RESPONSIBILITY, NORMALISATION AND NEGOTIATIONS OF HARM: E-CIGARETTE USERS' OPINIONS AND EXPERIENCES OF VAPING AROUND CHILDREN

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ABSTRACT

Background: Concern about youth uptake of vaping is widespread. Regulation and education campaigns aim to protect children from initiating use, yet it is likely that children will be primarily influenced by the behaviour of people in their immediate environment. This is the first known study exploring e-cigarette users' views and reported experiences of vaping around children. **Methods:** Following informed consent, semi-structured qualitative interviews were conducted with 40 adults who had attempted to give up smoking by vaping. Participants were recruited from England as part of a wider study into e-cigarette use trajectories and smoking relapse (ECtra study). Data were extracted from 28 interviews where participants had spontaneously discussed vaping around children. Extracted data were analysed thematically and situated in previous analysis of vaping identity which distinguished between recreational and medicinal vapers. **Results:** Vaping behaviour around children was in part a habituated replication of smoking norms but also guided by broad vaping identity; recreational users were more permissive and medicinal users more secretive. Vaping in the home appeared to be determined by caregivers' need to reconcile vaping behaviour so that it was congruent with parental identity as a responsible caregiver. Participant perspectives reflected existing moral discourses applied to e-cigarettes around the use of "harm reduction for smokers" and "potential for youth harm". **Conclusion**: Vaping is likely to be role modelled within the community and home despite attempts by e-cigarette users to conceal the behaviour. The ambivalent contextualisation of e-cigarettes means that e-cigarette users may lack a clear narrative to draw on when discussing vaping with children. Public health guidance for vaping around children could be helpful, but to be most effective, should take into consideration users' vaping identity.

KEYWORDS: Electronic cigarette, vaping, qualitative, children, parents, user experiences, identity

INTRODUCTION

Evidence suggests that electronic cigarettes are much less harmful than tobacco (McNeill et al., 2018) and e-cigarettes are an effective aid for smoking cessation (Hajek et al., 2019; Hartmann-Boyce et al., 2016). Long-term health effects, however, are not yet known (McNeill et al, 2018) and there is concern about potential for youth uptake (Berry et al., 2019). Youth vaping rates vary considerably between countries, possibly influenced by differences in availability, legislation regarding advertising and nicotine strength, and public health messaging (Hammond et al., 2019). In a 2019 UK national survey, 15.4% of 11-18 year olds had tried e-cigarettes within the last year and 1.6% used them more than once a week (Action on Smoking and Health, 2019).

Protective legislation and policy varies greatly between countries with existing measures including limiting children's exposure to vaping advertising, prohibiting underage sales (IGTC, 2019), and education campaigns (FDA, 2019). However, children are likely to be influenced primarily by the behaviour of people in their immediate environment (Park, Kwon, Gaughan, Livingston, & Chang, 2019). In the context of tobacco smoking, children of smokers are four times more likely to smoke than children of non-smokers (Leonardi-Bee, Jere, & Britton, 2011). Intergenerational transmission of smoking is influenced by multiple biopsychosocial factors, these include: genetic predisposition (Sharp & Chen, 2018); inheritance of certain personality traits (Hakulinen et al., 2015); pre/postnatal absorption of nicotine (Becklake, Ghezzo, & Ernst, 2005); possible intergenerational exposure to stress and trauma (Lewis et al., 2011; Nichols, 2004); tolerant cultural/community smoking norms (Robertson, 2017); and smoking role modelling and socialisation within families (Bottorff, Oliffe, Kelly, Johnson, & Chan, 2013). Evidence regarding e-cigarette use is only just

emerging, although parental vaping may precipitate adolescent vaping (e.g. Moore, Littlecott, Moore, Ahmed, & Holliday, 2016;Barrington-Trimis et al., 2015), and primary school children who have an e-cigarette user in their household appear more likely to report intending to vape when older (Porcellato et al., 2018). Nevertheless, only 7% of the UK population regularly use e-cigarettes meaning that the vast majority of children do not live with an e-cigarette user (ASH, 2019b). Despite this, even young children of non-vapers have awareness of e-cigarettes and subscribe meaning to them through witnessing use in their community (Porcellato et al., 2018). There is a need to understand the processes influencing community and intergenerational transmission of vaping as uptake of e-cigarette use in children may act as a gateway to the more harmful practice of smoking (Chapman, Bareham, &Maziak, 2018), alternatively it may replace and divert some away from smoking (Kim & Selya, 2019).

There is little research exploring adult vaping behaviour around children, either in the community or the home. Drawing on the tobacco smoking literature can form a useful basis for comparison, because, behaviourally, the processes are similar (although the health risks differ markedly). The normative behaviour for many smokers is to restrict smoking in front of children, prompted by health concerns about second-hand smoke (Phillips, Amos, Ritchie, Cunningham-Burley, & Martin, 2007; Robinson & Kirkcaldy, 2007), moral concerns about normalising smoking (Phillips et al., 2007), and fear of stigmatisation (Phillips et al., 2007; Poland, 2000). Nevertheless, smoking may not be subject to the same level of social scrutiny in socioeconomically disadvantaged areas where smoking prevalence is high (Poland, 2000; Thirlway, 2018) and smoking around children may be considered more acceptable (Phillips et al., 2007; Robertson, 2017). Indeed, children of smokers from lower socio-economic backgrounds have higher levels of second-hand smoke exposure (Orton, Jones, Cooper,

Lewis, & Coleman, 2014; Sims et al., 2010). Caregivers' reasons for smoking around children include not having suitable outdoor smoking space (Bleakley, Hennessy, Mallya, & Romer, 2014; Robinson & Kirkcaldy, 2007), supervising young children (Robinson & Kirkcaldy, 2007), and doubting the risks of second-hand smoke (Phillips et al., 2007).

E-cigarette use is both similar and different to smoking, not only in terms of user experience (Notley, Ward, Dawkins, & Holland, 2018), but also in how it is understood by the public and policy makers. The UK has a prevalent and visible vaping industry (Ward et al., 2018) and public health bodies and stop smoking services take a harm reduction approach and support e-cigarette use for smoking cessation (Mcewen et al., 2016; McNeill, 2018). However, local policies tend to treat vaping the same as smoking by banning both in public/work spaces despite evidence suggesting that health risks of passive vaping are negligible (Burstyn, 2014). Action on Smoking and Health (2019b), moreover, report that that only 45% of the UK public believe that vaping is less harmful than smoking, and a recent cross-sectional survey showed that 60.9% of English smokers and e-cigarette users agreed that society does not approve of vaping (Aleyan et al., 2019). Moral discourses persist around e-cigarette use. On the one hand, e-cigarette use is positioned as reducing harm and saving smokers' lives; on the other, it is positioned as putting children at risk of addiction and unknown harms to health (Auf et al., 2016; Green, Bayer, & Fairchild, 2016; Thirlway, 2018).

Within this ambivalent context, e-cigarette users construct social identities related to their differing motivations to use e-cigarettes and attitudes towards vaping. Research exploring vaping identity and typology shows that, broadly, some vapers self-identify as part of a

vaping subculture (Notley et al., 2018; Farrimond, 2017; Tolke and Pederson, 2019). They are interested in the technical aspects of vaping paraphernalia for *recreation,* with some partaking in vaping advocacy and socialisation. Others, by contrast, distance themselves from association with the subculture and perceive vaping as *medicinal* in function in order to replace or reduce smoking to improve health. In our previously published work (Notley et al., 2018), we discussed how the medicinal function of vaping was intersected by nicotine dependence acceptance or dissonance, resulting in three vaping narrative identities shown in Table 1. Some medicinal vapers were enthusiastic about vaping which had enabled them to stop smoking without difficulty. Such vapers were concerned that quitting vaping would increase vulnerability to smoking relapse; in turn, they accepted their nicotine dependence and did not intend to stop vaping in the foreseeable future. Other medicinal vapers considered e-cigarettes as a temporary smoking cessation aid to help them eventually quit nicotine completely and expressed dissonance around their nicotine dependence. Many of these vapers disliked the grazing puffing pattern usually adopted by vapers, had concerns over vaping safety, or were embarrassed about their habit. Vaping identity is very likely to influence vaping behaviour, but how it intersects with vaping behaviour around children has not been explored.

[Insert Table 1]

It has been demonstrated that caregivers who discuss smoking with children can combat the effect of growing up where smoking is the norm (Jackson and Dickenson, 2003; Wakschlag et al., 2011). It has therefore been argued that e-cigarette users should also consider entering into age-appropriate dialogue with children about vaping (Faletau, Glover, Nosa, & Pienaar, 2013; Porcellato et al., 2018) although there is currently an absence of guidelines around this. Unsurprisingly then, e-cigarette users enact vaping behaviour that is socially negotiated as normative and acceptable within a social context that is often ambivalent. Nevertheless, it is

unclear whether e-cigarette users apply the same behavioural norms as smokers when it comes to vaping around children or whether they behave differently. Similarly, the extent to which vaping behaviour is influenced by attitudes and feelings towards vaping and nicotine dependence is not known. This study aims to answer the research question 'what are e-cigarette users' views and reported experiences of using e-cigarettes around children?'

METHODS

This study is based on thematic qualitative analysis of data drawn from Phase1 of the 'E-Cigarettes Trajectories Study' (ECtra). It received ethical approval from the UEA Faculty of Medicine and Health Sciences Research Ethics Committee (project reference: 2015/2016-144). The ECtra Study's original aim was to explore patterns of e-cigarette use in relation to preventing smoking relapse (Notley et al., 2018; Notley et al., 2019; Ward et al., 2018). Given the recent international concern about youth vaping and the lack of existing research into adult e-cigarette users' vaping practices around children, the ECtra Study's existing dataset was interrogated with the exploratory aim of illuminating behavioural norms of vaping in the presence of children, and developing theory for further investigation. Revisiting qualitative data in this way allows researchers to study a concept that was present in the data but was not the priority or focus of the interview at the time of data collection, with the aim of answering new research questions (Heaton, 2005).

Participants and procedure

In-depth semi-structured interviews were conducted between September 2016 and May 2017 with forty people aged 18+ who had used e-cigarettes to try to quit smoking. Participants were recruited through snowballing, local press articles, university bulletins, vape shops, and

social media. The sample was purposively matched by gender and age to a sampling frame of demographic characteristics from a representative sample of English tobacco quitters surveyed between October 2015 and 2016 ("Latest Statistics - Smoking In England," n.d.).

Participants gave written consent before participating in a face-to-face/telephone interview. In line with the objectives of the wider ECtra Study, the topic guide (developed in consultation with lay representatives) took a narrative approach to explore: participant histories of tobacco smoking; prior quit attempts; e-cigarette initiation; current motives; and patterns of use. Participants were asked to reflect on identity related aspects of vaping and future use. Vaping around children was discussed naturalistically in the course of the interview, often in relation to questions about vaping locations. Interviews were recorded, transcribed verbatim and anonymised.

Analysis

Interview transcripts were uploaded to NVivo12 qualitative analysis software. In the original analysis (described in detail in Notley et al., 2018), transcripts were thematically analysed independently, taking a systematic case by case approach, by EW and CN. Both researchers coded four of the same transcripts (10%) and compared coding for consistency. In addition to this cross-case thematic comparison, individual narrative case summaries listing key turning points were written up for each transcript and pathway diagrams were plotted to illustrate participant journeys through e-cigarette use. This analysis resulted in identifying narrative vaping identity pathways (see Table 1).

Some preliminary coding of data relating to children was undertaken as part of the original analysis. In addition, text searches were run to identify sections of transcripts relating to children. Search terms (including stemmed words) were: “baby”; “child”; “kid”; “teenager”; “year old”; “son” “daughter”, and numerical words up to “eighteen” to capture where children had been referred to by age only. In total, 28/40 participants generated data relating to children. The data excerpts were analysed using an established reflexive thematic analysis methodology (Clarke, Braun, Terry, & Hayfield, 2019). Data were coded inductively using NVivo12 software for latent and semantic content and iteratively by sorting into subthemes and overarching themes. Once the initial inductive thematic analysis had been undertaken on data relating to children, relevant data were sorted in a matrix by the newly identified children themes and vaping identity patterns identified in the original analysis. Further thematic analysis was undertaken within the matrix exploring how participants’ vaping behaviour around children was intersected by recreational or medicinal vaping identities. EW produced an analytical write up of these themes which was critically reviewed by CN resulting in a comprehensive interpretation of the data in relation to the research question.

RESULTS

Table 2 shows the characteristics of twenty-eight participants included in the analysis. Nearly all (25/28) were recruited from East Anglia, UK, as this was the location of the research team and most recruitment efforts. Fourteen participants had a child under the age of eighteen living in their household. Vaping experience varied from two weeks to seven years. Twenty-two participants were vaping and abstinent from tobacco; four participants had relapsed to tobacco (three of whom continued vaping alongside smoking); and two were no longer using either e-cigarettes or tobacco. Using previous qualitative analysis of the data (Notley et al.,

2018), seven participants were categorised as recreational vapers and twenty-one were categorised as medicinal vapers (including nine "enthusiastic switchers" and twelve "nicotine quitters" – please see Table 1 for examples). This paper refers to recreational and medicinal vapers more broadly although on occasion, it discusses differences between medicinal vapers, who intended to vape long-term to avoid relapse (enthusiastic switchers), and those who intended to vape as a stepping stone to quitting nicotine altogether (nicotine quitters).

[Insert Table 2]

Data from all participants, regardless of whether they had children or not, were analysed in relation to vaping around children in public. In relation to vaping at home in front of children, data were analysed from the fourteen participants with children aged under eighteen in their household, plus one grandparent with regular caregiving responsibilities. Participant codes used to reference quotes refer to participant's gender, age, and caregiver status (e.g. 'F24, nc' for 'female aged 24 with no children aged under 18 in household', 'M40, primary' for 'male aged 40, caregiver of primary aged child/ren'). Some quotes have been edited to improve readability by removing repeated/redundant words and discourse markers (e.g., 'um', 'er'). The main findings are summarised in Table 3. Note, that themes listed are based on perspectives expressed by participants previously categorised within each identity (in Notley et al. 2018). However, not all participants identifying with each narrative identity expressed all the themes listed.

[Insert Table 3]

Concealment vs. Visibility

The analysis of e-cigarette users' views and experiences of vaping around children was situated in the different social contexts of public and private spheres. Most participants reported vaping in public places where other people's children might be in the vicinity (e.g.

pub garden, town centre, station). All participants, regardless of their parental status or vaping identity, reported attempting to restrict their vaping behaviour in public around children. In contrast, caregiving participants varied in the extent to which they were comfortable vaping in front of their own children at home. This ranged from attempts to hide it completely; *'he's never seen me do it' (M36b, preschool),* through to involving the child; *'my morning routine is get up, get [daughter] up, and she'll sit on me, have her bottle, and I'm having a vape' (F21, preschool).* Recreational vapers in the sample tended to be relaxed about vaping in front of their children at home, whereas medicinal users were uncomfortable with children witnessing their vaping and attempted to hide it (with varying levels of success). For example, some medicinal vapers allowed their children to see their devices not in use but wouldn't vape in their presence. Others wanted to hide their use but found this difficult to maintain, and some had initiated vaping around their children but then limited it as they became more aware with increasing age. Participants attempted to reconcile their vaping behaviour (either attempting to hide vaping or vaping visibly) to be congruent with their identity as a responsible caregiver by positioning their approach as protecting children. Potential reasons underpinning restricting vaping in public but not at home expressed by recreational vapers, compared to the discomfort associated with vaping around children both in public and at home expressed by medicinal vapers, are described within each theme outlined below.

Replication of smoking behaviour

Almost all participants restricted their vaping around other people's children, either through not vaping at all or engaging in considerate vaping (attempting to conceal vaping through discreetly using their devices). Often this was mentioned to the researcher as a normative,

automatic, behaviour, without need for further explanation; *"Obviously I don't do it in front of the grandchildren" (F60, nc).* Restricting vaping in this way mirrors norms relating to smoking behaviour around children in public. This comparison was overtly made by many participants, indicating a conditioned replication of smoking behaviour to vaping:

> *"I wouldn't smoke around young children. If I'm vaping in public, or even here if someone goes by with a small child, I just won't out of courtesy, almost I think because of the link to smoking." (M40, primary)*

Some medicinal vapers described a transmission of smoking behaviours within the household:

> *"I don't really [vape around my children], I mean definitely not like in the house, or I treat it like a cigarette[…] I wouldn't smoke it in front of them. In fact I wouldn't smoke it and then pick them up." (M39, preschool)*

Second hand vapour concerns

Mirroring smoke-free policies, which were originally implemented to prevent exposure to second hand smoke and its associated health risks, some participants reported attempting to minimise children's exposure to second-hand vapour. Despite understanding that it had minimal risk to health; '*I don't think there's a significant risk attached' (M58, nc),* participants described vapour as unpleasant for children. This seemed to prompt an almost subconscious aversion to using e-cigarettes in front of them:

> *"We had my friend's baby round the other day and I won't vape. I wouldn't go blowing out clouds of smoke while he's not even a year old yet, but he was sort of*

crawling around the floor and chasing the dog about. No I wouldn't vape then, I don't know why." (M41, nc)

One participant, however, was worried about potential harms to health and reported not wanting to risk exposing his child despite the evidence: "*I've got a two year old and despite [Public Health] saying it's 95% less harmful I'm not taking any chances" (M36b, preschool).* This viewpoint was presented by this nicotine quitter as part of a wider suspicious attitude towards potential health risks of vaping.

Harm reduction or potential for youth harm

Restriction of vaping behaviour in front of children can in part be explained by a conditioned response by virtue of being a previous smoker and an aversion to exposing children's lungs to anything other than air. This appears to result in a habitual replication of smoking norms. However, participants' reflections on vaping in front of children were often underpinned by attitudes towards smoking harm reduction, vaping normalisation and intergenerational transmission.

Potential for youth harm - vaping, not smoking, normalisation

No participant expressed concern that vaping would encourage smoking uptake in children; '*I don't see it as a gateway vehicle to bigger and badder things' (M46, nc).* In this study, participants' concern centred on whether or not visible vaping behaviour would normalise vaping and encourage youth uptake of vaping (rather than smoking):

I understand and appreciate about normalising things. It's something so exciting and the kids will want to have a go, so of course I don't do it [in front of children]. It's the same as smoking, it makes it a norm and it shouldn't be. (F36a, nc)

Responsible caregiver – protecting against intergenerational transmission of vaping

Although participants understood this general concern, they differed in the extent to which they were concerned about normalising vaping through their own behaviour. Medicinal vapers were concerned that normalising vaping within the household might contribute to intergenerational transmission of e-cigarette use, reflecting the 'potential for youth harm' discourse. Participants attempted to limit vaping in front of children to avoid role modelling; *'I guess she sees mummy doing it, it's obviously going to become normal to her, like a cigarette did to me when I was growing up with my parents' (F33, preschool).* Medicinal vapers wanted to protect against children developing an interest in something they believed should be predominantly for smoking cessation. For example, one participant limited vaping around his daughter as she got older and became more aware of it:

I don't like doing it around my daughter because it smells nice to her[…] She picked it up, she never touched before, like she picked it up and "here you go", "no I don't want you doing that, I don't want you to sort think that's it's normal for people to do that, it's something that I'm doing to try and stop smoking, so I don't want you to think that it's something that children should do" (M30, primary)

For medicinal users who want to stop vaping such as the participant above (the nicotine quitters), the desire to hide their use from their children to prevent intergenerational transmission was also bound up in their own despondent feelings about their nicotine use.

These participants drew on a harm reduction discourse in order to reduce cognitive dissonance (interestingly, this participant mistakenly perceived nicotine to be the harmful constituent in cigarettes, exemplifying her discomfort with nicotine dependence):

> *You try and justify it in your head don't you? You think well at least it's better than smoking indoors and blowing nicotine in her face. Although it's not great, and I do feel bad about it, it's certainly better than the alternative. (F33, preschool)*

Responsible caregiver – protecting children from the negative impacts of smoking

In contrast to medicinal users, recreational vaping participants did not appear concerned with intergenerational transmission of vaping behaviour in the same way. Instead, these participants were keen to emphasise their e-cigarette use as a responsible choice, allowing them to move away from more harmful smoking, often for the good of their family. It was therefore perceived as something to be proud of rather than hidden away; '*I feel like a better role model for [daughter], I'd rather her see me with a pretty little box than a stinky cigarette' (F21, preschool)*. Some participants reported that their e-cigarette use was perceived as a positive behaviour change by the family; '*I use it with my family; my kids they are very much happier I do that rather than smoking' (M37b, primary & secondary*). In addition, a couple of recreational vapers commented that vaping in front of their children was advantageous as it allowed them to continue being physically and emotionally available to their children without risking their health:

> *I've got the table here so my son would be sitting here, we just play […] I used to sit in the bathroom with my coffee and have a cigarette and I could see through to the dining room where he was pretty bored. (F48, primary)*

Recreational vapers situated their justifications for vaping visibly in front of children at home in a harm reduction discourse, celebrating the family being free from the impacts of smoking. These participants, who saw vaping as a pastime in its own right rather than just a smoking substitute, felt no dissonance or shame around their e-cigarette use and were happy to share aspects of their hobby with their children; *'he treats it as part of my life really cos he knows everything about my vaping stuff and my vaping friends' (F34, primary).* However, this didn't necessarily mean that they would endorse vaping initiation in their older children. Indeed, they were keen to show that they were responsible around rulemaking to ensure their children understood that vaping was potentially harmful and for adults only; '*with my son, he knows that that's poisonous and he never should never touch it and he never* has' (F34, primary).

Vaping in public - perceived moral judgement

Participants had experienced a range of positive and negative responses from others whilst vaping in public. When it came to vaping in front of children in public, however, most participants believed that they would be judged negatively, mirroring many smokers' experience. Most participants perceived vaping in front of children to be stigmatised albeit more accepted than smoking. This created a perceived ambiguous context in which to make decisions about vaping in public around children:

> *I still feel a little bit of a stigma, whether it's real or whether it's imagined I don't know. We went round my parents' neighbours over the weekend and none of them smoke or vape or anything like that, and my son's playing in their pool and I thought shall I take my vape thing with me?(F48, primary)*

In this sample, recreational vapers understood that other people might not approve of vaping around children; *'I can't see any harm in it personally, but others might' (M67, nc).* They restricted vaping due to respect for others' normalisation concerns and to avoid moral judgement. Because of their investment in vaping as a core aspect of their identity, they wanted to avoid giving vaping 'a bad name' and felt they had a moral responsibility to adhere to norms in order to be seen as 'doing the right thing'. Although they recognised that vaping was not as stigmatised as smoking, they remained vigilant of moral judgement especially when vaping around children in public:

> *When I'm at home I will do whatever, wherever, because it's my house, but I am slightly more careful of people if there's a lot of children around. If I do vape, I'll blow it up so it's out of their way. No one can come up to me and go "Oi! Don't do that on a child" (F21, preschool)*

Fear of moral judgement was most acutely felt by this nicotine quitter, quoted below, relating to vaping around her own child in public. She seemed to perceive others' judgements of her based on her own despondence towards nicotine dependence and the dissonance she felt about this and being a parent:

> *It's more socially acceptable than smoking, although I do sometimes still feel a bit, you know, I was at the zoo and I don't want to smoke it because I'm conscious that people are looking at me thinking "oh look she's smoking an e-cig and she's got a three year old" so I don't tend to when I'm out with her. (F33, preschool)*

Whereas perceived moral judgement may have triggered a feeling of self-criticism among recreational vapers, nicotine quitters perhaps felt internalised stigma due to discomfort with

nicotine dependence. Enthusiastic switchers, less emotionally invested in vaping and perceiving it as an effective means to an end, experienced moral satisfaction from quitting smoking and were therefore perhaps less likely to be afraid of moral judgement. Nevertheless, they understood vaping in front of children was a stigmatised behaviour and refrained to prevent normalisation; '*I probably wouldn't want to sort of encourage [children], there's no need, so I would avoid it" (M58, nc)*. Rather than feeling shunned like the recreational users, or shamed like the nicotine quitters, these enthusiastic switchers were sympathetic to perceived public disapproval; *'why should I make anyone else's life more difficult explaining these things to their children? So I don't tend to do it around, certainly not kids' (F38, nc).*

Vaping Socialisation

Thus far, potential mechanisms underpinning e-cigarette users' vaping behaviour around children have been explored. These included habitual replication of smoking behaviour, vaping normalisation concerns, feelings towards nicotine dependence, and fear of moral judgement. The potential impact of these different approaches on the socialisation of the child is a further area of interest. Socialisation in child development refers to the process through which children become members of their family or community by internalising similar norms, values, attitudes and behaviours through boundary setting and monitoring, role modelling and direct and indirect communication. This section explores reported socialisation practices of role modelling and communication within the sample.

Role modelling

As previously noted, all participants attempted to restrict vaping to varying extents, especially in public. All but one medicinal vaping participants, who tried to refrain from vaping in front

of their own children, acknowledged that they had been unable to prevent their children from having some awareness. They reported accidentally vaping in children's presence, leaving paraphernalia in view, or speaking about vaping in the vicinity of their children; '*you just brush it under the carpet. I try not to let them see me do it, but there has been the odd occasion when they have seen it' (M37a, preschool & primary).* Nicotine quitters expressed regret and disappointment when this happened, reflecting their own discomfort with their vaping; *'she would comment on the blue light [on the device] "it's a triangle mummy" I'm like for god sake <Participant> what are you doing?? […]I don't feel very great about it to be honest'* (*F33, primary*). Despite their best intentions, a couple of medicinal vapers did describe either themselves or other family members purposefully vaping in front of their children on some occasions:

> *[Children] were playing in the garden in the summer and they had these big bubble things and they were getting <partner> to blow the vape steam into the bubbles and they did look really cool and I was like <partner> "you're making it fun, I don't want them thinking it's a fun thing to do". (F29, preschool & primary)*

Caregivers who regularly vaped in front of their children reported that they did take an interest in their vaping set up including vapour and flavours; *"<son> sometimes says "pancakes" or "doughnuts" (F34, primary)*. Unlike the medicinal vaper quoted above, the recreational vapers did not express discomfort or concern over this. One participant reported their child imitating their vaping. Although this participant took steps to prevent her child from using her device, she did actively encourage her interest in it:

> *She grabs my devices, sticks it in her mouth and tries to imitate mummy!*
>
> *R: How do you handle that situation?*

I kind of tell her off and I move it somewhere where she can't get them, but occasionally I'll take a drag and blow it in her face and she loves it. […] I think she likes the flavours and she likes the fact that mummy's trying to do something with her. (F21, preschool)

Communication

Because nearly all caregivers, regardless of vaping identity reported their children having some awareness of vaping in the home, vaping behaviour was clearly being role modelled within the families, potentially as either an illicit grown-up behaviour, or an acceptable every day pleasure. Rather than try to combat this through discussion around consequences of their own nicotine use and dependence, most participants had adopted a strategy of "if they don't ask, don't tell" when it came to discussing vaping with children.

I don't do it in front of the children; it's the worst kept secret in the family, but again I don't want it them to think it's a regular thing to do[…]. I haven't had a conversation, we're a very British family, we don't talk about things like that. (M53, secondary)

For medicinal vapers, the avoidance of discussing vaping with their children seemed to be related to their desire to protect children from normalisation, but also from the awkwardness of discussing a sensitive topic. For nicotine quitter medicinal vapers, admitting to their children about partaking in a behaviour that they would rather not be doing, further reinforced their dissonance. If children did mention it, caregivers tried to '*brush it off" (M39, preschool)* and further conceal use:

We tend to keep them out of sight when they're about, and all the paraphernalia, but they have they seen the odd one and immediately will say "what is that?"

R: How do you explain it to them?

I've just said "oh it's just something silly of nanas" and just put it away. (F59, nc)

Some participants reported not actively discussing their e-cigarette use with their children due to perceived inability to understand, particularly among younger children or those with special needs. A couple of participants with preschool children did recognise that explaining vaping in the context of smoking cessation when their children were older could possibly help counteract the impact of vaping role modelling. Participants who previously smoked around their older children reported finding it much easier to discuss vaping with them as the harm reduction benefit of vaping was more tangible*; 'She knew me when I smoked. I have told her exactly what it is and she's obviously noticed that I've stopped smoking' (M30, primary).* One medicinal vaper reported deciding to take the opportunity to explain use in the context of smoking cessation when he had failed to conceal his behaviour. Interestingly, this enthusiastic switcher, did not express discomfort in undertaking the exchange, perhaps reflecting his greater acceptance of nicotine dependence than some in the sample:

I have said to my oldest child once when she did notice me using it, that I used to be a smoker, and really had to explain to her what smoking was because they've sort of grown up in this era now where less people are smoking. I had to explain to her that I did smoke and now I have the vaporiser which means I don't need to smoke any more, and she seemed to take that on board in the way that a six year old kid does I suppose (M37a, preschool & primary)

Most participants who had given up smoking some time ago were concerned that explaining vaping in the context of smoking cessation could be confusing or even anxiety provoking for children; '*I'm worried as soon as I say smoking, my kids are then going to weigh up that I've got lung cancer' (M40, primary)*. This could also be embarrassing for the participant,

especially the nicotine quitters, who perhaps don't want their children to know that they used to smoke. Explaining vaping as a way of managing mood was suggested as an alternative by a couple of participants, although they acknowledged that this too felt awkward,; '*I'll say it helps to relax me, but that seems like such a fob off because why can't I relax like everyone else?' (M40, primary).*

DISCUSSION

This study explored e-cigarette users' views and reported experiences of using e-cigarettes around children with findings situated in a previously published analysis of vaper identity, which provided the central organising framework. Similarities and differences in how vaping around children was presented by participants were explored and then contextualised within the recreational and medicinal vaping identity pathways during analysis. Participants' perspectives reflected existing moral discourses around e-cigarette use of 'harm reduction' and 'potential for youth harm'. Regarding the latter, potential for harm was expressed in terms of children trying vaping themselves and the potential consequences of vaping for health and addiction, rather than vaping acting as a potential 'gateway' to smoking. The extent to which participants agreed (and perceived other people to agree) with the 'potential for youth harm' discourse often dictated differences in vaping behaviour around children and was underpinned by participants' motivations and attitudes towards their own vaping.

Recreational vapers perceive vaping as a positive and valued part of self-identity, and adhere to a rights-based discourse relating to the freedom to vape (Farrimond, 2017). Given that the private life within the home can be considered a sphere of personal identity and autonomy, it is perhaps unsurprising that recreational vapers in this study vaped in front of their own

children at home. Recreational users have been described as ‘transforming’ a devalued smoking identity into a proud vaper identity (Tolke and Pederson, 2019), celebrating the health and social benefits and gratification of vaping as distinct from smoking (Farrimond, 2017; Notley et al., 2018). This sense of pride and celebration of vaping was present in how recreational users discussed vaping visibly as the actions of a responsible caregiver protecting children from the evils of smoking. Vapers using e-cigarettes primarily for medicinal purposes tend to distance themselves from recreational users and do not perceive vaping as an intrinsic part of self-identity (Farrimond, 2017; Tolke and Pederson, 2019; Notley et al., 2018). For these vapers, e-cigarettes are considered solely as a tool to stay stopped from smoking. Accordingly, they are viewed as something that children need protecting from due to potential harms from vaping normalisation . In Farrimond’s study, this concern was possibly expressed as strong agreement with regulations restricting e-cigarette sales to adults; in this study, it manifested as concealing vaping from children (often unsuccessfully). For vapers who were uncomfortable with the continued nicotine dependence that vaping entails (Farrimond, 2017, Thirlway, 2019, Notley et al., 2018), shame added another facet to the concealment of use in front of children. Thirlway (2019) proposes that nicotine addiction via vaping can be seen as a moral problem by some users despite it being less harmful than smoking, due to associated loss of control , impacts on others, and moral judgements about addiction. In this sample, a couple of participants were clearly struggling with despondent feelings towards vaping and being a parent. They tried to reconcile their identity as a responsible caregiver by concealing use and drawing on a harm reduction argument to reduce cognitive dissonance.

Public life is governed by shared values resulting in social norms of acceptable behaviour within the community and violating norms can result in stigmatisation. Nearly all participants

felt stigmatised to some extent when vaping in the presence of children in public, although most perceived it to be more acceptable than smoking. This reflects the ambivalent context surrounding vaping in the UK where contradictory attitudes towards vaping safety are apparent: mixed messages are reported in the media; a harm reduction discourse is promoted by public health; yet local policies treat vaping the same as smoking. Whilst previous research has shown that some vapers endorse public vaping despite perceived negative opinion (Farrimond, 2017), this was not found here in relation to public vaping around children. Everyone reported restricting their vaping to some extent, perhaps reflecting the deeply embedded discourse of childhood innocence preservation and protection.

Reminiscent of the 'considerate smoker' concept described by Poland (2000), participants discussed attempting to restrict vaping around other people's children as an unconscious morally derived behaviour. Poland argues that the self-control demonstrated by smokers through taking steps to minimise risks to others, is an implicit social rule which has been internalised creating an expected smoking performance. In this sample, it would appear that this internalisation of considerate smoking around children has transferred to vaping behaviour, as illustrated by participants' assumed shared understanding with the researcher that vaping should be limited in front of children without need for explanation. E-cigarette users may experience an internalised transfer of social disapproval of 'smoke like' vapour (Bell and Keane, 2012), and a 'natural' aversion to exposing others to second hand vapour (Lucherini, Rooke, & Amos, 2018), as seen in this sample with participants struggling to articulate their reasons for limiting second-hand vapour around children.

In contrast to following implicit social rules about vaping around children without question, some recreational users restricted vaping in public seemingly to avoid moral disapproval of their own vaping but also of vaping as a subculture. Their personal freedom of vaping self-expression was worth sacrificing in order to protect their 'group' from further stigmatisation. Medicinal vapers, however, agreed with the perceived public view that vaping was an activity that children should not be exposed to, underpinned by their belief that vaping was only for smoking cessation purposes. Medicinal vapers who were enthusiastic about e-cigarettes in supporting their own quit attempts, did not appear fearful of moral judgement, potentially because smoking cessation provided sufficient internal moral satisfaction (Lucherini et al., 2018) for these vapers who are comfortable with nicotine dependence. In contrast, some vapers who were uncomfortable with nicotine dependence (perhaps perceiving use as a moral failing; Thirlway, 2019), seemed acutely aware of moral judgement, and anxiety around this contributed to restricting vaping around children in public.

Participants admitted to vaping in the community where children were present (albeit discreetly) and caregiving participants acknowledged that children were likely to be aware of their vaping despite attempts to hide it. Those participants who vaped openly in front of children noted their interest in flavours and vapour, with one example of vaping imitation. Clearly, vaping was being role modelled to children by the participants. A possible mechanism of intergenerational transmission of vaping could be the interaction of concealed vs. visible vaping and the function of youth vaping as rebellion vs. asserting adulthood. For example, if vaping is presented as illicit within the household, youth vaping could be an act of rebellion; whereas if vaping is presented as an acceptable pleasure, youth vaping could be an act of asserting adulthood. The function of youth smoking is influenced by class (Thirlway, 2018), as is implementation of smoke-free household policies (Orton et al., 2014;

Sims et al., 2010). Further research is needed with vaping children of e-cigarette users to investigate the intersection of socioeconomic status, parental vaping visibility, and youth vaping function.

Children and young people can hold ambivalent attitudes to e-cigarettes and their understanding of the health risks of vaping can be poor (Brown et al., 2020; Porcellato et al., 2018; Lucherini, Rooke, and Amos, 2017). Formal information and education within schools has been suggested as a way of mitigating the risk of exposure to vaping for children (Brown et al., 2020). Likewise, initiating a dialogue between vaping caregivers and their children has been suggested as an approach to reduce familial vaping (Faletau, Glover, Nosa, & Pienaar, 2013; Porcellato et al., 2018). Encouragingly, smoking research has shown that parents who discuss their own smoking with their children (for example, explaining their addiction, the health risks, and taking an interest in their child's and his/her peers' smoking opinions and behaviour) can reduce the risk of children taking up smoking themselves (Jackson and Dickenson, 2003; Wakschlag et al., 2011). Most participants in this study however, struggled to know how to frame their e-cigarette use and avoided discussion. Some participants believed their children were too young to be able to understand, yet it has been reported that even children of non-vapers have constructed meanings of e-cigarette use by the age of seven (Porcellato et al., 2018). Although some parents of pre-schoolers stated that they would contextualise their use within a smoking cessation context when their child was older, they did not appear to have a clear view or plan regarding how they would approach it. A clear narrative about e-cigarette use that can be drawn upon by caregivers and educators to deter youth vaping is lacking and warrants further research.

Our research has shown that any guidance or intervention needs to take into account e-cigarette users' vaping motivations, attitudes, and identity. Recreational users, who perceive themselves as highly knowledgeable and value vaping autonomy are suspicious of authority involvement (Farrimond, 2017) and may not take kindly to Public Health issuing guidance 'telling them how to parent'. It is therefore essential that researchers and Public Health bodies consult with the vaping community about any possible guidance. One possible approach could be to tap into recreational users' view of themselves as responsible caregivers who have switched to vaping for the good of the family. For example, highlighting that open communication provides an opportunity for empowering young people to make informed choices about vaping could be emphasised. Those e-cigarette users who vape mainly for smoking cessation are likely to have different concerns and may view discussions with children about vaping as a potential vehicle to normalise vaping. For these vapers, guidance needs to be frank about the fact that concealing use is virtually impossible. As these vapers view themselves as responsible caregivers, emphasis could be placed on the benefit of an open dialogue about their own dependence and expectations for their children not to vape in order to protect against potential intergenerational transmission.

Limitations

The purpose of qualitative research is to explore participant insights and meanings of behaviour situated in a specific time and place, rather than infer prevalence. Therefore, the results here may not be generalizable to the wider population of e-cigarette users. However, the themes identified mirror previously identified e-cigarette discourses circulating within society, and vaping narratives of use are similar to those reported in previous research. This indicated that these results are likely to be transferable and probably reliably confirmed with

further research. There were under-representation of lower socioeconomic groups and ethnic minorities in the sample. Vaping meanings and behaviours may differ between socioeconomic groups (Thirlway, 2019, 2018), but due to limitations with the diversity of sample, any interpretation of data between participants from different socioeconomic groups could not be reliably reported. Further work is needed to explore the differences in practices and norms relating to e-cigarette use around children in different communities, in order to best target guidance on youth vaping within those communities.

The focus on the ECtra Study was e-cigarette use and smoking relapse meaning that the topic guide did not include a question specifically about vaping around children. Therefore, data about children was not generated for all participants involved in the ECtra Study. The depth and detail of the data included in the analysis, although sufficient to identify analytically salient themes, could not be used for full analytical saturation of potential themes. For example, how children's age influenced parental vaping behaviour was not explored fully during interview, and little data were generated about participants' smoking behaviour around children, which would have been interesting to compare to the data on vaping. Therefore, we are not suggesting that our analytical interpretation is conclusive, rather that it should be viewed as providing insight into an important topic in need of further investigation. One potential strength however of revisiting data collected with a different research aim in mind, was that participants mentioned vaping around children naturalistically within the context of their wider e-cigarette use and therefore may not have experienced pressure to respond with socially desirable answers.

Conclusion

Despite international concern about youth uptake of e-cigarettes, very little is known about how adults vape around children both in the private sphere of the home and in the public sphere where observation by children is possible. This is an important research gap as children's vaping behaviour is likely to be influenced chiefly by their immediate family and social community context. This highly exploratory analysis focused on vaping behaviour around children through the lens of existing findings on vaping identity, providing a platform for further research. Findings demonstrate a habituated replication of smoking norms, especially in public, but also that e-cigarette users' views and experiences of vaping around children is guided by either a recreational or a medicinal broad user identity. These categorisations appear to alter user behaviour around children in the home; recreational users are more permissive and open, celebrating being free from the harms of smoking with the family; medicinal users are more secretive and closed, attempting to protect children from potential normalisation of vaping and intergenerational transmission. Guidance on vaping around children is a much needed resource for e-cigarette users, but our findings show that in order to maximise impact, public health and educational bodies need to take users' vaping motivations, attitudes, and identity into consideration.

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COMPETING INTERESTS

EW, RH and CN declare that they have no competing interests. LD has provided consultancy for the pharmaceutical industry and acted as an expert witness for an e-cigarette patent

infringement case. LD has no links with, and has not received any funds from the tobacco industry.

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Table 1: Vaping narrative identities with example quotations reported in Notley et al., 2018

Recreational	**Medicinal**	
"Invested Vapers" **Hobby or special interest**	**"Enthusiastic Switchers"** **Long-term harm reduction smoking replacement**	**"Nicotine Quitters"** **Stepping stone to complete nicotine cessation**
I don't look at it now as a keeping me off the cigarettes, cos I don't want a cigarette at all, so it's not really keeping me off the cigarettes, it's a hobby now, and a social thing, and thats, I will carry on vaping because, you know, it's a hobby and a social thing.	*I'm a vaper but I'm not one of these big beardy weirdy hipsters who just spends all day long going harping on about this new thing and that new thing, and this massive cloud, and so I'm not like that, I'm an ex-smoker who is addicted to nicotine, so I won't be giving it up because it's got nicotine.*	*I don't like the idea of being addicted to anything. It's not, I don't think nicotine is 100% safe, I know it's a lot better vaping than you know smoking cigarettes, so you know I'm quite pleased we've done that bit, but I just feel so silly having this prop.*

Table 2. Demographics of the interview sample (*n*=28)

	Participants	
	%	*n*
Gender (female)	50.0	14
Ethnicity		
White British	96.4%	37
White European	3.6%	1
Occupation (ONS SOC Codes)		
Managers, directors, and senior officials	10.7	3
Professional occupations	21.4	6
Associate professional and technical occupations	10.7	3
Administrative and secretarial occupations	14.3	3
Skilled trades occupations	7.1	2
Caring, leisure and others services occupations	3.6	1
Sales and customer service occupations	3.6	1
Process, plant and machine operatives	3.6	1
Stay at home parent	3.6	1
Full-time student	17.9	5
Retired	3.6	1
Children under 18 in household		

No children	50	14
Preschool (age 0-4 years)	25	7
Primary school (5-11 years)	32.1	9
High school (12-17 years)	14.3	4
Age		
Age range (years)	21-70	
Mean age (SD)	41.6 (13.96)	

1
2

3 Table 3: Summary of keys themes relating to vaping around children and vaping identity

	Recreational	**Medicinal**	
Identified themes	**Invested vaper –** *vaping as a hobby or special interest*	**Enthusiastic switcher –** *vaping for long-term harm reduction*	**Nicotine quitter –** *vaping for smoking then nicotine cessation*
Concealment vs visibility	Attempt to conceal in public, but vape visibly at home	Attempt to conceal vaping in public and at home	Attempt to conceal vaping in public and at home
Replication of smoking norms	Considerate vaping in public Concern about unpleasantness of second-hand vapour (SHV)	Considerate vaping in public Replication of smoking rules at home Concern about unpleasantness of SHV	Considerate vaping in public Replication of smoking rules at home Concern about unpleasantness of SHV Concern about health risks of SHV
Harm reduction discourse	Responsible caregiver, freeing the family from smoking impacts	Main reason for use and therefore no need to expose vaping to children	Reduces cognitive dissonance felt about morality of addiction and being a parent
Potential for youth harm discourse	Vaping, not smoking, normalisation Understands normalisation concerns but minimises them	Vaping, not smoking, normalisation Concerned about normalisation and intergenerational transmission	Vaping, not smoking, normalisation Concerned about normalisation and intergenerational transmission
Perceived moral judgement	Understands perceived negative public opinion Experiences rejection of self-identity – desire to avoid tarnishing vaping	Understands and sympathises with perceived negative public opinion	Understands and sympathises with perceived negative public opinion Experiences shame – avoids further self-stigma and negative affect
Socialisation	Presented as ordinary Smoking cessation or mood management explanation Avoid discussion due to characteristics of child	Presented as illicit Smoking cessation or mood management explanation Avoid discussion due to: - characteristics of child - normalisation concerns	Presented as illicit Smoking cessation or mood management explanation Avoid discussion due to: - characteristics of child - normalisation concerns

		- awkwardness discussing taboo topic	- awkwardness discussing taboo topic - shame about dependence - concerns about making child anxious

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