E-cigarette appeal in context: a qualitative study in deprived areas of the role of packaging in e-cigarette purchasing and use

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Reference

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Contributors: Frances Thirlway designed the study, recruited participants, carried out the fieldwork, conducted the interviews, analysed the data and drafted and revised the report. Chidinma Oli contributed to data analysis. CRUK authors (Neve, Champion, Froguel, Davies, Cheek) provided input through regular meetings with FT, wrote the Executive Summary and revised the draft report.

Authors

Frances Thirlway [a]

CRUK authors: Kimberley Neve [b], Teteh Champion [b], Alizée Froguel [c], Alice Davies [d]

[a] Aston University, Aston Street, Birmingham, England; previously University of York, York, England

[b] Social and Behavioural Research, Cancer Research UK

[c] Policy Development, Cancer Research UK

[d] Health and Patient Information, Cancer Research UK

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Cancer Research UK

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Executive Summary

Background

Electronic cigarettes (e-cigarettes), also known as vapes, are battery-powered devices that heat a liquid, usually containing nicotine, creating a vapour for users to inhale. Evidence currently suggests that e-cigarettes are far less harmful than smoking [1] and can be a useful tool to help people quit smoking [2]. However, as vaping still involves exposure to some toxicants, e-cigarettes should not be used by people who have never smoked [1]. There are concerns that e-cigarette packaging may make e-cigarettes more appealing to people who do not currently smoke. New disposable e-cigarettes that have had a recent surge in popularity amongst young people are of particular concern [3]. On the other hand, the current mandatory health warnings on e-cigarette packaging may increase widespread misperceptions of the relative risk of vaping and smoking and deter people who smoke from switching to a less harmful alternative to smoking [4].

Higher rates of smoking in more deprived populations contribute to higher cancer incidence within these groups [5]. The use of tools to aid quitting attempts, like e-cigarettes, could help to displace smoking and consequently improve smoking-related health inequalities. Although there is evidence that e-cigarettes are a more effective smoking cessation tool than Nicotine Replacement Therapy (NRT), there is an evidence gap regarding the efficacy of e-cigarettes in groups with high rates of smoking. However, concerns have been raised that people who smoke may be put off switching to e-cigarettes due to product initial cost, product unreliability, and mistaken perceptions of relative risk compared to smoking [5], [6].

The Tobacco and Related Products Regulations (TRPR) provide the regulatory framework for e-cigarette packaging, product contents and flavours and the advertising and promotion of e-cigarette products. Regarding the regulations for e-cigarette packaging, it is relevant for this study that there must be health warnings stated on the external packaging of the e-cigarette product. For product content, the e-liquid capacity of devices must not exceed 2ml and the maximum strength of these e-liquids no more than 20mg per ml (2%). Additionally, the advertising of e-cigarettes on TV, radio, social media, and most print media is prohibited. Lastly, it is relevant for this study that sales to people under the age of 18 are prohibited, as are proxy sales, when an adult buys on behalf of someone under the age of 18.

The overall aim of this study was to build our understanding of the role of e-cigarette packaging and health warnings in purchase and use decisions, as well as the appeal of disposable devices. Findings will help determine whether regulatory changes could decrease the appeal of e-cigarettes to people who have never smoked and young people, whilst avoiding any unintended consequences which could discourage people who are quitting smoking from using e-cigarettes as a quitting tool.

The report brings together findings from interviews with 50 study participants with various levels of vaping experience and 10 vape shop staff in Great Britain. Participants experiencing factors linked with high smoking incidence and cancer inequalities were recruited in areas of County Durham, Fife, Manchester, South Wales and South London with high levels of

deprivation. The final sample included 21 dual users (people smoke and vape), 20 who used to smoke and now vape. The other nine participants; four people who smoke and used to vape; two people using vapes who had never smoked; one person who had never smoked or vaped; one person who no longer smokes or vapes and one person who formerly smoked but had never vaped. 13 participants were aged 16-17, 11 were aged 18-24, 21 were aged 25-40 and five were over 40.

Key findings

There was little evidence of packaging and product names playing a role in vape product purchasing decisions. The main criteria when buying vaping products were flavour and ease of use: disposable devices scored highly on both counts. When participants talked about the flavours they liked, they described them in general terms, saying for instance that they liked a particular flavour (strawberry), rather than using a specific product name ('Strawberry Ice Cream'). Participants mainly spoke about fruit flavours; very few mentioned confectionery flavours; those who did were women in their thirties who formerly smoked or were trying to quit, rather than participants under the age of 18. In addition to the range of flavours available, disposable devices were attractive due to their small size and ease of use, with no charging, filling, or switching on and off to consider.

Participants showed little recall of particular brands, and few could name more than one or two. Participants often commented on the visibility of colourful shop displays of disposable e-cigarettes as prompts to buy. The draw was not so much individual product colour, but rather the accumulation of different colours in window or counter displays of multiple disposables. Only 4 of the 31 participants using disposables mentioned or used devices with a novelty aspect (cartoon design, glow-in-the-dark features or flashing lights) and all four were women in their thirties with long smoking histories.

Most participants did not read the health warnings on vape product packaging and many were confused regarding the nicotine strength of products. Those who used refillable devices understood nicotine strength, but participants using disposables thought disposable e-cigarettes had low nicotine content because this was described as 2% rather than 20mg/ml: this is the highest level of nicotine permitted in the UK and all participants using disposables used 20mg/ml devices.

Furthermore, participants were unsure of the relative risks of smoking and vaping and the perception of relative risk generally differed between age groups. Younger participants were more exposed to online scare stories about vaping and took more notice of information on social media than e-cigarette pack warnings. Participants' accounts suggested that user-generated social media content was at least as likely to be negative as positive about vaping and health, fuelling considerable uncertainty and confusion about relative smoking and vaping risk. Older participants who had switched from smoking to vaping were generally confident that vaping was safer, although some experienced negative comments from other people. 'Popcorn lung' was mentioned as a concern by several participants across age groups, including those working in vape shops, despite the lack of evidence of any connection with vaping. There was some confusion regarding the harmful aspects of smoking compared with

e-cigarette use and concern over the harms of nicotine in e-cigarettes.

In addition to flavour and ease of use, purchasing decisions were influenced by cost. This was a key consideration for most of those interviewed and a reason to switch from disposable devices to refillable ones. Users of refillable devices rejected disposable vapes as too expensive and most participants using disposables were concerned about the high ongoing cost. Many were planning to switch to refillable devices or had switched to longer-lasting versions of disposable devices with a larger e-liquid capacity. In the UK, e-cigarette tanks are restricted to no more than 2ml. However, 14 of the 31 disposable users in the study bought disposables with a capacity of 10ml or more because these lasted longer and were perceived as providing better value for money. The vape shop staff interviewed encouraged disposable users to switch to refillable devices (typically pods) to save money, and some felt the balance was shifting in this direction.

Disposables were particularly popular with younger participants, who discovered them primarily through their friends and on social media. Participants aged 19 to 24 recalled earlier, short-lived school crazes, first for pen vapes, then box mods. However, those who were still vaping had since switched to using disposable devices; no participant in this age group used a refillable device at the time of the interview. Packaging and product names appeared to play little role in these short-lived trends, except amongst young men who recalled their own interest in the 'cool' designs of the 'shortfill' liquids they bought for their box mods.

Participants under the age of 18 were all able to access e-cigarettes (and tobacco, for those who smoked) from shops which did not require proof of age. Proxy buying by parents or older friends was another common method of accessing nicotine products. Parental proxy buying was an ethical dilemma discussed by two of the parents interviewed: they smoked themselves and preferred that their children were vaping rather than smoking. Disposable devices were very widely available in a variety of high street shops in comparison to other device types. Participants bought disposable vapes in whichever shop was convenient.

Conclusion

This report presents findings from interviews with people using e-cigarettes recruited from communities across Great Britain which face the highest burden of smoking. Participants said that packaging and product names played little or no role in their e-cigarette purchasing decisions. Their main criteria for purchase were flavour and ease of use, with disposables scoring more highly on both counts. People who used disposables mentioned their visibility and accessibility, their widespread use amongst their friends, and colourful product displays in shops as prompting them to buy. However, the high cost of using disposables meant that many switched either to refillable devices, or to larger capacity disposables which are not currently legal in the UK.

Study findings also suggest that as users rarely read the health warnings on vape products, their precise wording is not a significant issue; more concerning is the fact that participants were confused about the relative risk of smoking and vaping, with younger people particularly likely to be exposed to vape scare stories on social media. It is also a concern that participants using disposables believed these were low in nicotine because this was described on the

packaging and on the device itself as 2%. At 20mg per millilitre, this is the highest legal strength in the UK but is by far the most widely available. Finally, participants who smoked or vaped under the age of 18 all knew shops which would serve them without ID, suggesting that better enforcement of age checks is urgently needed.

Contents

1. Introduction

1.1 Background to the study

Electronic cigarettes (e-cigarettes) are now widely used in the UK by adults who smoke, primarily as a product to cut down or stop smoking. They may reduce cancer cases by increasing the number of people who stop smoking tobacco [1], which is the biggest cause of cancer in the UK [3], [7]. However, despite evidence showing minimal regular e-cigarette use, or vaping, amongst under-18s [8], there have been concerns that young people are attracted to vaping, with an increase in awareness and experimentation in under-18s who have never smoked, this use of e-cigarettes, experimental and regular, in young people has been particularly concentrated in disposable e-cigarettes [9], which have had a recent surge in popularity [3].

Concern that vaping devices, e-cigarettes, or vapes might attract under-age users or young adults who have never smoked has long been an issue [10], [11]. However, attempts to isolate product features which appeal to people under the age of 18 but not to adults have been fraught with difficulty. Whilst there is some evidence that children have a stronger preference than adults for bright colours [12], [13] and are more likely to notice e-cigarette marketing material [14], there is currently no evidence linking the recent increase in youth vaping experimentation with specific packaging or marketing features. Nevertheless, there have been calls to reduce the potential appeal and accessibility of e-cigarettes to children, including reducing the affordability of disposable e-cigarettes, banning product names which reference popular confectionery and packaging which includes cartoon images and bright colours popular with children [12].

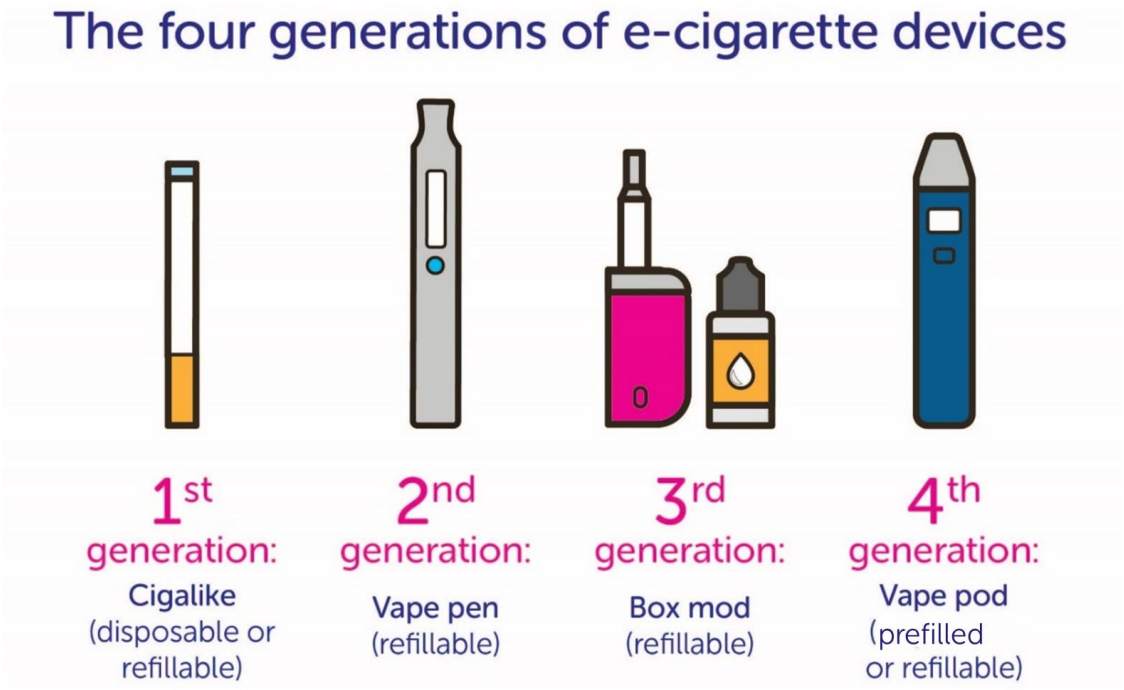
Whilst there are fears about the use of e-cigarettes by young people, e-cigarettes have also been shown to be an effective tool to stop smoking, when compared with traditional nicotine-replacement therapy (NRT) [2]. Concerns have been raised that within communities who already bear the greatest burden of smoking-related health inequalities, people who smoke may be put off switching to e-cigarettes due to: product cost, product unreliability, product being difficult to use (e.g., fiddly to refill), and mistaken perceptions of relative risk compared to smoking [5], [6]. Groups with high rates of smoking include people with low socio-economic status (SES) as well as people who have addictions or mental health issues, people within the LGBTQIA+ community, those who are experiencing unemployment or homelessness, are care-experienced or have been involved with the criminal justice system, or any of these factors in combination. People from low SES communities for example, are more likely to start smoking, and above all find it harder to quit [15].

A substantial percentage of the UK population incorrectly believe that vaping is as, or more dangerous than smoking [16]. It has been suggested that the statutory warnings on vape packaging stating that nicotine is an addictive product might deter people who smoke from switching to vaping: alternative warnings focusing on the relative risk of smoking and vaping could better serve public health objectives [4].

1.2 Current e-cigarette regulation: packaging and advertising

Vaping devices are comprised of a tank for e-liquid, a battery, a coil (the heating mechanism) and an outer shell. E-cigarettes have evolved from the first 'cigalikes' to more powerful and effective 'pen' and 'box mod' devices with larger batteries (Figure 1). The development of nicotine salts, a form of nicotine which provides a satisfying consumer experience at lower power, led to the rise of smaller 'pod' devices, which are rechargeable and refillable either from a bottle of e-liquid or by slotting in pre-filled cartridges. Disposable devices are similar to pods but are pre-filled with a specific flavoured liquid (Figure 1). Once this liquid is consumed, disposable devices must be disposed of as disposables are normally neither refillable nor rechargeable [17].

Figure 1: The evolution of vaping devices across four generations: from left to right: a cigalike e-cigarette, a vape pen, a box mod with 10ml refill bottle and the newest generation, a pod device. Refill bottles containing nicotine cannot exceed 10ml, but larger bottles ('shortfills') without nicotine are also available, with customers adding nicotine liquid separately.



Most vaping devices are manufactured in China's Shenzhen special economic zone. The UK has a significant independent vape industry (liquid production, vape wholesale and retail); three transnational tobacco companies also distribute their own vape products. E-liquids are sold in both 10ml bottles and in larger 'shortfill' bottles sold without nicotine to get round volume restrictions; however these are a niche product, typically with more extravagant designs and outlandish names than the 10ml bottles, which have limited label space [1].

Shenzhen manufacturers invested in the disposable vaping device category following the US FDA's de-facto ban on e-liquid flavours other than tobacco and menthol [18]. Disposable

devices are sold in sealed shrink-wrap plastic with a plastic mouthpiece protector, a fold-out leaflet with product details and warnings and an outer cardboard box showing a full-size image of the product and statutory information. Unlike similarly-size pod devices, which can be refilled with any liquid, disposables come in specific flavours. Each flavour variant is given a different colour or colour gradient for easy recognition (See Appendix A). Distributors sell disposable vape products not just to specialist vape shops and the convenience sector but to a wide range of other retailers, so that window displays of boxed disposable vapes in different flavours have become a common sight on the high street. At the time of the study, the Elf Bar brand of disposable device dominated the UK market. Geek Bar and Elux Bar were the other two prominent brands referred to by participants in this study (Appendix 1).

The Tobacco Products and Nicotine Inhaling Products (Amendment) (EU Exit) Regulations 2020 set out the current regulatory framework in relation to vaping products (Box 1) [19]. The packaging of e-cigarettes must include health warnings, e-cigarettes are age restricted and the advertising of e-cigarettes on TV, radio, social media and most print media is prohibited (Box 1). For the purpose of this study, the term 'packaging' is used to refer to any detailing, imagery or surface decoration on the product shell, protective sleeves, boxes and any novelty features unrelated to core function, such as flashing lights.

Box 1: The Tobacco Products and Nicotine Inhaling Products (Amendment) (EU Exit) Regulations 2020.

The provisions of the regulations relevant to this study are as follows:

- The maximum volume of nicotine-containing e-liquid is restricted to 10ml per container/bottle.
- E-cigarette tanks are restricted to no more than 2ml.
- Nicotine-containing products and packaging must be child-resistant and tamper-evident; certain ingredients are banned.
- The maximum nicotine strength for e-liquids is 20mg per ml (2%).
- All e-cigarettes and e-liquids must be notified to the Medicines & Healthcare products Regulatory Agency (MHRA) before they are sold to consumers.
- Purchasers of vaping products must be 18 years or over and proxy sales are prohibited.
- The advertising of nicotine-containing e-cigarettes in the media and on social media is prohibited.

The regulations specific to packaging include:

- Listing all ingredients in descending order by weight.
- Nicotine content and delivery per dose.
- Batch number and producer's contact details.
- Recommendations to keep the product out of reach of children
- The health warning 'This product contains nicotine which is a highly addictive substance', must appear on the front and back surfaces of the packet and cover 30% of that area.
- A leaflet must be included with instructions for storage and use, a statement that the product is not recommended for use by young people and non-smokers and other safety information.

1.3 Existing evidence and knowledge gaps

Smoking is concentrated in underserved populations, with tobacco use closely linked to health inequalities [20], and more deprived populations experiencing higher cancer incidence and smoking prevalence than less deprived populations [21]. To address health inequalities, we need to understand whether vaping can displace smoking amongst people living in areas of deprivation and high smoking prevalence, including any role that product packaging and design might play. It is currently unclear how perceptions of packaging and health warnings potentially influence purchasing of e-cigarettes. Furthermore, it is not clear whether the recent rise in the use of disposable e-cigarettes by young people is related to product packaging and design, or what other factors might play a role. This report is intended to address these gaps.

2. Research aims and objectives

The study was led by Dr Frances Thirlway, a Research Fellow in the Department of Sociology, University of York. The study was funded by Cancer Research UK to build our understanding of how people perceive and understand e-cigarette packaging, including health warnings, to determine whether regulatory changes could decrease the appeal of e-cigarettes to people who have never smoked and people under 18, whilst maintaining or increasing their appeal to people who smoke and avoiding any unintended consequences which could increase smoking or discourage quitting.

The specific study objectives were:

1. To explore perceptions of e-cigarette packaging and assess its role in decisions to try e-cigarettes or to use them regularly, or to use one device or liquid rather than another.
2. To assess awareness of the current health warnings on e-cigarette packaging and explore whether this plays a role in beliefs about relative risks of smoking and vaping.
3. To explore the appeal of disposable e-cigarettes to young people and adults who smoke.

2 Methodology

2.1 Research design

This study was conducted within a social science paradigm whereby data are co-constructed by researchers and participants [22]. An individual rather than group discussion format was chosen to build trust and make space for individuals to share personal histories and practices [23]. Ethnographic interviewing involves close attention to context: health and economic profiles of the areas were researched online, and study neighbourhoods explored on foot or using local public transport [24].

Ethical approval for the study was provided by the Economics, Law, Management, Politics and Sociology (ELMPS) Committee at the University of York. Informed consent to participate was obtained using information sheets and signed consent forms. Names and specific locations have been changed or left out to protect the anonymity of study participants. Some participant quotes have been condensed, but regional speech variations have been preserved.

2.2 Recruitment and sampling

Purposive sampling was used to recruit 50 study participants with varying degrees of vaping experience and 10 vape shop staff. To recruit participants from communities facing the highest burden of smoking incidence, Index of Multiple Deprivation (IMD) data were used to select deprived areas, plus additional online research to identify active community organisations to support participant recruitment. Public transport links and distance to the researcher's home were additional factors considered, given the short time available for the study (see data collection details below). Study areas were located in specific areas of Fife, Manchester, County Durham, South Wales and South London. Special efforts were made to recruit participants aged 16 to 24 to gather data relating to the use of disposable e-cigarettes.

Recruitment of vape shop respondents was carried out through visits to specialist shops. Vape shops were identified through online searches ahead of visits to the study areas; shops were then visited and staff present were asked to participate in the study. Recruitment of participants with vaping experience was mostly done face-to-face, either through community organisations in the study areas or occasionally through a direct approach: 40 organisations were approached either by email or by visiting their premises; 15 were able to help recruit participants. The 50 participants with vaping experience received a £20 gift card in recognition of their time and contribution to the study. The vape shop staff (mainly sole traders) did not, as they were taken to be representing their industry rather than speaking as private individuals.

2.3 Data collection

Data were collected from March to October 2022 over the course of 19 visits. Of a total 60 interviews, 44 were conducted wholly in person and 16 mainly or entirely by telephone, of which seven followed initial face to face contact, with the remaining nine being referrals. Interviews lasted between 8 and 66 minutes, with an average of 29 minutes. Interviews were recorded as digital voice files and fully transcribed.

A semi-structured topic guide was developed to guide the interviews. Questions to people who vape focused on their experience of e-cigarettes in their immediate environment, and they were encouraged to provide a narrative smoking and vaping history. They were asked about their own and their parents' smoking and vaping, their current smoking and vaping status, what vape products they had seen or bought, how they had chosen them, perceptions of the packaging and the health warnings, how they understood the relative risk of smoking and vaping, and their future plans in relation to smoking and vaping. If they used disposable vape devices, they were additionally asked where they had seen them, where they had purchased them and if they were under 18, whether their age had been checked by retailers. Some interviews took place during participants' work breaks, in noisy locations or other circumstances where participants were pushed for time; in such cases, the interviewer covered as much of the topic guide as possible in the time available (see Appendix B).

Vape shop staff were asked how customers chose products including disposables devices, the role of packaging and product names, customers' risk perception and their awareness of product health warnings (see Appendix B for the topic guide).

2.4 Data analysis

Data analysis involved comparing narratives of people who vaped across a range of factors [25] to identify smoking and vaping trajectories and situate the role of vape product design and packaging within these. Individual histories were treated analytically as units rather than fragmented into thematic categories [23], [26] before generalising to theoretical perspectives [27]. Participant narratives were summarised, tabulated and compared across factors including age, ethnic origin, gender, location, life situation, smoking and vaping status, parents' smoking and vaping, number of years smoked and/or vaped, starting age for smoking and/or vaping, devices used in the past, current devices used and future intentions in relation to smoking and vaping. Vape shop staff interview data were analysed thematically in relation to the research questions; it was recognised that participants were responding as individuals, but also as representatives of a particular business and as strategists operating in the political sphere [28], [29]. Vape shop staff are professional salespeople and have an interest in putting certain messages across, such as their own strict compliance with age of sale legislation or the claim that all their customers vape to stop smoking. Such claims were therefore treated with caution in the analysis. Views from vape shop staff are labelled as such throughout the report, to distinguish them from the other participant's views and experiences.

3 Findings

3.1 Sample characteristics

3.1.1 Demographic data

Key characteristics of study participants are set out below and in Table 1. The aim was to interview people aged 16-40 in five locations across Great Britain; the final age range of participants was 16-70, with a mean age of 28 (Table 1). The inclusion of five participants who were older than 40 resulted from a misunderstanding with some community organisations and the decision to take a flexible approach in the light of the challenging timescale. The other demographic factors that some participants happened to mention and that are relevant to smoking prevalence and likelihood of smoking cessation were as follows: eight participants mentioned being in a same-sex relationship (LGBTQIA+); seven mentioned mental health issues; six mentioned cannabis use; five referred to a history of other drug or alcohol addiction; four people were currently or recently experiencing homelessness; four people referred to recent time in prison; one person mentioned a physical disability and one person was care-experienced.

16 people were engaged in routine and manual work and 12 people were looking for or had previously been in similar work. This included domiciliary care, hospitality, catering and bar work, cleaning, landscaping, delivery driving and security. Six people were in intermediate occupations including admin (2), youth work (2) and sales (2), and three were in graduate occupations including nurse (1), industrial chemist (1) and university researcher (1). Most participants under 18 were engaged to some extent in further education (11 of 14 participants) and were generally working as well. Three of the young people were not in education or training.

Ten vape shop staff (four employees and six shop owners) were interviewed from ten shops in five different areas. All staff interviewed used vapes and formerly smoked (Table 2). Four of these vape businesses comprised a single shop or stall, one business had two premises, three had three, one had six and one had nine premises. All businesses were independent and had no links to the tobacco industry. Five of the ten also sold vape items online via their website and produced or packaged their own brand e-liquids, which they sold alongside third-party brands.

3.1.2 Smoking and vaping data

It is not suggested that participants in the study comprised a nationally representative sample of people who use e-cigarettes; the aim was to recruit people with low socio-economic status, who are most at risk of smoking, and less likely than people of higher SES to quit. In England, for example, 15% of the adult population smoke but for the adult population in routine and manual occupations this increases to 26% [30]. The largest groups in the sample by vaping/smoking status were 21 dual users (using both combustible- and e-cigarettes) and 20 people who formerly smoked and now only vaped (Table 1). However, smoking and vaping status was subject to change, with many of the participants either giving up smoking or taking

it up again just a few weeks or even days before and after the interview.

The average age at which participants first smoked was 14 (n=47), and the average age at which they first vaped was 24 (n=48). The average years smoking was ten, with a range of less than a year to 48 years. The average years vaping was four, with a range of less than a year to ten years. Of the 48 with whom this was discussed, 38 participants had at least one smoking parent during all or part of their childhood.

Of the 48 ever-vapers, 35 had used at least two different generations of device, including 11 people who had tried three generations or more (from the following choices: cigalike, pen, mod, pod, disposable). Of the 31 participants who were currently using disposables, 18 were dual users (i.e., they smoked and vaped), 11 formerly smoked and two had never smoked (Table 1). The 31 current disposable users included 12 users aged under 18, six aged 18 to 24 and 13 aged 25 to 35. The youngest person using any other type of vaping device was 27.

Table 1: demographic data and smoking/vaping status for the participants interviewed.

Characteristic	Number of participants (non-vape shop staff)						
Gender	Male				Female		
	28				22		
Age	Under 18		18-24		25-40		Over 40
	13		11		21		5
Ethnicity	White				People from an ethnic minority background		
	40				10		
Geographic location	North East England		Wales	North West England		South London	Fife, Scotland
	13		12	10		8	7
Smoking and/or vaping status	Only smokes, formerly vaped	Only vapes, formerly smoked	Dual user	Formerly smoked, never vaped	Formerly smoked, formerly vaped	Only vapes, never smoked	Never smoked or vaped
All participants	4	20	21	1	1	2	1
Currently using disposables (including alongside other vapes)	n/a	11	18	n/a	n/a	2	n/a
Employment	Looking for work/ unfit for work/ dropped out of college/ retired	Students in higher education	Students in further education	Routine and manual occupation	Intermediate or professional occupation (of whom 4 are graduates)		
	12	2	11	16	9		

Table 2: summary characteristics of the staff and owners interviewed in vape shops

Characteristic	Number of participants (vape shop employees and owners)				
Gender	Male		Female		
	10		0		
Ethnicity	White		People from an ethnic minority background		
	7		3		
Geographic location	North East England	Wales	North West England	South London	Fife, Scotland
	2	3	1	2	2
Role within vape shop	Employee		Partner or owner of business		
	4		6		

4.1.3. Relative cost of smoking and vaping

The cost of vaping was not discussed in every interview but spend varied from an estimated £2 per week (with £15 initial refillable device cost) for someone buying two 10ml bottles a week from a discount shop for £1 each, to £70 per week for someone using two £5 disposables per day. The cost of smoking varied from £6 a week for a pouch of illicit rolling tobacco to £70 per week for 7 packs of cigarettes at £10 each (see Table 3). 22 of the 48 who had ever smoked mentioned using rolling tobacco (RYO), which is typically cheaper than factory-made cigarettes, and 24 mentioned buying illicit tobacco, which is normally even cheaper (Table 3).

Table 3: relative cost of smoking and vaping for the participants
Note: product prices vary widely, as does individual consumption and therefore actual spend. This table uses data provided by study participants to extrapolate the relative cost of smoking and vaping various legal and illegal products.

Product used - tobacco	Cost per week
£10 packet of cigarettes, smoking 10 cigarettes a day (UK average)	£35
£5 illicit pack of cigarettes, smoking as above	£17.50
£22 50g pouch of rolling tobacco, lasting 1 week (cost of cigarette papers and filters is minimal e.g., £1 for 120 filter tips, 50 papers for £0.90)	£22
£13 contraband pouch, as above [genuine brand smuggled into the UK]	£13
£6 counterfeit pouch, as above [tobacco packaged to look like genuine brand]	£6
Product used – refillable and disposable vaping devices	Cost per week
Pen or pod refillable vape, using 2 10ml bottles liquid per week @ £3 each, coils at £1 per week (plus £15 initial device cost not included)	£7
Disposable vaping device £4 to £7, average £5, using 2 per day	£70
Disposable vaping device @ £5, using 1 per day	£35
Disposable vaping device @ £5, using 1 over 2 days	£20
Disposable non-TPD*-compliant 10ml device @ £12, lasting 3 to 5 days *Tobacco Products Directive	£24 to £30

3.2 Appeal of packaging

3.2.1 Branding and design

There was little evidence of packaging and product names playing a role in vape product purchasing decisions. With regard to refillable vape devices, participants showed little recall of particular brands, and few could name more than one or two. Vape shop employee Nathan said customers tended to remember the brand of the device they used, but not the specific model: *'A lot of them will just point to one: "I've bought that off you before, so it's that one". They'll remember the brand, and then if I show them one they'll be like yes, it's that one'*
When asked about disposable brands they could remember, participants mentioned Elf, Elux and Geek Bar in that order of frequency (Appendix A). A dozen other brands were mentioned, but none more than once. Jada (19) had been using disposables for four or five months, but when we spoke, she had to get her disposable out of her pocket before she could name the brand.

For e-liquids, vape shop employee Aaron said that customers used the appearance of the bottle to remember what they had before: *'They look at the bottle and go, actually that, that bottle looks similar to what I've had before. Not necessarily looking at the brand of the liquid, actually what the bottle looks like, like "the one I had before, it was in a yellow bottle for*

example, I remember that, it was in a yellow bottle and it was this flavour, therefore it must be that one there, yes, it was that one there"'.

Most of the 15 participants who were using refillable devices had tried several generations of products until they found one that suited them. They had little to say about packaging. If anything, they were anxious to distance themselves from elaborate packaging, like Emma (43), who said: *'There's all these silly ones with pretty pictures on them and all these things to make them look cool and stuff. No, it's not what interests me in the slightest.'* Thomas (32) said: *'All those fancy designer-looking bottles and colours, I don't go for any of them. My bottles [local vape shop own brand] are as plain as they can be, I don't care that the bottle looks good'.*

Shops generally had their own brand of e-liquid, which they either manufactured themselves or had made for them by a white-label company[1]. In one shop, Syed pointed out a display of plain white 10ml bottles: *'That's our own brand, they're our baseline, we sell thousands and thousands of it, so in terms of having fancy labels, that doesn't really make a difference. We sell the most of this item compared to everything else in the shop'.* In another shop, Connor (22) said: *'Our own brand is a black [10ml] bottle with a name on the front. Very plain, very simple. It's the most popular thing we sell by far'.* Regarding disposable e-cigarettes, vape shop owner Omar (36) said: *'I wouldn't say the packaging plays much of a role, to be honest. Like, all the disposables, their packaging is very, like plain on the front, it's like no fruit on them or anything, or like candy. It's just a colour, like different colour. So I don't see it as an issue, because there's no like fruit or no like sweets or anything so that it can attract'.*

3.2.2 Product names

There have been concerns that vape product names which reference popular confectionery might be particularly attractive to younger users. However, participants talked about flavours they liked in general terms rather than by specific name, saying for instance that they liked strawberry flavour, rather than 'Strawberry Ice Cream' specifically. Care worker Lisa (36) was one of the few people who showed any interest in flavour names: *'The pink unicorn shake Elux Bar tasted like the foamy bananas you used to get'.* In fact participants talked mainly about fruit flavours, with very few mentioning confectionery flavours at all. Liam (18) said: '*I don't think the names of them specifically [attract people], I think they are just quite simple, they tell it how it is'.*

3.2.3 Novelty aspects of e-cigarette product design

Four participants mentioned disposable vape products with novelty aspects such as glowing in the dark or flashing lights - all women in their thirties. None of the younger participants were using disposables with novelty aspects. Regarding earlier generations of vape products, participants who remembered being drawn to box mods by the novelty and gadget aspects included Joseph (19), who started vaping when he was at school in 2018: *'It was just because everyone else was doing it, it was the big rechargeable ones. But I got it because it had a speaker in, you would press a Bluetooth button on the bottom so it will play songs through your phone. I bought it when I was like 15, turned 16, and I stopped when I was 17'.* Jada (19) remembered that: *'boys would bring them out and try and show them off to everyone. They*

[1] A white-label product is a generic product or service produced by a third party that other companies customise to fit with their branding.

were them big ones that sometimes you have to press two buttons, get it warmed up first before you can take a puff of it'. Shop employee Nathan remembered that: *'Before disposables came, we used to have kids under 18 try and come in and get the big box vapes. Now all they come in for is to try and get disposables, they just follow the trend basically'.*

3.3 Relative risk perception

Risk perception generally differed between age groups. Younger participants took less notice of pack warnings than information on social media dominated by scare stories, particularly about disposable vapes. Older participants who had switched from smoking to vaping were generally confident that vaping was safer, although some experienced negative comments from other people. Andrew (36) said *'I can walk up a hill now, I feel better than when I was smoking'*. Couple Gemma (29) and Rebecca (36) who both worked in catering, had recently ended a heavy smoking habit and moved to disposables said: *'Ever since we've vaped, have you noticed you get up the stairs better now? I feel healthier. I'm asthmatic look, so I find I'm not getting chest infections as much as I used to. We feel a lot healthier for it'.* Dual user Sarah (50) was more ambivalent: *'I feel it's better but… I don't know, it's like, I don't really know. You know they say, du du du, but then some people say well they're just as bad as smoking, du du du'.* Thomas (32) was hoping to stop vaping even though he described himself as: *'100% confident that this is a far better option than smoking! But I guess for me it's that because they are quite new, I don't know what the sort of repercussions will be in 40 years. It's not as healthy as not doing it at all'*. Some participants were undermined by other people: Laura (37) said her sister: *'makes comments like, you don't really know what's in it'.* When she was vaping, Claire (45) would often hear: '*Little bitchy lines, but not supposed to be loud enough you can hear, like, old ladies, they say "That's worse than having a fag, that is! You know what goes in a fag, you don't know what chemicals are going in that, you're touching electrics".'*

Young people were more exposed to online scare stories about vaping and were confused about the relative risk of smoking and vaping, with some believing that vaping was more dangerous. Lauren (27), who had switched from smoking to vaping, said: *'Smoking gives you obviously more risks of like getting cancer and stuff, but there is more warnings with vaping than there is with smoking, because you can get popcorn lung off vaping'.* Lauren was referring to the amount of online material warning against vaping (Box 2); similarly, Danielle (23) said she saw more negative than positive material on social media. Katie (16) said that on TikTok: *'They were saying you cough up blood apparently after smoking disposables. But all my friends, they've never had a problem like that, and I've never had a problem like that. On TikTok, they were saying like, this is a nice flavour, and better than cigarettes, but that there could be side effects. Pros and cons'.* Similarly, Ahmed (16) had seen scare stories about disposables online, but: *'Because it never happened to me to be fair, I don't think it's real.*' He said his friends all dual users of e-cigarettes and combustible cigarettes but smoked less than before: *'Well we think vaping is better than smoking',* he said. Robert (17) a dual user said that: *'In a couple of months I might try and stop vaping, just have the cigarettes. It's still too new as a thing, like, there's no research on it. Yes, there is research that cigarettes can give you cancer, but at least there is stone cold research on them. Vaping could be completely worse, or it could be better*'.

Although he was using disposables to quit smoking, Hassan (18) felt the same: *'It's about the health problem, because I hear a lot of views about using the vape. And I'm a bit scared about*

my health, so I will give myself six months. If I don't quit from cigarettes then I will just keep going on cigarettes and I'm not going to use the vape'. Ibrahim (17) added: '*When I see the advertisers, vaping is 95% better than cigarette smoking, I think it's lies, I think vaping is probably worse than smoking. Because vaping, it's a recent thing, compared to cigarettes that have been around for over 100 years at least, so we know the long-term effects of cigarettes, no one knows the long-term effects of vaping. So obviously a lot of people already know you can get things like popcorn lungs'.*

Box 2: Risk perception case study: popcorn lung

Despite there being no evidence that vaping causes 'popcorn lung' [23], this concern continued to be reported in the press during the study period, [32] and was mentioned by several participants who vape and shop staff. The original condition was found in workers in a popcorn factory which used diacetyl, and as a precaution this ingredient was banned in e-liquids. However, carer Michael (34) was under the impression that such e-liquids definitely caused popcorn lung. He said: *'When [e-cigarettes] were coming out, there was something called popcorn lung, which was caused by certain vape liquids'*. Other participants were convinced that *'you can get popcorn lung off vaping* (care worker Lauren, 27). Street fundraiser Usman (17) said*: 'People already know you can get things like popcorn lungs etc.*' Bank nurse Chantelle (44) asked about the risk, *'because obviously I've looked at the popcorn lung'*. Kitchen worker Samantha (34) saw *'little articles on social media sometimes about how vaping is supposed to be worse. I did hear about something called popcorn lung. I did look online about it, and I couldn't really see much to back it up to be honest'*. Chris (39), who had recently been released from prison, was concerned about *'that thing called popcorn lung'*.

Vape shop employee Nathan (22) thought there was less misinformation than there used to be: *'It isn't as bad as it was, it's been proven a lot more now that it's safer. But like obviously they had the whole thing of popcorn lung'*. Vape shop owner Ashley said: *'We've had smokers come in and say I've been told to stop smoking, and then start going on about things like popcorn lung and the things that happened in America. We explain to them well, popcorn lung was a thing that actually started back when people used to work in the popcorn factories, and that the ingredient that they're referring to isn't actually in the vape liquid, and it hasn't been for many years'*. However, street trader Simon, who had recently relapsed to smoking, said*: 'It's helping people stop smoking, but long-term effects we don't know because it's only 10 years in, [people might] develop popcorn lung after 10, 15 years'*. Vape shop owner Jevaun added*: 'People have died from popcorn lungs'*.

3.3.1 Health warnings: understanding of nicotine vs tobacco harms

Most participants didn't read the warnings on vape product packaging and many were confused as to what they said. Asked if they read the warnings, Rebecca (36) and Gemma (29) said: *'No, not really! I rip the packet and put it in my mouth. It's addictive, contains nicotine I think, but that's common sense. Yeah, that'll be it then. Not that we know what's on the boxes. Nope, I just know the flavour, open it, smoke it. Gone, that's it'*. Adam (23) had noticed the warning: '*Did I know there's a white box there? Yes. Do I know it's a warning? Yes. But I've never really read it'.* Lewis (17) said: *'People don't read the box, they just go 'oh, sick!', and*

then chuck the box away'. Alexander (22) had never read the warnings on either tobacco or vape products: *'I couldn't tell you the ones off the tab boxes, and I've been smoking them since I was 14. No, I don't think I've ever read the front of a tab box, or I've ever read the front of a vape',* he said. Andrew (36) couldn't read, but he had seen the hazardous products pictogram: *'I've seen it on the back of them [e-liquid] bottles before, it's like a skull and crossbones'*. Joseph (20) had noticed warnings on vape products but wasn't sure of the wording*: 'I think it's just the generic one like, smoking will cause, it can cause collapsed lungs or, it's the same'.* Charlotte (17) thought: '*They've got a slight warning on them, I think it says don't try and do it continuously, because it might make you bad. I think it's more menthol, isn't it? So if you have too much menthol it will make you bad. I think'.*

There was also confusion regarding the risk from the nicotine itself, Sophie (16) said: *'A full one of these [disposable e-cigarettes] is like having a box of cigarettes. I don't think it's much safer than smoking; it's still got nicotine in'.* Similarly, Danielle (23) who smoked said: *'I've got a couple of friends that have quit smoking, and now they smoke vapes, but they're still intaking the same amount of nicotine that I use by smoking vapes, so I don't really understand it'.*

3.3.2 Nicotine strength

Understanding nicotine strength

Participants who used refillable devices understood nicotine strength, but participants using disposables thought they had low nicotine content because this was described as 2% rather than 20mg/ml. The highest level of nicotine permitted in the UK is 20mg/ml, and this was the strength used by all disposable users in the study; 10mg/ml and nil nicotine devices are far less widely available. No (illicit) 50mg/ml disposables were seen in fieldwork, and Jake (16) was the only participant who mentioned them: *'I mean in [place name] I know a lot dodgy people, I can get anything I need for the right amount of money, so if I needed like a 50 mg vape I know where to get one',* he said. As vape shop employee Connor (23) said*: 'Disposables are 20mg, that's the other bit that's wild for me, this is the top level of strength in the UK and EU. The way they do that, they jam pack disposables full of sweeteners, there's ice always behind it because that helps the nicotine go down. If I vaped 20mg on a refillable device, it would hurt the hell out of my throat'.* When Katie (16) switched to a refillable vape to save money, she assumed she should choose the same 20mg nicotine strength she used in disposables, but she found the taste of a non-salt nicotine liquid at that strength very harsh, as Connor had warned.

Hassan (18) said he liked his disposable *'because it has low nicotine on it, it's got only 2% nicotine'.* Lewis (17) thought cigarettes relieved stress more than disposables *'because a lot of vapes only have two percent nicotine'*. At the other extreme, occasional vaper Charlotte (17) had read that her disposable was '*probably the equivalent of like two boxes of tabs or something'* and was very cautious: *'I paced myself with it and I still checked up on myself, like I would check my mouth, I would check how I was feeling, make sure my nose wasn't blocked, I would make sure I had no loss of smell'*.

Nicotine rush

There was considerable variation in the extent to which participants experienced a nicotine rush from disposables. Jordan (24) had never smoked, but said that when he switched from his nil nicotine vapes to a disposable at 20mg/ml, he didn't get a nicotine rush, whereas Thomas (32) who used to smoke and who normally used a low-nicotine e-liquid, said the disposable he tried *'was very strong, even I felt a bit nauseated from it, I think that's when we realised it was 20 nic. I only had like one drag of it and yeah, it was way too strong'*. Amy (16) who had a heavy smoking habit never got a *'niccy rush'* from her disposable. George (17), who hardly smoked, said *'You get lightheaded, it's worse than a cigarette, I don't know the exact what's in it, but it's more than a cigarette, I'm pretty sure'.*

Katie (16) who had never smoked, said that when she had her first Elf Bar, it went: *'Straight to my head! It was like, do you know when you stand up too fast, you get really dizzy, it's like that. I took a really long drag and I just felt, like I, I don't know, stood up like a dead head, didn't know what to do!'.* Postgraduate student Zainab (27) said*: 'I started vaping this year, and whenever I don't vape I get like banging headaches, like these minor withdrawals - you wouldn't think it's only 2%!'*

Adam (23) who formerly smoked, felt the nicotine worked faster in the disposables than in cigarettes: *'Say I'm standing having my cup of coffee in the morning, and I have my first draw of the Elf Bar, you do feel it like you've just finished smoking a cigarette. So it's not like you've just had a draw of a cigarette, it's like a whole one, and then you're like, whoah! So yeah, it's more like an instant effect, yeah, definitely'.*

3.4 Other influences on purchasing

In exploring the appeal of packaging and its impact on decisions to try e-cigarettes, other factors that impacted purchasing behaviour and were perceived as more influential became evident.

3.4.1 Flavours

Finding flavours they liked was very important for participants using refillable devices; some found a favourite and stuck with it, whilst others liked to try new flavours all the time. Bank nurse Chantelle said: *'I see it as a little treat, with all the different array, coming in here and picking out what flavours I might fancy, because I've got a sweet tooth'.* Vape shop owners agreed that customers buying e-liquids were mainly interested in the flavour: Jevaun (32) said*: 'Customers just say I like this type of flavour or this type of flavour, sort me out'.* Nathan (22) found that: *'Most people don't really go for the same flavour twice. A lot of them tend to want to try something different. And then I just recommend them something that I know it's quite nice, and they usually go for that'.* Other study participants such as Emma (43) found a favourite and stuck to it: *'I have my brand of liquid that I find in a couple of vape shops, they have good offers on the bulk packs. The brand I started with, they changed their recipe and I didn't like it. The shop said try a bottle of this one, and yeah, it was fine'.*

Participants using disposable devices liked the range of flavours and the greater flavour intensity compared to bottled e-liquid: Katie (16) switched from a grape disposable to grape e-liquid, but she found that: *'It don't taste the same. It's bland, the actual juice'*. Couple Rebecca (36) and Gemma (29), who had recently ended a heavy smoking habit and were now

using disposables said: *'You've got so many flavours, it's like walking into a sweet, a candy shop. Trying to see what colour looks nice, what flavour they are, it is. We've tried about 20 to 30 different flavours, because they've got new Slush Puppie ones out, they've got shisha ones out now. They got Jolly Ranchers, as soon as you inhale it'll flash rainbow colours, Jolly Ranchers'*.

Care worker Lisa (36), who smoked heavily, also switched to disposables, and believed the intense flavours were key: *'Although I smoked for all those years, I hate the nicotine-flavoured ones, I like more, like having a sweetie, like you want that kind of sweet taste. And that's what's taken me off the fags as well, because they taste a lot better. The pink unicorn shake Elux Bar – do you know how when you were kids you got the pink shrimp sweeties? That's what they tasted like. And then I like the banana one as well. The banana Geek Bar tasted like the foamy bananas you used to get.'* Jada (19) also liked trying different flavours: *'So I've had grape flavour, I've had watermelon flavour, strawberry, I think pineapple, kiwi. It's the watermelon one I like best'*, she said. Jake (16) had switched brands to get better flavours: *'I saw strawberry watermelon, and they were the only ones that had strawberry watermelon. This one's Tiger Blood, so it's an energy drink one, like Red Bull'*, he said.

Vape shop owners agreed that customers buying e-liquids were mainly interested in the flavour. The popular flavours of e-cigarettes changed regularly as people using both refillable and disposable vaping devices liked to try the latest flavours. Adam (23) remembered how at first, there was a craze for finding rare flavours: *'because they were sold out; everyone was wanting them sort of thing. It was quite hard to get them to start with, and once you got them, a lot of people thought it was like a trophy, well I've got this one, got that one, oh naebody can get this flavour'*. Vape shop employee Connor (22) said that: '*Every single time something new comes in, it's massively popular for at least a month because it's new. Like with Elf Bar, we've got the new Strawberry Raspberry Cherry, it's our best seller, it's the newest one*'. Shop owner Omar explained that the popularity of certain flavours in disposable e-cigarettes was also translating into demand for e-liquids for refillable devices in the same flavour: *'Everybody's after blue raspberry[2] lemonade, it's the new flavour, so everybody wants it in, like, normal juices. Elf Bar liquid is coming in six weeks time, see. The company which is importing, they're already taking pre-orders. I've booked it as well, because I know it's going to be popular'.*

3.4.2 Relative cost

Cost was a key consideration for most of those interviewed. Users of refillable devices rejected disposable vapes as too expensive: bank nurse Chantelle (44), who used a pod device, liked the fact that vaping was cheaper than smoking. Michael (34), a full-time carer for his disabled wife and young family, bought vapes from a local street trader*: 'He showed us how to use it. And then when that one broke, there was new ones out so I asked which one was good. The first one was just a basic cheap one, about a fiver. The next one was more built-in; you had to change the coil on it and everything. It was good, it helped us quit cigarettes'.*

[2] Blue Raspberry is a synthetic flavour used in sweets and soft drinks since 1958 [31].

Most participants using disposables were concerned about the high ongoing cost, and many were planning to switch to refillable devices for this reason. Ahmed (17) had originally quit smoking with a refillable device and was planning to stop using disposables when he could afford to get another: *'Buying the chargeable one, like, the big one, it's way cheaper, but at the same time it's expensive to buy at the start. Mine is broken, that's why I'm back on the disposables, I would rather buy one if I had the money'.* Claire (45), who was living in a bed & breakfast hostel, had recently switched from disposables to a refillable vape to save money: *'Because then you can get the flavours [bottles of liquid] in the local pound shop'*. Only two participants, Jada (19) and Sade (17), who were both in work, described disposables as being cheap at £5 each.

Adam (23) was spending £40 a week on disposables: *'It was like nah, this isnae right. I did buy myself like a kit, and again it was just, fell back to it, started leaking and the battery was dying too quick'.* He had gone back to disposables but cut down to two or three a week. Apart from the unreliability of some refillable vapes, participants also missed the intense flavours of the disposables. Michael (34) discovered online that one popular 2ml disposable brand also made a rechargeable version with replaceable cartridges of the same intense liquid they used in the disposables: *'The disposable ones are good, but you've just got to chuck them away and buy another one for £5 a pop'*

Participants concerned about the cost of disposables also switched to longer-lasting versions of disposable devices with a larger e-liquid capacity. 14 out of the 31 disposable users in the study bought disposables with a capacity of 10ml or more, mostly the Elux Legend. These are not legal in the UK or EU but are sold elsewhere and are widely imported. Some shops sold and advertised these openly, as did many online businesses; others sold them covertly. Couple Rebecca (36) and Gemma (29) said: '*For six quid twice a day each for (2ml) disposables, that's £24 a day, it was costing us less to smoke so we bought the electronic ones with the coils and with the oils. We lasted two months on them, but we felt the disposables were the only ones doing it for us. One, the button was annoying us, you want to have a couple of puffs and you've got to click click click. And it just wasn't giving us the satisfaction a normal cigarette was doing. And then a shop was selling illegal ones, we bought them and that's it, we stuck. He said look what I've got in, and he got them from under the counter. The cost is still crippling us, we used to spend 150 a month on tobacco, it's costing 300 quid a month for vapes'.* Katie (16) also tried to switch to refillable vapes: *'I was thinking if I get on the actual vape it will be better, because it's not as much*'. She bought a device and some 20mg liquid but it was too harsh, so she bought a 10ml disposable device because it would last longer than the 2mls: *'My friends, they're all on the bigger ones. They order them online, because you can't find these ones in [town name]'.*

Some participants switched between 2ml and illicit 10ml disposables depending on what was available: Sophie (16) mostly bought Elf Bars from her local corner shop, '*but if I want a big one, that's got the 3000 goes on, you have to go to [town name] because that's where sells them'*. Like Rebecca and Gemma, Victoria (35) tried and failed to switch to a refillable device: *'My friend went in and jargoned all the vape terms and got me this vape, but it's really inconvenient, when I came to refilling it, and then you had to get coils and things like that, again hassle'*. Instead she was using a 14ml disposable: *'It's got more puffs in it, so you plug it*

in and you can recharge it, because obviously 7000 puffs, you're not going to have a normal battery just like an Elf Bar'.

Vape shop staff encouraged disposable users to switch to refillable devices (typically pods) to save money, and some felt the balance was shifting in this direction. Shop owner Jonathan said: *'People who've been on the disposables have started coming in and going, it's costing too much, I want a device, I'm seeing that trend starting to take off. Basically disposables are really good for if they want to give their hand a try of not smoking, and not having to shell out'*. Shop owner Jevaun (32) also saw disposables as a good entry device: '*Nobody wants to learn a whole new science about how to stop smoking. So people start to use them, and then they come back and say do you know what, I loved it but it finished in two days'.* However, vape shops were also concerned about losing business to illicit 10ml disposable sellers, with people looking for better value for money with the larger capacity disposable, and some sellers favoured an increase in device tank legal limits to bring this category into the regulated market. Alex argued that the maximum tank size should be increased for refillable devices but not disposables*: 'Having the limit at 2ml on a disposable is fine, because for the casual smoker, and for trying vaping, that's all they need. But for the long-term vape smoker who's looking to quit – get yourself a device, have the benefit of the bigger tank'.* Omar, whose two shops were in deprived areas, thought the 2ml limit should be lifted for all vape products: *'People are selling Elux Bars on Snapchat, people are selling on Facebook, so everybody is using them. I don't know the reasoning why they got 2ml limit. The government could kill the whole undercover market by just making it legal. And it would probably generate more revenue and help people quitting smoking, to be honest'.* Vape shop owner Oliver blamed non-specialist retail for selling the 10ml devices and favoured a licencing system: *'If you've got like, a mobile phone shop that's trying to sell vape devices, refuse the licence, because they're not gonna be as knowledgeable as a vape shop'*, he suggested.

4.4.3. Ease of use

Participants using refillable devices looked for a reliable and effective device. Chantelle (44) started with a cigalike: *'I got that from a friend of mine. It wasn't very good. It broke after a couple of weeks, and then eventually I got your, like, bog standard pen one, you just fill it up, and then I've got one of those glass ones, but again because they were glass, if you dropped them they'd break, so they weren't very easy to manage… I used to buy disposables but I've cut down, so now I just have the nic salts and this [pod]'.* Whilst Chantelle had kept trying different generations of vape products, care worker Lisa (36) was put off vaping altogether by the cigalike: *'It was when they first came out, it was metal, the tip of it was green, you inhaled it. I was maybe about 20; it was more the image that I was worried about, what people would think seeing me with this metal cigarette! So I used it for maybe a couple of, like, puffs here and there, throughout one day, then it never got used again…'* Industrial chemist Thomas (32) was one of many participants who started with a basic device from a supermarket or convenience store and then upgraded in a vape shop: *'It was much easier to smoke, if that makes sense, the draw was more of a breath than a suck!'.*

Participants who used disposables were attracted by their small size and ease of use, with no charging, filling or switching on and off to worry about. Landscape gardener Adam (23) had tried refillable devices in the past but had recently quit smoking using disposables: *'It tastes*

better than a cigarette. There's no smoke, ken, smoke gets everywhere, you can smell it from miles away. And it's just really the ease of use, ken, it's not even button-activated'. He also liked *'the colour and the way they feel in your hand - the soft touch'*. Asked if he might go back to smoking, he said: *'If something's happened and I'm freaking out, maybe somebody's smoking I will have a draw, but I never ever have the thoughts of I'm going to go and buy a packet of cigarettes, because the Elf Bars satisfy me personally in a way that I don't need to ever look back at cigarettes'.* After Andrew (36) came out of prison, he bought disposables. He was also given a refillable device by a friend, but he said: *'Nah, it all seems too complicated to me, I'm happy with the disposable ones, it's just easier. I've got paranoia of electrics, I don't like putting plugs in things like that. I don't do all that, having to charge things up'*. Andrew couldn't read so he guessed the flavour from the colour of the disposable.

Jordan (24) had switched from refillable to disposable vapes because: '*The batteries of my former vapes weren't charging no more, and I just went round to the shop one day and saw them, I thought I'll give it a try. [The shopkeeper] recommended this, he says the flavours are better and it lasts longer, because the Elf Bars are only like 500 puffs and this is 3500'.* Hannah (17) said: *'[Disposables are] very, like, small, whereas the other vapes are quite heavy and will weigh you down a bit.'* Katie (16) added: *'With Elf Bars, I like to hold them, they're little. I prefer holding them, instead of them, like, the actual vapes'.* Michael (34) said his disabled wife didn't like the bigger vape he had, she wanted *'something lighter and littler and everything. She's got grip issues, so the Elf Bar is ideal because it's light'.*

Nathan (22) said that in choosing a vaping device, his customers *'just want it to work and they want it to be durable. Yeah, nine times out of ten it's, I want to spend this much, what have you got in this range? They're not bothered by shape, colour, size, the packaging. It's like, I want something small that works.',* Jevaun (32) added*: 'If it's just about smoking [cessation] and the person doesn't really want to explore the world of vaping, which most people don't, we just go for smaller devices, I say to the customer, here is a line of starter devices, they're all gonna do exactly the same thing for you. We noticed that people prefer darker devices, neutral devices, and also smaller devices'.* Street trader Simon pointed out that: *'[Devices]'re getting more smaller, more intricate, less buttons, less hassles. People want peace of mind; people want something that's dead simple. They didn't want to have to mess on about it, so they want to be able to pick it up, put it to their mouth and away they go, like they do a cigarette. So things have moved towards that sort of genre now, pod systems and things like that'. Omar said that people like disposables*: *'Because it's easy. It's like a cigarette, you just take it out of packet and just light it and go. Rather than the old devices, you've got to fill with juice, you've got to change the coil, turn it on, wattage up, down and everything'.* Street trader Simon added: *'It's just the fact that it's clean, it's easy, there's nae messing, you just take the covers off and away you go. It's like taking a cigarette out of the box and lighting it'.*

4.4.4. Social influences

To decide what to buy, participants often took advice from family and friends as well as specialist shop staff.

Advice from friends, family and shop staff

Older users discovered e-cigarettes through work colleagues, friends and family. Asked how he first chose a vape, retail worker James (38) said: *'It was just the guy I worked with, he was*

oh, get one of these ones, so I just got one of them.' His next vape was *'Just like a pen, you put liquid in it. Just because that was the only one they had at the supermarket that I was in'*. He was trying a different device now: *'I bought one of these wee disposable ones. I had seen people on nights out with them, so I just thought I'd try.'*

After prisons went smoke-free in 2016, people who received a custodial sentence and smoked had no choice about what device to use, as catering worker William (36) explained: *'Well I was a heavy smoker before I went to prison, and we were issued the vape pens with the little oils, and that's how I ended up starting on the vapes that is'.* William stopped smoking with closed cartridge vapes in prison, and switched to disposables when he came out: *'I had a puff off my mate I did, off one of them ones, that's how come I ended up buying it, because my mate said try this. I enjoyed the flavour, I've been on them ever since'.*

Some users were introduced to disposable vapes from their own teenage children. Rebecca and Gemma said: *'As bad as it sounds, our 15-year-old daughter introduced us to the vape. We found out like a month prior to us starting that she was vaping. I started off with[Elux Bars and the [Elf Bar, my daughter had to train me.'* Similarly, Lisa was introduced to disposable vapes by her daughter aged 17*: 'She was vaping, and she had the Geek Bar. And before, I had tried a couple of puffs of different vapes here and there and I was like, nah, it's not for me. And then it was a Geek Bar that she had and I think it was a mango flavour. I actually liked the flavour, so from then I just continued using the disposable. At the start I had the odd fag, and then I just decided once the fags were gone that's it, and I just stuck to the vapes and I felt a lot better within three days. And then I thought do you know what, I want to try something else, because it was still quite costly getting the disposables, and I got the bigger mod.'*

Support worker Laura (37) worked opposite a vape shop, so when she decided to quit smoking: *'I went in and asked their advice on what to buy, because it was the first one that I was getting'.* Care worker Lauren (27) received advice to switch to a more powerful device: *'I didn't know what I wanted exactly, I just knew I wanted a bigger one to get a better hit, to then cut off the tabs completely. [The vape shop employee] suggested the box mod, which is the big chunky one. Smoking that, I didn't really need to smoke a tab. The nicotine in the big one, you get more of a rush, where obviously the little ones you don't'.*

Some shops decided to stock nil nicotine disposables because they were concerned that some customers either didn't smoke or hardly smoked. Shop manager Ashley (37) said: *'We got the nil nic disposables in because we had people who were buying Elf Bars to go up the town because they didnae want to feel like gooseberries when all their mates went out for a puff or a vape… Now what we say to somebody, if you're not smoking or vaping or doing any of that, dunnae start it. But if you must, don't get addicted to nicotine'.* Connor (23) added: '*The amount of people that are more than happy to go to zero, going from 20, because they know there's not much difference because they can't taste the nicotine, for a lot of people this is an action, this is a physical thing to inhale, more than a nicotine hit'.*

Following a trend

Younger participants tried disposable vapes partly to follow a trend amongst their friends, who were using them 'in real life' (IRL) and on social media. Street fundraiser Chloe (22) first saw disposables: *'Not Instagram or TikTok, it was mostly real life, face-to-face kind of thing. I*

wanted to get off of cigarettes, and also it's like, you know when you see something happening, like everyone's got one. It's like people with iPhones, you've got a Samsung, and it's like, you see your other friend now has joined into having an iPhone, now I want to join them. My friend gave me some and I was like oh OK, it's actually alright, the flavour was nice, because obviously you get different flavours, some flavours are nicer than others'. Sophie (16) was an enthusiastic user: *'I've tried one of the box ones that you charge up and stuff, and then I've seen these on TikTok, everyone was buying them, and then I just got one, and then I started buying them more often, and now I buy them all the time*'. On TikTok, she'd seen them *'like, just all over, about Elf Bars and disposable vapes. People like, had them. I was like, oh my god, like, get one and stuff. So I got one. I've spent loads of money on it, I collect them, I keep them when they [are finished]. I just like the flavour, they're just so nice'.*

None of the participants under 25 were still using refillable vape devices, but those aged 19 to 24 recalled the trend for vape pens and later box mods when they were at school. Office worker Jada (19) remembered the vape pens from 2014/15: *'Ooh, that was quite a trend when I was in high school, the vape pens. They wasn't as cool looking as they are now, they was just a little pen that you refilled with a liquid. And everyone used to bring them into school, they were the new trend, and people used to sell them. People used to ask people to go in the shop for them and get them. I bought mine off a boy, he used to buy them from [shop name] because they were the cheapest place you could get them, about a fiver, then the liquid would be £3. You could get any flavour possible really. I had bubble gum and mint, I think. Everyone used to bring them in and we'd go in the toilets and be like oh, try that. So it's like, you should get one, because that's like the trend at that time. I think I just had that one and then I never bought another one after that. I think those box ones started to come in then, bigger ones.'*

Youth worker Alexander (22) recalled: *'The little tiny plastic pens, aye, there was always the lad in school supplying them, you could get them on the market and order them online. So that would be Year 10-ish, 2013, 2014'*. When Adam (23) was 15, *'It was a case of if you couldn't find anybody with cigarettes at school, then there would be somebody with a vape pen sort of thing. So ken, there would be like four or five of them in a group passing it round'.*

Social media

Some participants first saw disposable vapes on social media, but this was just as likely to be on their friends' stories as on commercial or influencer accounts. Participants like George (17) often had a puff on a friend's disposable before buying their own: *'I'd seen people using disposables on TikTok and that. Someone let me borrow it, and I enjoyed it, so I went to the shop and then had a look at the flavours'.* Sade (17) thought that: *'People don't really post TikToks of them vaping, but if you have friends on Snapchat or Instagram, you see them in their stories vaping, so that's why I think a bit influenced as well'.* Admin worker Jada (19) saw: *'People advertising it, and especially on TikTok, they were quite popular, everyone had one… shops that were actually selling them, advertising them on TikTok, like oh this is what we've got, and what flavours have come in*'. However, Robert (17) thought disposables featured mostly in user-generated content: *'TikTok, to be fair, bans your videos if they see you vaping or smoking in the video, I've noticed. It's more Instagram, because they don't have any sort of censor except for swear words. And most of the vaping companies will have an age*

restriction for you to follow them. I tried to follow a vape account, didn't let me, so if you're not 18 or above you can't follow us. I'm just like, oh, that kind of works. Then it wouldn't be on your feed. But then you still see people posting it themselves, when they have their own vape. Who might be 15 or whatever'. Youth worker Danielle (23) saw disposables on TikTok, *'on the Explore page more than anything; when they started getting big they were on all the social media platforms really. My friends don't post videos and pictures of them smoking vapes'.*

4.4.5. Visibility and accessibility

Visibility

Participants often commented on the visibility and easy availability of disposable devices as prompts to buy. Disposable devices were sold in a wider variety of shops than refillable devices, including specialist vape shops, convenience stores but also other shops which had diversified by selling vapes and/or disposables, typically mobile phone repair shops. Vape shop owner Oliver blamed non-specialist retail for selling the illicit 10ml disposable devices and favoured a licencing system: *'If you've got like, a mobile phone shop that's trying to sell vape devices, refuse the licence, because they're not gonna be as knowledgeable as a vape shop'*, he suggested. Office worker Jada (19) started using disposables in the autumn of 2021: *'Yeah, so my corner shop sells them, so I went in there one day and I seen a big range of them so I thought I'll try one; some of my friends had one as well, so'*. Jake (16) liked the fact that he could buy his cigarettes and his disposable vapes in the same shop: *'It's just easier than, like, having to worry about going to [name] shop for a coil. Because when I go for me tabs [cigarettes] it just means I can go for me vape as well'.* Jake had not tried his luck in specialist vape shops or supermarkets, *'because I just prefer disposables so it's not worth the hassle. Never been ID'ed. I get served in practically every shop I've ever been in in [town name] since I was 16'.* None of the participants mentioned buying disposables in supermarkets and few people bought them online; internet purchases were mentioned by two people in connection with sourcing non-TPD compliant 10ml disposables.

As regards product appeal, participants described the draw as not so much individual product colour, but rather the accumulation of different colours in window or counter displays of multiple disposables; refillable devices and liquids were not given the same prominence. As Hannah (17) said: *'I feel like if it's more colourful it will catch your eye in the shops. They tend to be, in my corner shop, they're right where you pay for stuff, so as soon as you're paying for something you'll spot it in the corner of your eye. It's there at the till so you feel like you have to buy them'*. Liam (18) added: *'It's like sweets on a shelf, the colours'.* Jordan (24) added that in convenience stores: *'You walk in and it just catches your eye instantly. They should dial it down a little. Because, like, you can walk in and they've just got rows of them, and you're, like, always looking'.* Sade (17) hoped to quit smoking, but she wasn't sure she could quit vaping because disposables *'are just so easy to get, so accessible, just everyone around you, all young teenagers these days, like 90% of them I would say have a vape. The £5 ones, and they're all around you. Sometimes you just want to join in because you see someone is doing it, it reminds you of it, then you get back into it'.* As Danielle (23), who had been smoking since the age of 17, said*: 'I've always seen vapes, but I never started using vapes, and my friends never started using vapes, until the disposables ones come out last year'.* Disposables were being

used by a younger generation of people who smoked and had not tried previous iterations of e-cigarettes. 12 out of 31 users of disposables had never tried another vaping device, including 8 out of 13 of the users aged 16 to 18.

Age of sale

All the participants who had smoked or vaped before the age of 18 knew shops where they could buy vapes or tobacco without proof of age being required. Of the 35 participants with whom this was discussed, 24 (68%) also bought cheap illicit tobacco. Amy (16) bought her vapes on her way to college every day. Jada (19), who smoked and vaped, said: *'There's a few shops near my area that have served me since I was about ooh, 15, yeah. The odd time I have been age checked but other than that the majority of the time they never ask me for ID'.* Alexander (22) added*: 'If I was buying tabs I had nae issue. I knew what shops I could go to. We used to have [shop name] was awful for it, I could always get served anything I wanted in there from about the age of 14. Yes, absolutely. Like [supermarket] I would struggle in, [convenience chain] I would struggle in, but it was never impossible, like I just had to go in with a bit more confidence and I'd be sweet. It's not that they didn't care, it's just that I was 18 stone, six foot and wasn't covered in spots at 14'.*

Participants under the age of 18 were also able to access e-cigarettes through proxy buying by parents or older friends, including parents wanting their children to quit smoking. Lisa (36), who was shown by her daughter how to use disposables, explained that: '*As a parent, I would prefer my kids to be on a vape to smoking fags, you've not got all the extra chemicals and everything else that you get from a fag. You've got the nicotine, yeah, but you can also get the non-nicotine [vapes] as well which I think is really good'.* Now 18, her daughter was still vaping but no longer smoked: *'She started smoking at a young age, we started smoking at a young age, so we just kind of left her to it. But she got really bad asthma, just out of the blue, so she switched to vapes'.* Ahmed (16) started smoking aged 11 and switched aged 15 to a refillable vape and liquids: *'I think it was from Amazon, because I don't get served, but my dad buys them for me. My dad ordered them because he was helping me to quit smoking'.* He was now using disposables: *'I give my dad the money*', he said.

Shop owner Omar was one of several who experienced parental proxy buying as an ethical dilemma: *'Sometimes the children were smoking already, and their parents want them to move away from smoking to vaping. Like, you know, I'm gonna follow the law, so if I think this person is buying it for their children… but if his son has got a problem of like smoking, he's obviously trying his best. It's a difficult situation. And there are a lot of children who have picked up the habit of smoking, like 12, 13, and there should be like a department or something which deals with these kind of situations'.*

Some participants under the age of 18 asked older friends to buy their vapes. George (17) acquired his first vape aged 15: *'One of my older mates went in the shop for me and bought me one when I gave him the money'.* Joseph (20) was often asked by a friend aged 16 to buy for him: *'He's like, can you go shop for us and get us a Geek Bar. I've been nah, I don't like doing it. I try my best to say no'.* Shop owner Omar said that children tried to come into the shop themselves, or asked someone else to make the purchase for them: *'We do get children trying to buy it, it normally happens when school finishes, you will see some kids try to come*

in. Sometimes they ask some junkie or somebody to come in and buy it as well like'. Katie (16) bought Elf Bars from a local corner shop and had never had her ID checked. She went to a vape shop with her mother to buy a new disposable vape as a reward for doing well in her GCSEs*: 'You can't legally buy them at the age of 16, but if they're for you, they can serve someone else for you',* she said. Katie's parents smoked; they had tried to switch to vaping but hadn't managed it yet. They were happy that Katie was vaping rather than smoking.

Hassan (18) started smoking when he was 11 and vaped from the age of 16, but was never age-checked: *'Never, because I have a beard and I have long hair, so I look like I'm 23!'*, he said. Adam (23) described how he and his friends bought vapes when they were 16: *'Yeah, we went in with our school ties and stuff like that and they were still happy enough to sell us. We used to just pull our jumpers up over our collars, and that was it. So they could see it, it would just be, oh we've just finished college, and they wouldnae question it at all'.*

4 Discussion

Packaging plays little role in e-cigarette purchasing decisions

Participants said that packaging and product names played little or no role in their purchasing decisions, and this was confirmed by vape shop staff and by most participants' observed product choices and limited brand recall. Older participants using refillable vape devices had taken advice from family, friends and shop staff on what to buy, or bought whichever products were readily available. Disposable users mentioned the visibility of disposables, their widespread use amongst their friends, and colourful product displays in shops as prompting them to buy. Of the 31 disposable vape users, four mentioned or used products with novelty aspects such as cartoon designs, glow in the dark features or flashing lights; all four were women in their thirties with a long smoking history. There was no evidence that product names played any role in purchasing decisions, or that younger participants were attracted to confectionery product names.

The main criteria when buying vaping products were flavour and ease of use, with disposables scoring more highly on both counts

Finding flavours that they liked was very important for participants using refillable devices, and participants using disposable devices liked the wide range of flavours available and intensity of the flavour. Participants using refillable devices looked for a reliable and effective device. Those participants who used disposable devices were attracted by their small size and ease of use: disposables require no charging, filling or switching of the devices on and off.

Participants were unsure of the relative risks of smoking and vaping

Most participants did not read the warnings on vape product packaging and many were confused as to what they said: they were more likely to mention information they saw on social media, particularly scare stories about disposable vapes. Young people were unsure about the relative risk of smoking and vaping, with some believing that vaping was more dangerous than smoking. Older users of e-cigarettes who had switched from smoking some time ago were more convinced that vaping was less dangerous than smoking.

Participants using disposables were confused about their nicotine strength

Participants who used refillable devices understood nicotine strength, but participants using disposables thought they had low nicotine content because this was described on the packaging and the device itself as 2% rather than 20mg per millilitre. The highest level of nicotine permitted in the UK is 20mg/ml, and this was the strength used by all disposable users in the study. Many of the younger participants mentioned experiencing a significant nicotine 'rush' consistent with the high nicotine in these products. Some shops reported difficulties in obtaining supplies of 10mg/ml and nil nicotine disposables, whilst others stocked and promoted them to customers who appeared to smoke or vape only occasionally.

Younger participants tried disposable vaping devices largely to follow a trend

Younger participants discovered disposables through their friends and on social media, which was just as likely to be user-generated content on friends' private stories as commercial advertising, sponsored or influencer content. Participants' accounts suggested that user-generated social media content was at least as likely to be negative as positive about vaping and health, fuelling considerable uncertainty and confusion about relative smoking and vaping risk.

Participants aged 19 to 24 recalled earlier, short-lived school crazes first for pen vapes, then box mods. Packaging and product names played little role in these short-lived trends, except amongst young men who recalled their own interest in the 'cool' designs of the 'shortfill' liquids they bought for their box mods.

Disposable e-cigarettes were accessible to participants under 18

E-cigarettes were available to under 18s through adults buying them devices (proxy buying) or by using shops where tobacco and vape products could be bought without proof of age. Some younger participants either asked older friends to buy vapes for them before they were 18, or their parents bought them to help them stop smoking, posing an ethical dilemma for vape shop staff who appreciated what parents were trying to do but were legally prevented from selling to them. Disposable e-cigarettes were widely available in high street shops, including convenience stores, specialist vape shops, discount shops, mobile phone repair shops and a wide range of other unrelated shops. Many participants also mentioned being able to buy illicit tobacco, and one person said he had access to disposable vapes exceeding maximum legal tank size.

Cost was a key consideration for switching from disposable devices

Cost was a key consideration for users of refillable devices, who categorised disposables as too expensive for everyday use. Most disposable users were concerned about the cost of consuming one or two £5 disposables a day, which was considerably more than they were used to spending on tobacco if they smoked, or on e-liquids if they used refillable vaping devices. Apart from relapsing to smoking, participants had two strategies to address cost: the first was to switch from disposables to refillable devices, often for the first time; the second was to switch to longer-lasting disposables with a bigger e-liquid capacity. Although illegal in the UK and EU, these larger volume disposable e-cigarettes are widely imported. Some shops sold and advertised these openly, as did many online businesses; others sold them covertly. Specialist vape shops encouraged customers to switch from disposables to refillable devices to save money; they were also concerned that they were losing business to illicit sellers of larger-capacity disposables, and some favoured an increase in device tank limit size.

5 Study strengths and limitations

5.1 Strengths

- This study involved interviews with mainly people using e-cigarettes from families and communities in routine and manual occupations who have high smoking prevalence. Many participants had other characteristics associated with continued smoking including unemployment, experiencing homelessness or mental health issues.
- The one-to-one interview format and emphasis in the topic guide on participants' own smoking and vaping histories and experiences of e-cigarette packaging ensured that the study focused on participants' individual practices rather than generalities or statements of opinion.
- Interviews were held in five locations in Great Britain and contextual data included repeated visits to all five locations, as well as visits to and discussions with local community groups and vape shops in the same areas, plus interviews with staff in ten vape shops.
- All but one of the vape shop staff interviews involved micro-businesses in deprived areas, thus ensuring that corporate, 'official' responses were avoided in favour of more natural conversation and sharing of insights.

5.2 Limitations

- Since the study took place in the UK, where the positive role of e-cigarettes in helping people to quit smoking is broadly accepted, the evidence base is not covered in detail. More detail can be found in the OHID evidence review cited in the text as McNeill et al. 2022.
- The study does not directly address concerns about vaping and the possible role of packaging in purchasing decisions amongst higher SES individuals and populations with low smoking prevalence.
- The study does not directly address concerns about vaping and the possible role of packaging in purchasing decisions amongst people who have never smoked; only two participants in the study vaped but had never smoked.
- The study involved participants aged 16 and older and therefore does not address vaping in younger age groups, although many participants had vaped and/or smoked from an early age and therefore some of their points may be relevant to the experience of younger age groups.
- Both smoking and vaping are the subject of considerable moral judgement, and participants may have concealed particular aspects of their practices, such as continued smoking, in order to make a good impression on the interviewer.
- Participants denied being influenced by vape product packaging and product names but this could have resulted from the 'third-person effect', whereby people think other people are more influenced by media messages than they are themselves. However, consideration of the actual products used by participants and interviews.

- Although ten people from an ethnic minority background took part in the study, their individual circumstances and ethnic origins were very different, which meant that ethnicity could not usefully be used as a point of comparison. This meant there was no opportunity to build hypotheses regarding, for example, different perceptions of relative smoking and vaping risk in different communities.

6 Further research

The study focused on interviewing people from disadvantaged areas with high smoking incidence, where the potential for a switch to vaping to have an impact on smoking-related health inequalities is greatest. Since most of the participants were currently or formerly using combustible cigarettes, the high visibility and availability of vape products (particularly disposable e-cigarettes) was not a significant issue given high smoking rates and the consequent need to promote smoking cessation or switching to vaping as a public health priority.

Further research is required on vaping practices among different age groups and product availability and visibility across the UK population, including a comparative focus of any differences and similarities across SES groups. Further research should also focus on the longer-term use of e-cigarettes by young people to track if vaping is a short-term consumption practice or a habit that endures over time.

Regarding relative risk perception, the study found that young people were frequently exposed to online material (including on social media) which wrongly stated that vaping is more dangerous than smoking. Some young people also expressed suspicion of public health messaging. Further research should explore the prevalence of such 'vaping hesitancy' and the extent to which it might correlate with other instances, particularly in communities where trust in official public health advice is low.

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Appendices

Appendix A: Examples of disposable e-cigarette packaging and flavour range

New flavours often appear so these lists may not be complete.

Elf Bar flavours and product colours

Fruit

Apple Peach (pale green), Banana Ice (yellow), Berry Peach (electric pink), Blueberry (blue), Blueberry Cranberry Cherry, Blueberry Sour Raspberry (dark blue), Blueberry Raspberry, Blue Razz Ice, Kiwi Passion Fruit Guava (green), Watermelon (dark pink), Watermelon Bubble Gum, Watermelon Ice, Mango Peach (pastel red), Blueberry Jam, Grape (purple), Pineapple Coconut, Pineapple Peach (saturated green) Strawberry Ice (red), Watermelon Lemon (electric yellow), Strawberry Kiwi (pale pink), Sour Apple (dark green), Peach Ice (pastel yellow).

Sweet

Cotton Candy Ice (white), Mango Milk Ice (pale gold), Strawberry Ice Cream (pastel pink), Blueberry Cheesecake (electric blue)

Soft drinks

Blue Razz Lemonade (bright blue), Pink Lemonade (bright pink), Red Bull Energy Ice (bronze), Cola (brown), Grape Energy (muted apricot), Strawberry Energy (coral).

Geek Bar flavours

Banana Ice, Blackcurrant Menthol, Blueberry Bubble Gum, Blueberry Ice, Blueberry Sour Raspberry, Geek Berg, Grape, Green Mango, Lemon Tart, Lychee Ice, Mango Ice, Passion Fruit Peach, Ice Pink Lemonade, Sour Apple, Strawberry Ice Cream, Sweet Strawberry, Tobacco, Watermelon Ice.

Elux Pro flavours

Elux Legend is a 10ml non-TPD compliant disposable vape used by 14 of the 31 disposable users in the study (note: Elux also make the Elux Bar 600 which has a 2ml capacity and is therefore TPD-compliant).

Banana Pudding, Blueberry Raspberry, Clear, Cotton Candy, Fresh Mint, Fuji Melon, Peach Blueberry Candy, Rye Bread, Unicorn Shake, White Peach Razz, Tiger Blood, Peach Mango, Watermelon ice, Blueberry Pomegranate.

Appendix B: Interview topic guide

Users

1. Smoking and vaping history and current status
2. Parents' and wider family smoking and vaping history and current status
3. Current employment or education and living circumstances (e.g., living or working with smokers or vapers)
4. Where/when did you first see a vape/e-cig, what type was it, name, description
5. When did you/family first try one, what kind, how chosen, packaging (if applicable)
6. Different ones used by self, friends and family over time (e.g., pen, box mod, disposable)
7. Awareness of any vape brands, any seen-on adverts (on TV, on buses etc.)
8. Awareness of local suppliers, specialist shops, type of vapes seen there
9. Ever been in specialist vape shop, if so, describe experience/choice of product made
10. Ever purchased vape products online, if so what, where, why
11. Any knowledge or experience of the new disposables (Elf Bar, Geek Bar)
12. Any views about vape products flavour names and packaging
13. Any knowledge of under-age use, role of packaging in this if any, type used and reasons
14. Ever seen or tried other nicotine products: pouches or heated tobacco
15. Warnings: knowledge of content, ever noticed, what does it say (on liquids, devices and disposables)
16. Views about relative risk of smoking/vaping
17. Health or risk concerns about smoking vs vaping amongst self, friends and family
18. Current smoking and vaping status, plans for the future (e.g., to quit)

Suppliers (shops, market stalls)

1. How do they choose their stock?
2. Any brands they like or avoid because of packaging/brand names?
3. How do customers choose products (e.g., ask for advice, choose on flavour, colour, design, price etc.)
4. What role does packaging play?
5. How do customers choose flavours? What role do product names play?
6. Customer brand recognition and recollection: repeat buying vs trying new products - what attracts them?
7. If the shop sells liquids with confectionery names/cartoon characters, what type of customer buys them?
8. Do customers seek out/avoid particular packaging?
9. Do younger customers choose particular names and flavours?
10. Has the shop ever had a problem with underage customers for a particular product?
11. Do customers notice or express concern about the health warnings on devices and liquids?
12. Customer relative risk perceptions (vaping vs smoking)?
13. Views on disposables, who buys them, how do customers choose (as above)?

Appendix C: summary of where participants were recruited for their interview

Where participants were recruited for their interview	Number of participants
As person left vape shop/stall	8
Marching band events	7
Youth leader/mentoring scheme	7
Engaged during street fundraising	6
Projects helping people with complex needs find work	6
Homeless project	4
Neighbourhood projects	2
Shops and cafes	6
Black and Minority Ethnic (BAME) youth project	2
Boxing club	1
Help for Ukraine project	1
Staff and/or owner of vape shop	10