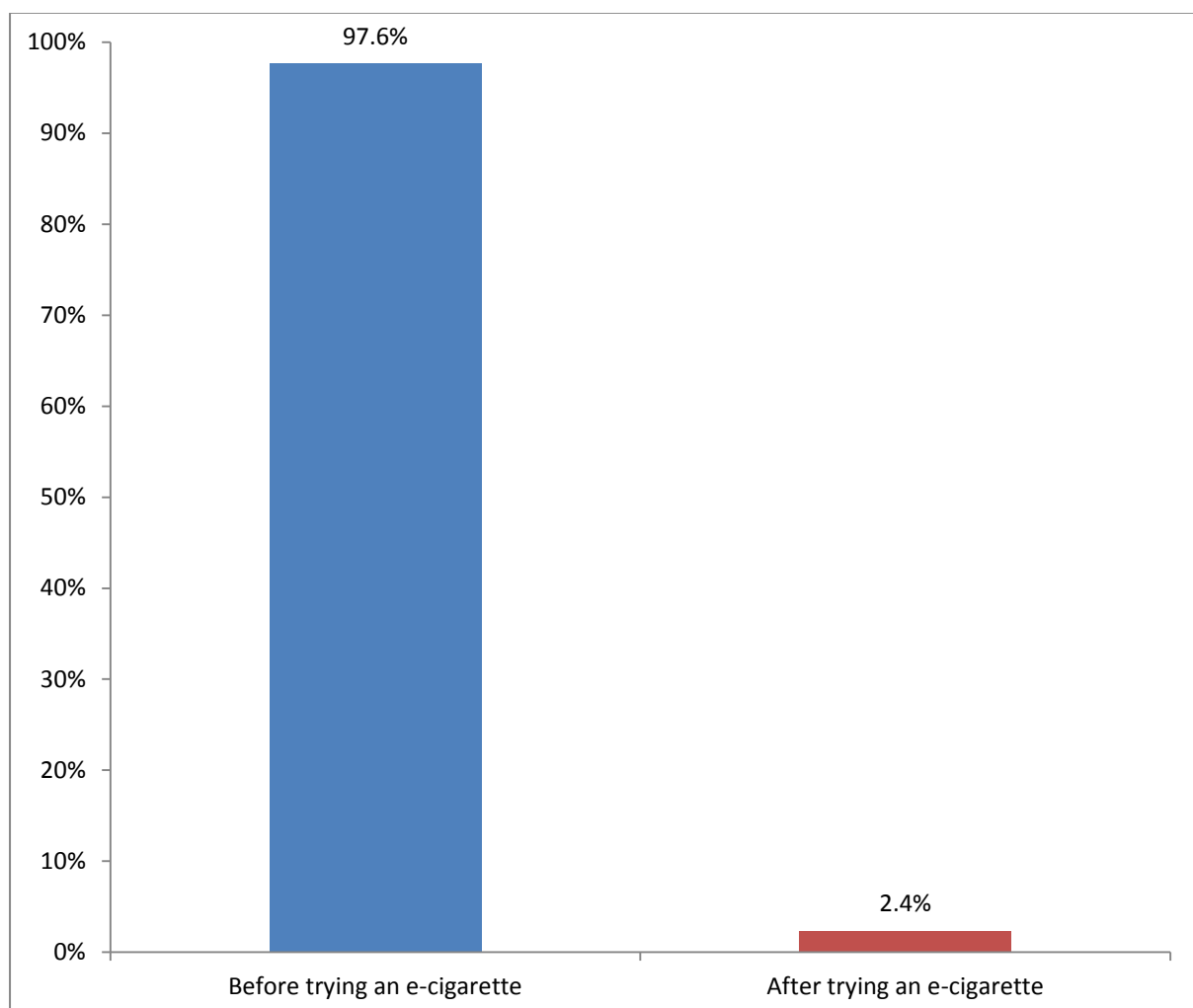




It is apparent from Figure 14 that the percentage of respondents who have never used an e-cigarette is higher for young people who have never smoked a tobacco cigarette (89.5%) compared to those who had previously smoked tobacco (39.2%) and those who currently smoke tobacco (8.0%).

One of the arguments often cited in opposition to e-cigarettes is the fact that their use may act as a gateway towards tobacco smoking. For this reason respondents of the survey who reported that they had used e-cigarettes and tobacco cigarettes were asked when they started smoking the latter for the first time. Of the 84 respondents this applied to, 97.6% answered that they first smoked tobacco cigarettes before trying an e-cigarette (Figure 15).

Figure 15: When respondents started smoking tobacco cigarettes for the first time (n=84)



## 5. Principal findings

- The vast majority of respondents, over 90% in total, were aware of e-cigarettes. This finding did not vary by gender or age.
- The most common source of finding out about e-cigarettes was from family and friends. Other frequently provided answers included the internet and social media. Respondents also cited viewing e-cigarettes being used by strangers and on sale in shops as prominent sources of finding out about e-cigarettes.
- The majority of those that were aware of e-cigarettes (65%) had never used the device before, with this more likely to be the case for females and respondents aged 13-14. By contrast regular use of e-cigarettes (greater than once a month) was more frequent among males and positively related to the age of the individual.
- Family and friends were the most frequently reported reason for using an e-cigarette for the first time. The novelty of e-cigarettes was also a decisive factor with many respondents citing the reason they tried e-cigarettes was to see what they tasted like. Just over 40% of respondents claimed they used e-cigarettes for the first time to either stop/cut down smoking tobacco cigarettes.
- Just over 80% of all the respondents who completed the survey do not currently smoke tobacco cigarettes or use e-cigarettes, with approximately 7% dual using tobacco cigarettes and e-cigarettes.
- E-cigarette use was far more prevalent among the respondents who had in the past or currently smoke tobacco cigarettes relative to those who had never smoked tobacco cigarettes. In the case of the latter, just 9.4% had ever tried an e-cigarette, with just over half of these young people only having tried an e-cigarette once.
- Of those respondents who reported using both e-cigarettes and tobacco cigarettes, 98% had first used tobacco cigarettes.

## 6. Discussion

The findings from the 2014/15 ASH Wales 'Young people and the use of e-cigarettes in Wales' survey show awareness of e-cigarettes is very high among young people aged 13-18 living in Wales. Family and friends represented a major source of information about e-cigarettes, which is an indication of the influence of an individual's social circle. Another common source of finding out about e-cigarettes was the internet and social media, thereby signifying the importance of controlling advertising in these areas. Young people in Wales were also aware of e-cigarettes as a result of seeing them being used by strangers and on sale in shops, suggesting that making these devices less visible in everyday life represents an important factor in reducing the awareness of e-cigarettes among young people.

Around 35% of the young people surveyed had either used e-cigarettes in the past or currently use them. Family and friends were cited as a major reason for trying e-cigarettes for the first time, reflecting the willingness to imitate parental and peer smoking behaviours. The novelty of e-cigarettes was also a big factor with many of the survey respondents claiming they tried e-cigarettes in order to see what they taste like. This suggests that the huge variety of different flavours on offer, it is thought there are over 8,000 in total, serve to contribute to the incentive to experiment. In addition, the results of the survey add weight to the argument that e-cigarettes have the potential to be an effective smoking cessation tool, given just over 40% of the young people surveyed claiming they used e-cigarettes for the first time to either stop or cut down tobacco cigarettes.

The findings of this report provides no evidence of regular e-cigarette use among young people who have never smoked, with just 9.4% of never smokers having ever tried an e-cigarette, and just over half of these young people only having tried an e-cigarette once. Furthermore, the 2014/15 ASH Wales 'Young people and the use of e-cigarettes in Wales' survey provides no indication that e-cigarettes are acting as a gateway into smoking tobacco cigarettes among young people in Wales. Of those respondents who reported having used both e-cigarettes and tobacco cigarettes at some point, 98% had first used tobacco cigarettes.

## 6.1 Comparison with other youth e-cigarette surveys

- In March 2014 ASH Wales published the findings of its 2013/14 young people and e-cigarette survey.<sup>1</sup> This was based on a sample of 671 individuals compared to the 952 respondents who answered the 2014/15 survey discussed in this report. More females than males completed both surveys and in each case the majority of respondents reported never having smoked a tobacco cigarette.

It appears awareness of e-cigarettes among young people in Wales has increased over the past year, rising from just under 80% in 2013/14 to just over 90% in 2014/15. Across both surveys friends/family and the media were major sources of information about e-cigarettes, however awareness of e-cigarettes from seeing strangers using them in a public place and viewing them in a shop was higher among respondents of the 2014/15 survey.

In terms of e-cigarette use a higher percentage of respondents to the 2013/14 survey reported never having used an e-cigarette (78.4%) compared to those who answered the 2014/15 version (65.4%). Friends and family continue to be the dominant reason why young people in Wales try e-cigarettes for the first time. Use of e-cigarettes as a smoking cessation device appears to have slightly fallen over the last year. 46.5% of young people in Wales used e-cigarettes to help them stop smoking tobacco cigarettes and to cut down on the number of tobacco cigarettes they smoke in 2013/14, with this the case for 41.8% of respondents to the 2014/15 survey. Over 80% of young people reported not using e-cigarettes or tobacco cigarettes in both 2013/14 and 2014/15. Of those who answered that they had never smoked a tobacco cigarette in 2013/14 96% had also never used an e-cigarette. In 2014/15 this was the case for 80% of respondents, suggesting that e-cigarette use is becoming more commonplace among those who do not smoke, although this is still a relatively rare occurrence. In terms of trying e-cigarettes as a novelty, a higher percentage of respondents reported trying an e-cigarette for this reason in the 2014/15 survey (26.9%) compared to the 2013/14 survey (16.7%). This finding is slightly worrying, as Dultra and Glantz<sup>6</sup> found that those who experimented with e-cigarettes were less likely to abstain from tobacco cigarettes.

- In 2013 and 2014 ASH England undertook surveys to determine the awareness and use of e-cigarettes among young people in Great Britain.<sup>2</sup> In keeping with the findings of this report the majority of the respondents to both surveys were aware of what e-cigarettes were, with this the case for 67% of 11 to 18 year olds in 2013 and 84% of young people in this age range in 2014. This increase in awareness of e-cigarettes among young people is also apparent from the findings presented in this report. In contrast, the respondents to the two surveys conducted by ASH England were less likely to have ever tried an e-cigarette. This was the case for 5% and 8% of those who answered the 2013 and 2014 ASH England surveys respectively, whereas 34.6% of young people responding to the 2014/15 ASH Wales survey either currently used e-cigarettes or have used them in the past. A potential reason for this is the fact the ASH England surveys included young people aged 11 and 12, whilst this age range were not incorporated into the ASH Wales survey. Both the findings of this report plus those of the ASH England surveys support the view that there is no evidence to suggest regular e-cigarette use among young people.

## 6.2 Limitations of the study

- A possible limitation of this study concerns the self-selecting nature of the sample. Whilst the survey was disseminated to all schools that form part of the Healthy Schools Network the potential exists that a greater number of young people from schools who have a close association with ASH Wales will have responded to the survey. If this is the case the likelihood is such individuals will be more informed/engaged with tobacco control and thus they may answer differently compared to pupils from schools with no affinity to ASH Wales. There is also likely to be a higher response rate to the survey from young people attending youth clubs and pupil referral units with a link to ASH Wales.
- The results of this survey are not representative of the whole of Wales. Very few responses (< 1.0%) were received from young people living in Gwynedd, Denbighshire, Powys, Pembrokeshire, Blaenau Gwent, Monmouthshire or

Newport. Hence, the findings of this report are not generalisable to the whole of Wales.

- A relatively large number of young people responded to this survey (n = 952) however the reliability and robustness of the results would be improved with an increased response rate.
- With schools representing a major distribution channel it is likely many of the surveys will have been completed within an education setting. Hence, although no names or any other identifiable information were asked for in the survey the potential exists that pupils will have not answered honestly to certain questions for fear of getting into trouble with teachers at the school.
- Since the findings in this report are based on a cross-sectional survey it is not possible to provide information about cause-and-effect relationships. The young people who responded to this survey were not necessarily the same as those who completed last years survey meaning it is not possible to determine changes in e-cigarette awareness/use at an individual level.

### 6.3 Recommendations for future research

The findings of this survey suggest a number of areas for future research is required to make an evidence-based contribution to the on-going policy debate around the use of e-cigarettes by young people.

- A clear need exists for longitudinal research to be undertaken in order to determine whether the use of e-cigarettes leads to the smoking of tobacco cigarettes among young people. There also needs to be research assessing what the long-term health implications of e-cigarette use are.
- 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 was consulted on in England and Wales in January 2015, as there would be adverse consequences to banning a product that young people may actually be using to stop smoking.

- The findings of this report were based on the responses of young people aged between 13 and 18. However, research has shown that awareness/use of e-cigarette is becoming more prominent among children even younger than this. For instance, the CHETS Wales 2 study<sup>3</sup> found 67% of the 10 and 11 year olds surveyed reported that they had heard of e-cigarettes whilst 6% reported having used an e-cigarette at least once. Whilst only the responses of 13 to 18 year olds counted in the final results presented in this report some 11 and 12 year olds (n = 106) did complete the survey. 84% were aware of e-cigarettes (n = 89) but most of these had never used an e-cigarette (n = 79). To determine whether awareness/use of e-cigarettes among young people in Wales is changing over time perhaps subsequent surveys should widen the age range of respondents to include 11 and 12 year olds.
- Further research is required to explore the relationship between the socio-economic status of the respondent and their propensity to use, or experiment with, e-cigarettes. Future surveys should collect information on the postcode of the respondent so that their socio-economic status can be identified, thereby making it possible to see whether the answers they provide vary according to this factor or not.
- The findings of this report signify the role being played by family and friends as both a source of information about e-cigarettes and a reason for using them for the first time. It would be insightful to determine the actual level of influence of family members of respondents versus those in their friendship circle. This could be achieved through separating 'friends' and 'family' as a response for these two questions in future surveys.
- Qualitative research into the perceptions of e-cigarettes and the terminology used to discuss them by young people would also add a further dimension to the debate by exploring whether, in fact, young people find the product as attractive as the gateway model suggests.

## 7 References

- 1 ASH Wales (2014). Young people and the use of e-cigarettes in Wales.
- 2 ASH (2014). Use of electronic cigarettes in Great Britain.
- 3 Welsh Government (2014). Exposure to secondhand smoke in cars and homes, and e-cigarette use among 10-11 year old children in Wales: CHETS Wales 2
- 4 Johnston, L. D., O'Malley, P. M., Miech, R.A., Bachman, J. G., & Schulenberg, J. E. (2015). Monitoring the Future national results on adolescent drug use: Overview of key findings, 2014.
- 5 Bunnell R., Agaku I.T., Arrazola R., Apelberg B.J., Caraballo R.S., Corey C.G., et al. (2014). Intentions to smoke cigarettes among never smoking US middle and high school electronic cigarette users—National Youth Tobacco Survey, 2011-2013. *Nicotine Tob Res.*
- 6 Dultra, L.M., Glantz S.A. (2014). Electronic cigarettes and conventional cigarette use among U.S. adolescents: a cross-sectional study. *JAMA Pediatr*; 168(7): 610-7.
- 7 Czoli C.D., Hammond D., White C.M. (2014). Electronic cigarettes in Canada: prevalence of use and perceptions among youth and young adults. *Can J Public Health* 2014; 105(2): e97-e102.
- 8 Pentz M.A., Shin H., Riggs N., Unger J.B., Collison K.L., Chou C.P. (2015). Parent, peer, and executive function relationships to early adolescent e-cigarette use: a substance use pathway? *Addict Behav.* 42:73-8.
- 9 Cardenas V.M., Breen P.J., Compadre C.M., Delongchamp R.R., Barone C.P., Phillips M.M., Wheeler J.G. (2015). The smoking habits of the family influence the uptake of e-cigarettes in US children. *Ann Epidemiol.* 25(1): 60-2.