Research Paper

E-cigarette use in global digital youth culture. A qualitative study of the social practices and meaning of vaping among 15–20-year-olds in Denmark, Finland, and Norway

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ARTICLE INFO

ABSTRACT

Background: The introduction of e-cigarettes on the tobacco market has brought new regulatory challenges, and particular concerns relate to e-cigarette uptake among young people. The aim of this study was to explore the use and social meaning of e-cigarettes among Nordic young people and to discuss this in the context of current legislation.

Methods: Thirteen focus groups were conducted with 46 Danish, Finnish, and Norwegian young people (24 boys) with vaping experience aged 15–20 years (mean age 17 years).

Results: Young people's vaping stood out as an inherently social practice that was commonly interlinked with experimental use patterns. Relative to smoking, vaping was seen as socially acceptable and less harmful to health. Product innovations like flavour additives and nicotine-free liquid options added to perceptions of low harm, and innovative device design features facilitated new and playful user practices. Finally, digital markets eased the young people's access to e-cigarettes, and the digital world also represented an arena for e-cigarette exposure and self-presentation. They commonly viewed vaping-related content in their social media feeds and also produced such content themselves.

Conclusion: Young people's vaping is a social practice interwoven in contemporary digital and global youth culture. Transnational regulations are needed to support individual countries in preventing e-cigarette use and exposure among young people.

Introduction

The introduction of e-cigarettes on the tobacco market has made the tobacco landscape more complex and has given rise to new debates around tobacco control, tobacco harm reduction, and young people's e-cigarette use. Rising use of e-cigarettes (vaping) among young people in countries such as the UK (ASH, 2022) and the US (Wang et al., 2020) has become a source of public health concern. This has further been fuelled by results from prospective studies, mainly from the US, showing an association between vaping and subsequent use of combustible tobacco products (O'Brien et al., 2021; Walley et al., 2019; Yoong et al., 2021). Interlinked with this, some researchers have pro-

posed that young people's vaping may lead to and renormalize smoking (Brown et al., 2020) and consequently reverse the decline in smoking in this age group (Chapman et al., 2019). Others, in contrast, have argued that, when adjusting for individual risk factors, young people who vape were likely to have started smoking regardless of their e-cigarette initiation (Etter, 2018; Sun et al., 2022). Similar split approaches are reflected in the general diversity seen in e-cigarette regulations globally, with policies ranging from full or partial bans to regulation of nicotine content and minimum age of sale (Klein et al., 2020). In light of these debates (Green et al., 2018), and in order to support evidence-based policies and policymaking, it is vital to understand the meaning and social context of young people's e-cigarette use (Hankonen & Hardeman, 2000; Moore et al., 2014; Papanastasiou et al., 2019; Kunst, 2021). Drawing on the sociological concept of social practice (Reckwitz, 2002; Shove et al., 2012) and with an aim to identify the social meaning of vaping in youth

Table 1
E-cigarette regulations in Denmark, Finland, and Norway.

WHO FCTC policy article	Nordic e-cig regulations at the time of the study	Nordic e-cig regulations to be implemented
16: Sales to minors	• All countries ban sales to minors (<18 years old). • Norway: nicotine-containing e-cigarettes and e-liquids are banned from the domestic markets.	• Norway: will allow nicotine-containing e-cigarettes and e-liquids on the domestic markets to harmonize legislation with the TPD.
6: Tax & price measures	• Finland and Norway have excise taxes for nicotine-containing and nicotine-free liquids intended for vaporization.	• Denmark will introduce taxes on nicotine containing e-liquids in 2022.
8: Smoke-free environments	• All countries prohibit vaping in the same indoor areas as smoking is prohibited.	
9: Content of tobacco products	• Finland: ban on all non-tobacco flavours in e-cigarettes and e-liquids. • Denmark: ban on all other than tobacco and menthol flavours in e-cigarettes and e-liquids.	• The Norwegian government has proposed a ban on flavours in e-cigarettes.
11: Packaging & labelling	• All countries require health warnings on e-cigarettes.	• Denmark will implement plain packaging on e-cigarettes and refill containers in 2022. • Finland will require plain packaging of e-cigarettes and e-liquids from 5/2023 and Norway has included similar regulation in the recent legislative proposals.
13: Tobacco advertising, promotion & sponsorship	• All countries: prohibition on direct and indirect tobacco advertising, promotion, and sponsorship (TAPS) is fully extended to e-cigarettes. • All countries: apply display bans to e-cigarette sales. • Finland: ban cross-border and domestic distance purchasing (e.g., via internet) of e-cigarettes and nicotine liquids	

culture, this paper explores practices and perceptions of e-cigarette use in a sample of Danish, Finnish, and Norwegian young people aged 15–20 years. Key to our analysis is the question of how current preventive e-cigarette regulations on national and transnational levels (see Table 1 for the Nordic regulatory context) reflect how e-cigarettes are used and perceived among young people.

Young people's cigarette smoking has declined in the Nordic countries as well as in many other countries since the turn of the millennium (ESPAD, 2019; WHO, 2021). In Norway, 10% of 15–16-year-olds report smoking during the last 30 days, while corresponding figures in Finland and Denmark are 14% and 22%, respectively (ESPAD, 2019). As for e-cigarettes, between 8% and 14% of 15–16-year-olds in Denmark, Finland, and Norway report having used such products during the last 30 days, while around one-third of adolescents at this age report lifetime vaping (ESPAD, 2019). This pattern of use resembles recent findings from the UK, where 14% of 16–17-year-olds reported current (past 30 day) use, while 29% had tried e-cigarettes (lifetime use) in 2021 (ASH, 2022). Further, a recent comparative study showed that many Nordic 15–16-year-olds combine the use of cigarettes, e-cigarettes, and snus (Raitasalo et al., 2022). Snus (smokeless oral tobacco) is sold legally only in Norway, but it is available for young people in Denmark and Finland through travel imports or illegal channels. The prevalence of young people' snus use varies between the Nordic countries and has increased during the last decade in Finland and Norway (FHI, 2021; Kinnunen et al., 2019a).

In addition to patterns of dual use, research across contexts has identified how young people's use of e-cigarettes can also represent new social practices unrelated to smoking (Chu et al., 2017; Measham et al., 2016; Tokle, 2020a). E-cigarettes entered the marked at a time when smoking rates were on the decline and smoking was increasingly denormalized in most of the Western world (Bell et al., 2010; Peretti-Watel et al., 2014). Adult vapers often describe use of e-cigarettes as a substitute for cigarettes to reduce harm (Farrimond, 2017; Patel et al., 2016) or to manage the stigma related to smoking (Tokle, 2020b). For young people, the appeal of vaping seems more often to relate to positive social aspects than concerns about stigma, health, or addiction (Vu et al.,

2019). There are also distinct features of e-cigarettes that have been identified as a key factor for initiation and continued use among young people (Notley et al., 2021; USDHHS, 2020), most notably flavour additives in e-cigarettes. The attractiveness of flavours is assumed to also be related to factors extending the actual sensory experience, such as appealing names, labels, descriptions, and advertising (CDC, 2021).

Adolescence and young adulthood are life phases typically marked by changes and instability, which is reflected in young people's ability to develop autonomy in response to shifting cultural trends (Arnett, 2014; Benson et al., 2011). There are also distinct recent developments in young people's wider social lives that may impact their e-cigarette use. Digital socializing is an important new dimension in contemporary youth culture (Tilliczek & Campbell, 2019), and on average European young people spend 2–3 h on social media on schooldays and 6 h on a typical non-school day (ESPAD, 2019 p. 81). In terms of e-cigarette use, spending time on social media is found to increase the likelihood for young people to be exposed to user- and industry-generated vaping content in their feeds (Al-Hamdani et al., 2021; Malik et al., 2019).

Vaping as a social practice

A social practice can be understood as a routinized or patterned type of behaviour that brings together forms of bodily activity, mental activity, objects and their use, and types of knowledge and their emotional conditions (Reckwitz, 2002). The elements that a social practice is made up of can consist of materials, such as the e-cigarette device, of meanings, and of related competences. These elements are always interrelated and dynamic, and practices emerge, persist, shift, and disappear when connections between elements change (Shove et al., 2012). An orientation towards practices highlights the complexity and interrelatedness of people's activities and allows us to show how novel combinations of the elements that the practice consist of are enacted and reproduced (Keane et al., 2017; Shove et al., 2012). Such an orientation shifts the focus from individual actions to the interplay between elements that can promote continuation and reproduction, such as what people like about vaping, and what promotes discontinuation of it, such as regula-

Table 2
Description of participants.

	Denmark	Finland	Norway
Number of focus groups (N = 13)	4	3	6
Number of participants (N = 46)	14	17	15
Age (mean = 17)	15–20	16–18	15–19
Boys (N = 24)	7	12	5
Girls (N = 22)	7	5	10
Current user (N = 23)	7	5	11
Former user (N = 23)	7	12	4
Lower Secondary School	4	0	5
Upper Secondary school	6	6	8
Vocational school	4	11	2

tions or social norms. Similar to the perspective of how bodily as well as mental experiences cannot be separated from the social situations they are part of, Randall Collins defined social interaction rituals as socially defined practices or ways of doing things. When rituals are performed successfully, they will produce emotional energy and feelings of community and group solidarity (Collins, 2014:44). Social practices can also entail processes of identity construction, if we understand identity as meanings and narratives of self that are created, maintained, and re-shaped (Giddens, 1991) through 'doing' (Duits, 2008) and reflecting, in interaction with others, in particular social contexts. Qualitative methods enable us to investigate user motives and identities and the social meaning of e-cigarettes, which is important knowledge to inform policy development and implementation.

Methods

Data collection and participants

The data stems from 13 focus groups with 46 current and former e-cigarette users aged 15–20 from Denmark, Finland, and Norway. Prior to recruitment and data collection, the project plan was approved by ethical committees in the institutions involved. In all countries, participants were recruited through school staff or self-recruited via flyers distributed at high schools and community centres in urban or suburban areas with diverse demographic profiles. Additionally, and to ensure an age- and gender balanced sample, some participants were recruited through snowballing. Reflecting the pattern of e-cigarette use among young people in Denmark, Finland and Norway (ESPAD, 2019), the majority of the participants were, or had been, occasional e-cigarette users. For an overview of participant characteristics, see Table 2. Participants received oral and written information about the study before consenting to participate.

The focus groups had 2–6 participants and were conducted by the authors in their respective countries and languages between November 2020 and April 2021. Due to the Covid-19 pandemic, 8 focus groups were performed online via Teams or Zoom, while the rest were face-to-face groups on school premises or the respective researcher's workplace. In the digital groups, we included fewer participants, in order to ensure good conversational dynamics. Overall, no differences in results depending upon data collection mode were noted. The focus groups used a semi-structured topic guide to explore participants' experiences with and perceptions of e-cigarettes, such as use practices, motives for use, social norms, risk perceptions, perceptions of the products and designs, influence, and addiction. The groups lasted on average 1 hour and were audio-recorded and transcribed verbatim. Information that could identify participants was left out of the transcripts.

Data analysis

Analyses were conducted following principles from reflexive thematic analysis (Braun & Clarke, 2019), which emphasises the impor-
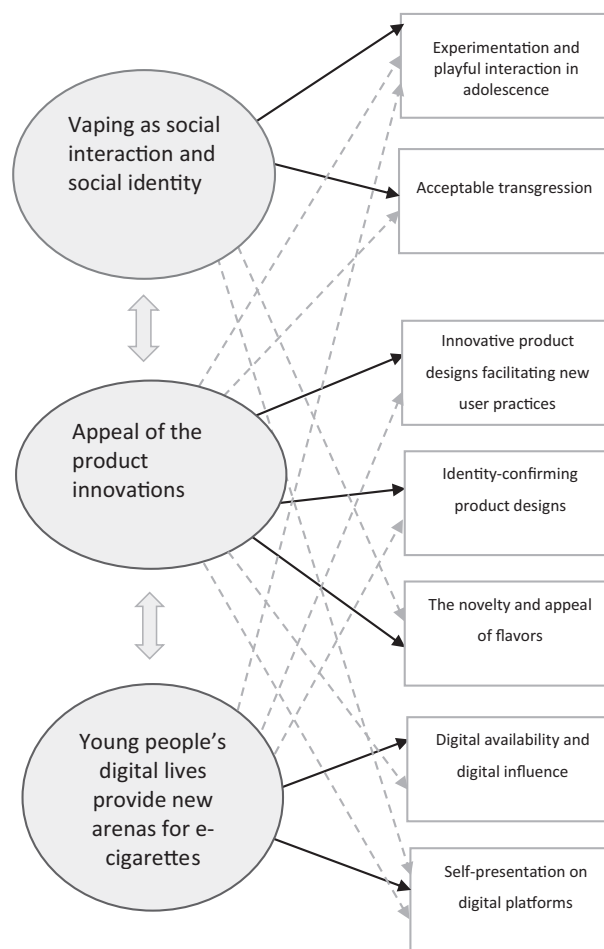

Fig. 1. The social practices and meaning of young people's e-cigarette use.

tance of researchers' subjectivity as an analytic source and flexibility in connecting with theory, data, and interpretation (Braun & Clarke, 2021). The interpretive process involved several stages. First, the respective researchers (SR, AL, JS, RT) conducted the initial analysis of their national data. The coding tables and analyses from each country were summarized, translated into English, and shared with the other researchers. Second, the whole research team discussed the results with an emphasis on identifying new topics and patterns of shared meaning across the datasets. This reflexive process was then integrated into the final analysis resulting in three overarching themes and several sub-themes relevant to the subject of this article. All researchers went back to their national data several times to look for variations in the themes under study, and both the analysis and the writing processes were carried out in close collaboration.

In the presentation of the results, we centre upon the shared social meanings in the Danish, Finnish, and Norwegian data as our inductive analysis showed more similarities than differences between countries. However, we also attend to relevant differences within the sample, including national differences. We identified three overarching themes in how the participants described the use and social meaning of e-cigarettes: (1) vaping as social interaction and social identity, (2) appeal of the product innovations, and (3) e-cigarettes in young people's digital lives. In the following, we outline these themes, how the themes relate to each other (see Fig. 1), and how they could be seen as pointing to strengths and weaknesses in current e-cigarette legislation and enforcement. Quotes are marked with country (DK = Denmark, FI = Finland, NO = Norway), sex (F = Female, M = Male), user status (FO = Former user, CU = Current user), and age.

Young people's vaping as social interaction and social identity

Most of the participants in our study described using or having used e-cigarettes occasionally, and only a small minority reported current or former regular use. Overall, e-cigarette use patterns stood out as experimental and time-limited and as inherently social.

Experimentation and playful interaction in adolescence

Across the Nordic countries, many of the participants emphasized how vaping was more popular when they were younger, typically between the age of 13 and 15, than at their current age. Former users often described their vaping as time-limited experimentation motivated by curiosity and closely interlinked with their age at the time of use: *'It was fun to start with because of the novelty, but it became indifferent within a month, then I just didn't bother to bring it with me anymore'* (DK/M/FO/15). Several of those who did not use e-cigarettes anymore described them as 'a little childish'. One girl explained:

> *E-cigarettes were really popular when we were 14 and 15, but nobody uses them anymore. I think their popularity was about showing to friends that you are 'adult', that you have 'stepped it up'. But later you step it up further, to cigarettes and alcohol.* (NO/F/FO/19)

Both in retrospect and in describing current use, the young people typically depicted social practices of vaping together with peers and of sharing or borrowing e-cigarette devices from each other. Buying or selling used e-cigarettes between peers was described as a form of social interaction in itself and as interesting to take part in. The social interaction dimension of young people's vaping was further underscored by the particular social settings that the participants associated with the practice, such as when hanging out with friends or at parties:

> *I don't think many our age is addicted; I think they do it for fun. I do it mostly for the social aspect, and because it's fun and because vaping gives more of a party vibe.* (NO/F/CU/15)

In an illustrative vein, this girl downplayed the potential addictive dimension of e-cigarettes and instead emphasized the social and interactional connotations of their use. She also emphasized how the context the vaping took place in and the way it was done – together with friends and for fun – created a particular shared feeling that she found attractive.

Embedded in the social meaning of vaping as 'fun', e-cigarettes were often presented by the young people as a toy or gadget to play with:

> *Well, I vape sometimes when they happen to be available; they are toys that are nice to play around with, but I don't use them because of the nicotine.* (FI/M/CU/17)

The participants often described this potential for play as vital for their and their peers' interest in e-cigarettes: *'I've seen people play with it at school, they inhale vapour and then blow it out, just for fun'* (NO/F/CU/18). As such, vaping stood out as integrated in social interaction rituals where they could play with and display their use to others to garner positive attention and as something that contributed to group solidarity.

Acceptable transgression

Most of the participants perceived vaping as not having severe health risks. This applied both to active and passive exposure, and for many these perceptions related to their occasional pattern of use:

> *It's pretty damaging to your health, or I can't really imagine it's very good for your lungs or your body. But I'm not concerned myself because it's not such a big deal if you only use it occasionally.* (NO/F/CU/17)

Among some of the Danish participants with smoking experience, the health risk of vaping was often talked about relative to cigarettes, as

in: *'I've heard that it should be, like, 100 times better than smoking cigarettes'* (DK/M/FO/15) or *'When it smells so much better than cigarettes, it can't be equally dangerous'* (DK/F/CU/16). Some told they had switched from cigarettes to e-cigarettes to reduce the health risk, mirroring the evidently higher smoking rates among young people in Denmark compared to Finland and Norway.

We found variations within the sample as to whether young people had used nicotine-containing or nicotine-free e-cigarettes. Most of the participants had tried both, and use of non-nicotine e-liquid was popular among the youngest in particular. Further, and suggesting a more indifferent position towards e-cigarettes in some young people, those who had limited experience did not always know if they had tried products with or without nicotine. However, among those who were aware, the availability of nicotine-free e-cigarettes seemed to influence their risk perceptions of e-cigarettes:

> *When I tried it for the first time, there were no nicotine-containing liquids in my friend's vape, so I thought that this can't do any harm.* (FI/F/FO/17)

Interlinked with the 'optional' nicotine content and irregular user patterns, very few said they had experienced feeling addicted to e-cigarettes: *'I know some people my age that have become addicted, but I have never felt it. Vaping felt good at that time, but it did not affect me after that'* (NO/M/FO/18). Non-addicted use could relate to the occasional and fragmented user patterns many of the participants emphasized, especially in early adolescence. The participants' general talk about how they were not addicted could also be interpreted as a presentation of self, as someone who is in control and who is mindful of their health.

E-cigarette use was also commonly described as more socially acceptable than smoking. Several talked about how use of e-cigarettes, in comparison to smoking, raised little social disapproval among peers, who often allowed them to vape in their proximity:

> *Vaping doesn't smell bad. I've had a couple of friends who didn't like that people smoked, or the smell of tobacco smoke doesn't please them just as it doesn't please most people, but they haven't been bothered if I've vaped around them as the smell doesn't stick.* (FI/F/FO/17)

Lack of smell from e-cigarettes was often brought up as an appealing feature of the product. The young people seldom mentioned the stigma of smoking directly, but it could often be seen in the subtext of their talk, like the girl above relating how the smell of tobacco did not please her friends, to how it also does not please most people. Several brought up the advantages of vaping as an indirect antithesis to disadvantages of smoking, such as the negative reactions and how people dislike it:

> *I haven't received any negative reactions like, 'It's so stupid'. I think that's also because it doesn't bother anyone else. It doesn't smell, it doesn't make any sounds, and not much vapor. And also, that it's so small, nice, and practical. So, if you want to keep it hidden from your parents, it's very easy.* (NO/F/CU/16)

As illustrated, the discreteness of e-cigarette use could facilitate vaping at home without parents knowing, or in other situations: *'[in school] they just open the window, because it doesn't smell like cigarettes'* (DK/F/CU/16). Some emphasized how e-cigarettes did not create trash after use:

> *E-cigs are so much easier. Like, with snus you must get rid of the used bags and with cigarettes you have the butts and the pack. With e-cigarettes, there is nothing to throw into the rubbish or ground or anything. You just add the liquid and carry it in your pocket.* (FI/M/FO/17)

Interestingly, the same attributes that made vaping socially acceptable also made it easy use and easy to disguise. The ease of vaping thus related both to practical and social dimensions.

The interlinked meaning of smoking and vaping seemed to create a contrast that the meaning of vaping could be formed upon. However, the social meaning of vaping also borrowed from the meaning of smok-

ing. E-cigarettes were described as being interesting partly because they were prohibited, especially when the participants were younger. In retrospect, they saw e-cigarettes as implying the somewhat illegal and the adult:

> Having an e-cigarette was prohibited at that age, so it was cool just because of that – because you would not be allowed to have one. (FI/M/FO/17)

In sum, the disapproval of parents and prohibitions in legislation and the interlinked meaning with smoking seemed to make vaping into a transgression, while social acceptance in peer settings due to discreteness and lack of bad smell made the transgression more acceptable. In this, vaping stood out as a social practice bringing together forms of interaction (vaping together with friends), bodily activity (like blowing rings and other forms of play), emotional states (shared feelings of enjoyment and fun), and social meanings (to show opposition to parents and daring to break the rules). It also stood out as a way to express social identity.

Appeal of the product innovations

The young people in this study attributed a lot of interest to e-cigarette product design and to the innovative features of the devices. This was reflected in discussions about the meanings associated with different materials, colours, shapes, and most notably the importance of the novel user practices these innovations facilitated.

Innovative product designs facilitating new user practices

Across countries, the participants emphasized the design of the e-cigarette device itself as important for their interest in e-cigarettes:

> I think it's cooler to have a big one, but then again, it's also nice to have a small one you can fit in your pocket. It's of course nice to have the one that looks coolest, the biggest and the one that can make the most vapour. (DK/M/FO/15)

Irrespective of current vaper status, the young people displayed significant product knowledge, and many described having tried a range of different devices. The variety of designs available appeared as an important initial driver for experimenting:

> I started with the thin pen. It looks like a pencil, or a pen. It was kind of cool, because it looks like you're walking around with a pencil in your mouth. Later I got to know the larger, more powerful ones, those that make a lot of smoke when you use them. There is a lot of variation, a lot to try. (NO/M/CU/17)

While the product variation in general seemed to create curiosity and interest, specific product designs were also associated with different user practices. Some participants emphasized how they 'appreciated the small devices for not being flashy', the girls in particular. Others underscored the appeal of the distinct feature of the larger ones that facilitated the production of big clouds. Some emphasized how the possibility of using different devices in different situations – e.g. discrete e-cigarettes at school and big tanks when doing tricks at parties – was making e-cigarettes interesting to them. This illustrates how the product design contributed to constituting e-cigarettes as an innovation that appealed to young people, together with novel user practices facilitated by the diverse types of devices:

> It [vaping] was fun and nice. It was fun to blow out vapour because you could do tricks and stuff. I like performing different vape tricks with my mouth, like 'the ghost', 'the bobble', and then just inhale through my nose and all that. Also, the light nicotine shock is nice, and the flavours of course, because there are many different flavours. (NO/F/FO/19)

The trick-performing dimension of vaping was again closely intertwined with how e-cigarette use was described as an inherently social

practice, suitable for interaction rituals that created social cohesion. The social dimension also appeared in how they would play by repeating each other's tricks: 'Others perform certain tricks, and then you would try to do the same, that's how it started' (DK/M/CU/15). Overall, the participants seemed to perceive e-cigarette product design as important and meaningful. In contrast, they seemed to pay less attention to the design of the e-cigarette packaging. Opinions about e-cigarettes in standardized packaging were ambivalent: 'It could make the product look less cool I suppose. But if you buy it in the US, it will not affect you' (NO/F/CU/15), and many were indifferent about this possible regulation.

Identity-confirming product designs

Because of the range in product design, the young people described picking device types that appealed to them and refraining from those they did not like: 'For some the most important thing is that its practical to bring along, so you go for a thin, fixed one, and then there are like those who have the giant square brick-shaped ones' (DK/F/CU/15). The possibility to choose devices based on different practical and aesthetic preferences also involved being able to choose e-cigarettes that reflected their personality:

> It's like when you pick a phone. Like, do you prefer gold or black, or whatever. With e-cigarettes there are also different colours and models. (DK/M/CU/20)

Importantly, this also entailed the possibility for young people to distinguish themselves from other users by their choice of e-cigarette devices: 'The look is really important, that it is slim and long. I don't like the big ones, with tanks, they would make me feel like an old person' (NO/F/CU/17).

While nicotine-containing pod devices are not legal to sell in any of the three Nordic countries, some Norwegian participants had JUUL as their preferred product. These seemed to be particularly concerned about the look of their device, as one said: 'I prefer JUUL because of the aesthetics. It looks prettier, and you get the one you think looks prettiest' (NO/F/CU/17). Among this subgroup, the design of the JUUL pod devices was described as superior to other types of devices and thus something that could make them stand out from other e-cigarette users. Interestingly, the JUUL users often shared the general perceptions of e-cigarettes as 'childish', while: 'JUULs are different, more adult in a way' (NO/F/CU/15). The Juul users thus emphasized their choice of product as part of a social identity as someone 'in the know' of what was fashionable and of high social status. They mostly received supplies of JUULs from friends or family who travelled from the US, and the difficulty of obtaining JUUL appeared to add a dimension of exclusivity to it. For them, JUUL seemed to represent the exclusive, the international, and a new trend in which they saw themselves as innovators:

> JUULs are exciting because they don't exist in Norway but have this international vibe. It is a fashion thing. People say: 'Oh, you're so international', like. Because it's what they do abroad. I've had no negative comments. It's more like: 'Ey, you're cool'. (NO/F/CU/18)

Overall, the aesthetic dimension of various e-cigarette designs seemed to be able to contribute to the young people's projects of constructing and presenting particular social identities. The way the JUUL users talked about the specific appeal of their product also pointed to how branding could be seen as intertwined in these processes.

The novelty and appeal of flavours

In addition to the above, the product innovation represented by the range in e-liquid flavours available raised curiosity and interest in itself:

> With flavours, it's almost like when you pick candy in the candy store, you choose those that sound fun, or like, your favourite flavour. (NO/F/CU/16).

The participants often highlighted how they liked the fact that e-cigarettes came with such a wide range of sweet, fruity, candy-like flavours allowing vaping to taste good. Flavour also stood out among participants of all ages as adding a playful dimension to vaping, thus contributing to the social interaction rituals of e-cigarette use and making e-cigarettes more 'fun'. Interlinked with the mentioned importance of a 'pleasant smell' from vaping, the range of e-liquid-flavours was described as a driver for experimentation and use:

> F: Yeah, I think that ability to choose the flavour is the reason why people buy e-cigarettes instead of cigarettes. (FI/FO/17).
>
> M: And there are also liquids that taste like tobacco, but I have never heard that anyone would buy them. (FI/CU/17).
>
> M: Yeah, because why would you not buy cigarettes then, as they are even easier to get? (FI/CU/17)

Perceptions of low harm to health from using e-cigarettes also seemed to partly relate to the availability of sweet and candy-like flavour additives in e-liquid. Flavours were described as lowering the barriers of experimentation because they made e-cigarettes appear less harmful to health than tobacco products:

> Somehow, e-cigarettes seem healthier than other substances, like cigarettes or snus, and the smell already generates the idea that this cannot be good for you. But if you have a vapour that smells like watermelon or lime, you don't think that it can be that bad. (FI/F/FO/16)

Further underscoring this, a few participants emphasized that colourful flavour-related drawings or other design elements on the e-liquid packaging made them appear 'innocent' in terms of health consequences: 'There is always a watermelon or something on the packaging. It's not like it looks dangerous when you look at it' (DK/M/CU/20). Although most of the participants said they were indifferent to e-cigarette package design, some more rare accounts like this pointed in a different direction.

Young people's digital lives provide new arenas for e-cigarettes

Across user statuses and country of origin, the digital dimension of young people's everyday life appeared to be of vital importance for their use of e-cigarettes. Digital markets provided easy access, and the young people both consumed and produced vaping-related social media content.

Digital availability and digital influence

The participants described relatively easy access to devices and liquids, and this related to some extent to how e-cigarettes circulated between friends. However, they also explained availability by how e-cigarette devices and liquid could be bought online:

> People buy it online. It's not so expensive, there is no age check, so it's not difficult, really. It just takes a little time. I bought mine from a friend who bought it online. (NO/F/CU/17)

Also in Norway, where sale of nicotine-containing e-liquids in domestic shops is not allowed, participants perceived e-cigarettes, both with and without nicotine, as easy to obtain. In a similar vein, the Finnish young people saw flavoured e-cigarette liquid as easy to access despite the national sales ban both in shops and online.

Young people's use of digital technology also stood out as important for their knowledge about e-cigarettes. They described receiving information about e-cigarettes mainly from informal sources: 'It's not from the authorities or those kinds of people… It's mostly from the internet or from people who use them themselves' (FI/M/CU/17). The participants also described watching different vaping content on social media platforms, typically YouTube and TikTok:

> When you look at those videos, for instance on YouTube, these professionals can really do amazing tricks. (FI/F/FO/17)

Many reported how they had looked at, and liked, videos from vape influencers who displayed products and tricks on digital platforms. Some talked about how they had been inspired by these to practice tricks themselves: 'I watched YouTubers who made rings and balls a lot. So, I thought I'd try it out. Just to feel the steam, and to try to make those balls' (NO/M/CU/18). Many told how they had searched for such content themselves: 'It is for a targeted group – you probably don't notice it in social media unless you look at it and search for it' (FI/M/CU/17). Reflecting the logic of algorithms, several participants also emphasized how e-cigarette-related content had begun to appear more in their feeds when browsing online after they had once themselves searched for it: 'They just pop up automatically, either as advertisements or as a video that some YouTubers 'advertise' for you. But it's because I've looked at it before' (NO/F/CU/18). In general, many of the participants showed a high level of awareness of vaping-related commercial content on social media:

> On TikTok, some are sponsored by brands like JUUL. It looks good because they sponsor it in a very cool way that makes other people think: 'Oh, I want that too'. They have like small businesses, they put different flavours and stuff in a box, and then their business card inside, and then they say: 'Buy this from me'. I've seen that on TikTok and YouTube. (NO/F/FO/18)

The young people underscored how the commercialized content was mostly from US influencers or others from abroad. However, some also mentioned having seen seeing national influencers posting more indirect vaping-related content:

> On TikTok, it was like: 'JUUL, check'. There were a lot of TikToks about JUUL from the US. But there are also some Norwegian influencers that have JUUL. I was like: Really? Do YOU Juul too?? It's like.. how should I describe those types of influencers? Like the inspirational ones, the really nice girls, kind of. And the JUUL is there, on the table next to them. (NO/F/CU/17)

Social media content from popular national influencers was described as somewhat illegitimate given the established national bans on tobacco advertising. At the same time, the quote above indicated that such content could be 'inspirational' and identity-confirming.

Self-presentation on digital platforms

In addition to commercial content and content shared by popular influencers, participants talked about how pictures and videos of vaping posted by friends or acquaintances emerged in their social media feeds: 'At parties, my friends and others sometimes post photos of themselves with their JUUL on social media' (NO/F/CU/16). Both posting such videos and commenting on friends' social media posts was described as a social activity, as something to do together and to talk about both face-to-face and in digital interaction. This was an important part of their social lives, relating to all kinds of topics and interests.

The young people also described posting pictures and videos of their own vaping, and some emphasized how this could be a way to communicate or initiate contact with new people if their videos evoked curiosity or interest:

> I've tried to do some tricks I've seen on YouTube and TikTok. I have also taken pictures myself and posted them. In a way, if you post a picture of yourself on snap, you can get attention for it. And perhaps start a conversation with someone… If you just post a regular photo of yourself, it's just 'okay?'. But if you bring your JUUL in the photo, it's like: 'Oh, what's that? Where did you get that from?' That's how it spreads also, how people find out what it is and how you can get a hold of one in Norway. (NO/F/CU/18)

Social media postings of vaping seemed to provide an opportunity to show oneself to others as a particular kind of person, for instance, as someone who has the competence to do tricks or who is 'in the know' of what is novel, or trendy, or which brands can make you stand out from

the crowd. While notions of stereotypical young vapers were rare among the participants – 'anyone' could try or use vaping occasionally – vaping was described as having utility for more individual self-presentation and expressions of identity.

Seen together, vaping stood out as a social practice and an interaction ritual not only in physical meetings with peers, but also in the young people's digital lives. Viewing and producing vaping-related content in social media was interwoven in other social practices that were important in participants' daily lives, many of them taking place in the digital world. Social media platforms were described as natural arenas for peer-socialization and self-presentation, in which vaping was one activity to gather around. The young people's stories showed how commercial vaping content and content from peers blended. In this, their shared presence in digital arenas, which are global in nature, seemed to contribute to erasing national differences, for instance, in terms of accessibility and regulation.

Discussion

Based on focus groups with Danish, Finnish, and Norwegian 15–20-year-olds, this study shows how young people's e-cigarette practices stand out as inherently social and rooted in the broader contemporary and global youth culture. Vaping facilitates play and self-presentation and serves a wide range of social purposes. It enables young people to participate in social interaction rituals, to show defiance, and to facilitate an identity position. The social practice and meaning of e-cigarettes are closely linked to e-cigarettes' innovative features, such as the optional nicotine content and the novel and appealing flavour additives. These features further facilitate use in new arenas, such as indoors, due to lack of bad smell and related social disapproval. E-cigarettes' innovative features also enable new user practices – such as doing tricks with the vapour – and social media represents an important extended platform for this interaction in which images of vaping are both viewed and performed for others to see. Overall, the social meaning of vaping stands out as closely related to its perceived visual appeal and social and interactional utility in a particular time in the young people's lives.

Similar to Ranjit et al. (2021) and Smith et al. (2021) meta-ethnographies of qualitative studies exploring how young people perceive and use e-cigarettes, the 15–20-year-olds in this study saw e-cigarettes as a sociable tool because they allowed them to align themselves with peers who used e-cigarettes, but at the same time to stand out as individuals. Vaping was described as a way to express a rebellious identity in early adolescence and to mark distance from childhood (Tokle, 2020a), similar to the meaning often ascribed to young people's cigarette smoking (Scheffels, 2009; Scheffels & Tokle, 2017). E-cigarettes seemed to receive some appeal from being 'forbidden fruits' in early adolescence (Nuyts et al., 2018; Sussman et al., 2010), but at the same time the participants often described vaping as a kind of pragmatic and acceptable choice of transgression. E-cigarettes appeared to 'borrow' some of the oppositional meaning from regular cigarettes but were at the same time defined by differences from regular cigarettes. Like in several other studies (Alexander et al., 2019; Chen et al., 2020; De Andrade et al., 2016; Hughes et al., 2021; Sharma et al., 2021), the young people in our study perceived e-cigarettes as less harmful to health than cigarettes, more discrete, and more socially accepted. As such, the social meaning of combustible cigarettes and e-cigarettes stood out as clearly interrelated, but in a more complex way than what has previously been found among adults (Tokle, 2021).

Recent studies from Norway (Tokle et al., 2022) and Finland (Kinnunen et al., 2019b) have shown that use of nicotine-free e-cigarettes is common among young people. In this study, the availability of nicotine-free options together with sweet and fruity e-liquid flavours seemed to increase e-cigarettes' appeal among young people and to contribute to perceptions of low harm to health from vaping. Together with the large variety of e-cigarette devices available, the optional nicotine content and the range and appeal of flavour alter-

natives (Goldenson et al., 2019; Notley et al., 2021; USDHHS, 2020) appeared to be assembling e-cigarettes into a novel, interesting, and attractive product. The flexibility associated with these innovative features was described as enabling young people to select e-cigarette products that matched their personal style, accessorize the e-cigarette, and make it fit their identity. The e-cigarette innovation was depicted as holding a potential for play (McDonald & Ling, 2015) and as facilitating particular social interactions rituals (Collins, 2014), where they could show their use to others, do tricks, socialize, and express identity (Evans-Polce et al., 2018; Kong et al., 2020; McKeganey et al., 2018; Tokle, 2020a) in ways that created feelings of community and shared enthusiasm (Chu et al., 2017; Yule & Tinson, 2017). Overall, the way the young people in this study talked about their e-cigarette use showed how the materiality of the e-cigarette, the competence they had of how, when, and where to vape, and the meanings they attached to vaping joined together in the entity of a particular social practice (Shove et al., 2012). Social media was described as a key arena for e-cigarette use and the related interaction rituals. Aligning with how young people today use social media to communicate and to share images and ideas about everything that is of interest to them (Gardner & Davis, 2013; Tilleczek & Campbell, 2019), the visual nature of vaping (the vapour, the possibilities to perform tricks, the various devices) seemed to make vaping into a youth cultural practice suitable for social interaction and self-presentation on digital platforms.

Importantly, however, at the same time as e-cigarettes were described as potentially fun, novel, and appealing, they were also often talked about as childish and as a 'thing in their past', and many did not seem interested in continued use. Notably, our results illustrated several strengths of current regulations in Denmark, Finland, and Norway. The comprehensive implementation of regulations on e-cigarettes such as sales restrictions, sales bans, bans on vaping in public places, and implementation of display bans on e-cigarettes and tobacco products (Ruokolainen et al., 2022, see also Table 1) can probably partly explain the low prevalence of vaping among young people in most of the Nordic countries, and perhaps also the fragmented and often time-limited user patterns described in this study. At the same time, the accounts in our study of JUULs as an emerging 'hype' of the present could be seen as a counter story of vaping as a social practice reserved for experimentation among the youngest and indicate that e-cigarettes could have potential to gain increased popularity among young people in the future. Also, combining e-cigarette use with the use of cigarettes or snus is common in all Nordic countries (Raitasalo et al., 2022), and it has been suggested that young people use e-cigarettes and snus complimentary to conventional cigarettes and not as substitutes (Kinnunen et al., 2021).

To develop policies that address e-cigarette use among young people in a suitable way, we need a better understanding of how vaping is a social practice comprised of particular materials, meanings, and competences (Shove et al., 2012). We also need knowledge of how social practices like young people's vaping can emerge, persist, shift, or disappear when connections between the elements that the practice consist of are made. These insights contribute to an understanding of the multiple dynamics of everyday life that young people's vaping is integrated in, and hence for addressing the policy challenges related to e-cigarette use. As shown in our data, vaping and smoking have unique user practices and may be used for different purposes. These findings point to the importance of targeted preventive policies that consider the particular vaping practices among young people and the associated social meanings they hold in youth culture. While it is well established that policies such as high tobacco prices, bans on tobacco advertising, and smoke-free laws show good effects on young people's smoking (USDHHS, 2020; WHO, 2021), our study findings illustrate that applying exactly the same measures in order to prevent young people's vaping may be less straightforward due to their access to e-cigarette devices on the digital market, to exposure to e-cigarette influence on digital platforms, and to the unique features of e-cigarettes enabling discrete use that may circumvent anti-vaping laws.

As regards regulations that are already implemented or suggested in many countries, including the Nordic countries (see Table 1), our results indicate that bans on flavour additives in e-liquid are important for young people. This suggests that prohibitions on appealing flavours in e-liquids should be integrated in the requirements of the European Directive on Tobacco Products (TPD 2014/40/EU). Plain packaging of e-cigarettes did, however, only partially fit with how the young people in this study saw and used e-cigarettes. The participants' emphasis on the design of e-cigarette devices suggests that standardizing the look and design of these, e.g., by mandating less variation in design or colour, could also be a path forward.

However, the most outstanding finding in terms of regulation in our study was how national preventive measures against young people's vaping seemed to be undermined by a new online and global market arena. Like in countries where sales of e-cigarettes are less regulated (Smith et al., 2021; Yoong et al., 2018), the products were perceived as easy to obtain. Digital markets play a significant role in providing easy access, also among those under 18. While this generally emphasizes the importance of strengthening the enforcement and surveillance of age limits on sales in online channels (Walley et al., 2019), it also points to how global digital markets can undermine national regulation. Despite the difference in e-cigarette regulations in Norway, Finland, and Denmark, there was little variance between countries in how the availability of e-cigarettes and flavoured e-liquid was perceived. This points to a need for transnational regulations of digital markets to support individual countries in limiting young people's access to e-cigarettes.

Another key finding was how young people's' digital lives provided new arenas for e-cigarette use and display. Positively framed vaping-related postings were described as widely available and popular (Kong et al., 2019; Sun et al., 2021), and the lines between private and commercial actors posting this content seemed blurry (Hickman & Delahunty, 2019; Kong et al., 2020). Exposure even to low-intensity e-cigarette advertising has been associated with susceptibility to e-cigarette use among young people who have not previously used e-cigarettes or cigarettes (Wang et al., 2020). This points to a need for stronger and more consistent regulations on novel global advertising and marketing channels like social media, including regulating how social media platforms algorithmically filter the content that appears on a user's feed (Cen & Shah, 2021) and how influencers can promote vaping products. Overall, strengthening the global and European regulations seem critical to ensuring consistent and comprehensive regulations on e-cigarettes across countries (Linnansaari et al., 2022). Importantly, the European Directive on Tobacco Advertising (TAD 2003/33/ED) should be revised to also cover novel marketing channels like social media. As part of the decisions taken in the Conference of the WHO FCTC Parties, recommendations or implementation guidelines could be strengthened to more explicitly cover e-cigarettes, and article 13 (tobacco advertising, promotion, and sponsorship) could be strengthened in relation to the bans on online sales and purchasing to simultaneously decrease the indirect marketing in online channels.

Finally, our study also demonstrates how young people themselves engage in digital vaping practices with potential to influence their peers (Harrell et al., 2019), e.g., practicing the same tricks as the 'professionals' in videos they have seen and sharing images of these with friends. This illustrates how contemporary young people are 'digital natives' (Prensky, 2009) and how vaping is closely integrated in young people's digital lives, and thus in an increasingly global contemporary youth culture (Osgerby, 2020). Our results point to how vaping should be understood as a contemporary youth cultural practice, where its meaning is affected by the dynamics within the youth culture itself, thus intersecting with digital entertainment, self-presentation, positioning, and social interactions with peers, both on and offline, as well as with developments in the materiality in the e-cigarette product. These elements that the social practice of young people's vaping consists of are what promote the continuation and reproduction of vaping among young people, and they should be kept in mind when developing policies and interventions.

Strengths and limitations

A strength of this study was the cross-national approach, enabling us to study if and how minor national differences in regulation may impact how young people use and perceive e-cigarettes. The main limitations relate to how the focus groups were conducted, transcribed, and analysed in the respective researcher's native language. While extensive transcript summaries and descriptive quotes were translated into English, some cross-national points may have been missed. However, the participation of multiple researchers may also have strengthened the objectivity of the analysis and the results. Another limitation could be differences in sample structure, as in the weight of current and former users. Still, the results were largely similar between countries. The challenges in recruiting study participants reflected the low vaping prevalence among young people in the three countries, and in terms of the qualitative design the results are not necessarily transferable to other study contexts or study populations. Future research should explore how the social practice of young people's vaping plays out in different regulatory environments and in contexts where vaping patterns are different.

Conclusion

Our findings point to the importance of acknowledging the social and cultural dimensions of young people's e-cigarette use when developing policy and prevention efforts directed at this group. Further, this study highlights how national regulations alone are not likely to be sufficiently effective in preventing onset, uptake, and exposure to e-cigarettes among young people. Therefore, strengthening European and global regulations to harmonize legislation across countries is important to support individual countries in reducing e-cigarette uptake and use among young people.

Research ethics

All procedures were performed in compliance with national research ethics requirements in Denmark, Finland and Norway. The project and procedures were also approved by appropriate institutional committees of each of the involved authors. Informed consent was obtained for all participants, and their privacy rights were taken care of.

Funding

Submission declaration

This manuscript has not been submitted for publication elsewhere.

Declarations of Interest

The authors declare no conflict of interest.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.drugpo.2022.103928.

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