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Published online: 07 Apr 2020.

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Bottom-up meets top-down: exploring vapers' accounts of risk in a context of e-cigarette controversies

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Framed both as a solution to and as an additional part of the tobacco problem, e-cigarettes have been the subject of risk controversies since they were launched in 2006, followed by massive divergence in media, public health approaches and regulations across the world. This study explores vapers' risk perceptions and accounts of the public risk communication and regulation of e-cigarettes in a Norwegian context were nicotine-containing e-liquids are prohibited from being sold by domestic retailers. Based on analyses of semi-structured qualitative interviews (n = 30, 17 males) with adult vapers, I find that the participants emphasised three important dimensions related to risk. First, they perceived vaping as harm reduction by substituting for smoking. Second, they devalued much of the risk communication about e-cigarettes from Norwegian health authorities and media. Interlinked with their harm-reduction approach, they perceived the present regulation of nicotine e-liquid and vaporisers as increasing risk by decreasing their availability to smokers. Third, in general they preferred the lay expertise available online to the health authorities' information on e-cigarettes. The analysis displays a lack of trust among the participants in what can be labelled as top-down information. Based on these dimensions, I conclude that the dissonance between vapers risk perceptions and the regulation and mixed messages in risk communication of e-cigarettes has contributed to their preference for bottom-up expertise. From the vapers' point of view, e-cigarettes represent harm reduction, and the vaper community symbolises a bottom-up health movement where peer assistance compensates for a perceived lack of assistance from health authorities.

Keywords: risk communication; lay expertise; e-cigarettes; controversies; regulations; trust; risk perceptions

Introduction

Since the e-cigarette was launched as a smoking substitute in 2006 (Hajek et al., 2014), it has been the object of increasing interest and controversy (Bell & Keane, 2012). The use of e-cigarettes have been presented as a solution to the tobacco smoking problem, one of the main causes of ill health and premature death worldwide (Gowing et al., 2015), as well as evoked fear of additional harm, renormalisation of smoking (Fairchild et al., 2014) and new nicotine-addicted generations (Gilreath et al., 2016). The controversies have been followed by massive divergence in media, public health approaches and regulations across the world (Adekola et al., 2019; Annechino & Antin, 2016). In this paper, set in a Norwegian context were the sale of nicotine liquid is prohibited, I explore how vapers perceptive and account for the public risk communication and regulations of e-cigarettes.

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In what follows, I outline an overview of the present context and literature on the epistemic climate of vaping and introduce the concepts of risk and stigma relevant to the analysis. I then present the qualitative design of the study, which consist of data from semi-structured individual interviews with adult users of e-cigarettes. The analysis of these data revealed a lack of trust among the participants in what can be labelled as top-down risk information. I identified three main dimensions associated with e-cigarettes and risk. First, they framed e-cigarettes as a smoking substitute and hence vaping as harm reduction. Second, they dismissed risk communication from health authorities when it conflicted with their harm reduction approach. Third, the adult vapers commonly favoured lay expertise over health authorities' information on e-cigarettes

Context

The invention of the e-cigarette can be understood as a disruptive technology (Fagerstrom et al., 2015) and a turning point in the history of tobacco, due to its contribution to a dramatic change in the nicotine market, with a shift away from combustion. Moreover, e-cigarettes, defined as handheld electronic devices that vaporise a flavoured liquid, often containing nicotine, for users to inhale (WHO, 2014), were relatively early on acknowledged, from a harm-reduction perspective, as having the potential to yield positive results on smoking cessation at a public health level (Fairchild et al., 2014). At the same time, applying a precautionary principle, e-cigarettes are a relatively recent addition to the nicotine market and there is a possibility that future research might reveal negative health effects from long-term use (Drope & Schluger, 2018). Furthermore, evidence to date indicates that e-cigarettes are not without risk, albeit likely to involve substantially less health risk than combustible cigarettes despite the long-term health effects of vaping remaining unknown (See National Academies of Sciences, E. & Medicine, 2018, for a more comprehensive review of public health consequenses of e-cigarettes).

The epistemic climate of vaping

The communication of risk following use of new products encompasses both political implications and moral questions (Lupton, 1993). At present, there are complex international and multi-sourced risk communications on e-cigarettes. Health authorities across the world, including public health officials, regulators, and scientific scholars and professional communities, have been divided on matters relating to e-cigarettes with a more critical 'anti-vaping' community suggesting implementation of a ban on e-cigarettes, and a more pragmatic 'pro-vaping' community advocating for their use as an important tool in a harm-reduction strategy (Fairchild et al., 2014; Green et al., 2018; Warner & Schroeder, 2017). Focusing on the risk proportionality in their risk communication, harm-reduction-focused researchers are upholding evidence that e-cigarettes have the potential to save lives as a smoking substitute (Rooke et al., 2012).

The 'pro-vaping' community also consists of users of e-cigarettes offering their bottom-up expertise (Abrams et al., 2018; Green et al., 2018). The bottom-up approach emphasises local decision-making, community participation and grassroots mobilisation (Panda, 2007). On the opposite side are the anti-vaping community, consisting largely of representatives of the health authorities supporting tobacco-denormalisation policies which imply a rejection of the idea of tobacco harm reduction (Annechino & Antin, 2016) and strongly favour an

abstinence-only vision (Warner & Schroeder, 2017). Such rejection applies even if the harm potential of the product might be drastically reduced (Glantz & Bareham, 2018), as is the case with e-cigarettes and low nitrosamine 'Swedish' snus – a smokeless type of tobacco that is significantly less harmful than cigarettes (Nutt et al., 2014; Royal College of Physicians of London. Tobacco Advisory, G, 2007).

Some of the reluctance by some health authorities to welcome e-cigarettes as an adequate tool against tobacco smoking can be connected to ideology and the way that vaping mimics smoking (Bell & Keane, 2012), a practice that has been increasingly stigmatised over recent decades (Peretti-Watel, Legleye et al., 2014). Although e-cigarettes do not contain tobacco or involve combustion, they enhance the most dominant semiotic referent of the cigarette: the maintenance of 'smoke' (Bell & Keane, 2012). From a tobacco-control point of view, this can serve as a signifier of smoking and invoke the memory of public smoking and 'renormalisation'. This can be challenging from some perspectives because of the role of tobacco denormalisation in current policies (Bell & Keane, 2012). Fear of a 'gateway effect' is an additional argument propounded by some health authorities, with the idea that use of e-cigarettes can cause subsequent uptake of cigarette smoking (Drope & Schluger, 2018). Moreover, additional controversies concerning e-cigarettes centre on how to define them, how to measure their effectiveness in smoking cessation and how to interpret the relevance of biomedical markers of short-term exposure for potential health effects. The involvement of 'big tobacco', such as British American Tobacco (BAT) and Altria (formerly Phillip Morris) (Abate, 2017) in e-cigarette production has further increased scepticism (Glantz & Bareham, 2018). At present, both pharmaceutical companies and 'big tobacco' have developed their own e-cigarette brands (Bareham et al., 2016).

Based on these highly contested debates over risk, e-cigarettes have presented a regulatory challenge for policymakers and governments, resulting in various outcomes; the products are banned in several countries; others permit the sale of devices, but not the sale of nicotine-containing e-liquid. Most countries have a regulated market, but often under tobacco control policies rather specific e-cigarette regulation (Drope & Schluger, 2018; Kennedy et al., 2017). In most European countries, e-cigarettes are regulated as a tobacco product under the EU's Tobacco Products Directive (TPD). In Norway, however, the sale of nicotine-containing e-liquids is banned, although evaporator devices are legally available from a steadily increasing number of vapour shops (Vedoy & Lund, 2017). Under the EEA agreement, Norway is committed to adopting EU regulations (TPD) and consequently the ban on nicotine-containing e-liquids is expected to be lifted in 2020. The most commonly used nicotine products in Norway are Swedish snus (a low-nitrosamine smokeless tobacco product) (daily use across 12 per cent of the population) and conventional cigarettes (daily use across 12 per cent of the population) (SSB, Statistics Norway, 2018). In a recent national representative survey, 1.2 per cent of the respondents reported using e-cigarettes daily, while an additional 2.4 per cent reported occasional use (Lund et al., 2018). Despite a level of scientific disagreement as noted above, the Norwegian health authorities have traditionally been reluctant to adopt tobacco harm reduction as a supplementary strategy in tobacco control, and neither e-cigarettes nor Swedish snus are considered part of the official solution to the tobacco problem (Lund, 2016). In spite of the ban, prior research has identified a vaping sub-culture in Norway, typically expressed through social media (Tokle & Pedersen, 2019).

Risk communication and stigma

In line with several approaches to risk which consider a combination of probabilities and values, Sandman (1993) considers risk as a function of hazard and outrage. Hazard here involves the multiplication of two factors: how bad the event is when it happens and how likely it is to happen. Outrage points to the worries and risk perceptions of the non-expert public representing the bottom-up-approach. According to Sandman (1993, p. 20): 'The public often misperceives the hazard. The experts often misperceive the outrage. But the overarching problem is that the public cares too little about the hazard, and the experts care too little about the outrage.'

My analysis in this article follows this approach of Sandman (1993) and is moreover guided by an understanding of risk as a constructed and sociocultural concept, rather than a neutral and easily measurable one (Lupton, 1993, 1999; Sandman, 1993). The concept of risk is for example, interlinked with the sociological concept of stigma. A social stigma can be defined as a distinguishing behaviour, or status, which is socially discrediting in a particular way (Goffman, 2009). Individuals who choose to ignore health risks can be perceived as placing themselves in danger of illness and disability, which puts them in a stigmatised role, as their activities can impose a cost on the community (Lupton, 1993, p. 429). Smoking is a commonly used example of a lifestyle risk, with smoking in the presence of bystanders adding the dimension of harm to others. The communication of the risk of vaping seems to be interlinked with that of smoking, with various arguments put forward, such as that vaping means swapping one addiction for another or that vaping leads to the renormalisation of smoking (see above).

Public health authorities have traditionally held a position as providers of objective guidance on matters affecting public health. However, against the backdrop of mixed risk communication of e-cigarettes, a lack of trust in researchers and health authorities has been observed in studies of members of e-cigarette forums (Annechino & Antin, 2016). Trust is often addressed in terms of its function in society (Meyer & Ward, 2009), as it reduces the complexity of how we think about phenomena and simplifies our resolutions to act (Pearson et al., 2005). Trust can be defined as an optimistic acceptance based on positive expectations of the intentions of the trusted individual and institution in a vulnerable situation (Meyer & Ward, 2009). It is unreasonable to expect the public to seek sufficient information to assess potential risk in its entirety. Thus, laypeople, here users of e-cigarettes, 'must' trust scientists, government officials, and the news media to inform them (Lupton, 1993, pp. 430–431). Such risk communication can be considered as a 'top down' validation exercise in which experts seek to educate a seemingly misguided public into the 'reality' of possibility and danger (O'Riordan et al., 1989). These mediators can potentially distort the 'facts' to further their case, making it difficult for laypeople to conceptualise risk in the face of conflicting perspectives (Lupton, 1993, p. 431).

The expert role has changed dramatically over the last decade. The current trend involves consumers collecting facts and information online from multiple sources in an increasingly self-sufficient manner, which marks a decentralising shift away from top-down authority (Lankes, 2008). While vaping companies promote e-cigarettes on YouTube as an alternative to cigarettes (Willis et al., 2017) and use social media influencers to create trust among a loyal audience of like-minded peers (Daniel et al., 2018), media are found to present varied and contradictory messages in their risk communication about e-cigarettes (Morphett et al., 2019). Simultaneously, Annechino and Antin (2016, pp. 110–111) found that mass media campaigns aiming at discrediting the e-cigarette industry were dismissed by pro-vapers as false information presented by

biased health authorities. In line with the bottom-up approach, online communities offer lay expertise in the form of alternative notions of health and risk based on assistance from peers. The community dimension within such online communities also forms a basis for personal and collective support (Bilgrei, 2019; Daniel et al., 2018).

Previous studies have found perceived risk to motivate health behaviour (Pepper et al., 2015). Amrock et al., 2014) reported that many adolescents felt unable to assess the comparative harms and benefits of using e-cigarettes relative to cigarettes, however, those who perceived e-cigarettes as less harmful than conventional cigarettes were more likely to practice vaping. Such positive user predispositions can be explained by theories of selective exposure (Hart et al., 2009) and perception or optimism bias (Masiero et al., 2015).

To date, little research has been conducted on the association between vapers perceptions of risk, risk communication and the regulation of e-cigarette use. By utilising a bottom-up perspective, in a sample of adult vapers in Norway, this study explores users' perceptions of risk and risk communication of e-cigarettes in a restricted legislative context.

Methodological account

Sample, procedure and analysis

In this study I analyse qualitative data collected from 30 interviews with users of e-cigarettes, of whom 17 were male, set in Oslo, Norway between February 2014 and April 2018. The age range was 19–52 years (mean age 35). The interviewees' socio-economic status varied. Employment status ranged from managers to students and to those who are unemployed and on welfare support. All but one of the participants were former smokers (See Table 1 for more details on participant characteristics).

Following an inductive logic of investigation, my sampling approach and analysis were inspired by grounded theory (Denzin & Lincoln, 2008). I began to analyse the data in parallel with data collection. To explore themes that occurred in the material and ensure a spectrum of perspectives, I purposively sampled vapers from various locations (Charmaz & Belgrave, 2012). The sampling process started at a vape meeting with the inclusion of two experienced vapers. Three users were recruited from two different vape shops; six participants were recruited through a post on the Facebook page of the largest Norwegian vaping group. The explorative recruitment design continued by visiting music festivals and venues in the night-time economy with the aim of investigating the use of e-cigarettes among young adults. Finally, in order to reduce sample bias and locate participants from categories that were missing in the sample, such as the less visible substitute vapers, I recruited half the sample by using a chain-referral strategy and extended personal networks.

The interviews lasted between 1 and 2 hours and were semi structured by an interview guide consisting of 10 main themes. Those most relevant for the analysis were 'risk perceptions' and 'regulation and opposition'. Interviews were audio recorded and transcribed verbatim to provide access to the vapers' own descriptions during the process of analysis. The data were subject to comparative analysis that developed over multiple stages (Charmaz & Belgrave, 2012). HyperRESEARCH software was used to sort and break down the material. Codes were generated based on the themes in the interview guide, previous research and phrasing of the participants (Glaser et al., 1968). The most frequently used codes in the study were: 'e-cigarettes and perceived health risks', 'personal health experiences following use', 'e-cigarettes relative to smoking/snus/NRT-products', 'e-cigarettes as smoking cessation', 'regulation', 'risk communication' and 'gateway'. After systematic, yet open, analysis and comparing of the concrete content in these codes (Charmaz & Belgrave,

Table 1.   Sample characteristics (N = 30).

Characteristics	N
Gender	
Female	13
Male	17
Years of age	
19-29	10
30-39	8
40-49	10
50-59	2
Smoker status	
Former daily smoker	18
Daily smoker	1
Former occasional smoker	3
Occasional smoker	4
Intermittent smoker	3
Non smoker	1
Vaping status	
Daily vaper	23
Occasional vaper	6
Former daily vaper	1
Device	
Mod	19
Vape pen	10
Mod & vape pen	1
Vaper identity	
Substituter	18
Cloud chaser	12

2012), using simple tables, I identified a consistent pattern whereby vapers perceived their risk perceptions as conflicting with what I label 'top down risk communication'. The term 'Top down risk communication', is in this study used as a collective term to capture the vaping participants'(often conflated) perceptions of the risk communication and regulation of e-cigarettes by perceived health authorities, including some researchers, and the media. I organised the risk-pattern in the interviewees' accounts by constructing three main dimensions presented in the findings: 'Vaping as harm reduction'. 'Dismissal of health authority messages' and a 'bottom-up movement celebrating lay expertise'. Subsequently, relevant theoretical frameworks were integrated (Denzin & Lincoln, 2008), such as the concept of risk (Lupton, 1999) and stigma (Goffman, 2009).

The study received ethical approval from the Privacy Protection Committee at NIPH and was carried out in accordance with their ethical guidelines. Interviewees were thoroughly informed of the study and gave active consent for participation. Identifying features, such as name and place of residence, were changed or omitted from transcripts and scientific output. Participants were compensated with a NOK 300 fee for their time (approximately GBP 30).

Findings

Bottom-up meets top-down in vapers' accounts of risk

The analysis presents three dimensions in the interviewees' accounts of risk related to the use of e-cigarettes. First, they accounted for the risk perceptions of vaping as harm

reduction. Second, they dismissed the more 'top down' risk communication by perceived health authorities, as they often perceived their communication and the regulation as 'anti-vaping', and hence increasing risk by preventing smokers' access to nicotine-containing products. Third, the interviewees emphasised the importance of lay-expertise on vaping. Finally, I discuss how the dissonance between the participants harm-reduction approach to vaping, and their devaluation of the top-down risk communication and regulation of e-cigarettes can be seen as contributing to a bottom-up movement among vapers.

Vaping as harm reduction

The interviewees represented a heterogeneous group in terms of vaper identities, ranging from ambivalent, pragmatic substitute users to dedicated vapers engaged in the hobby and of vaping as a sub-culture. However, despite their various user patterns and characteristics, they shared important common perceptions of risk in their accounts. Their risk perceptions were interlinked with their former smoker status, and they considered the switch from tobacco cigarettes to e-cigarettes as health improving. Nils (28), for example, stated: *I perceive them [the e-cigarettes] as health promoting and as an investment for our welfare state when the alternative so obviously is cigarettes*. Many echoed Nils, and a distinction between e-cigarettes and tobacco cigarettes was at the centre of the majority of the adult vapers' accounts. They described how vaping was superior in smoking cessation, and how vaping had relieved them of a series of health hazards, ranging from constant colds, chest pain, and poor physical condition to a loss of their sense of taste. Emma described a common version of the transition to e-cigarettes:

> I started smoking when I was very young to appear cool. I didn't become cool, I became addicted. From 2009 I started my non-stop history with failed attempts to quit. I used those band-aids, Champix tablets, Nicorette inhalator, nicotine gum, I tried everything from 2009 to 2013. Nothing worked; I was not able to stop. It has to do with the fumbling, the psychological more than the physical dependence. Then I got an e-cigarette. I thought, "I never gonna quit because of this", but I haven't smoked since. (Emma, 27)

The e-cigarettes were perceived as both a functional and vital smoking substitute. Several dimensions in Emma's account resonated with the overall data, such as the feeling of decreasing acceptance of smoking in society, managing an addiction, experience with failed cessation attempts and, importantly, e-cigarettes as superior to traditional nicotine replacement (NRT) products in smoking cessation. Similarly to Emma, the interviewees commonly structured their narratives with a clear 'before' and 'after' being introduced to e-cigarettes. In addition to health as a focal point in many of these accounts, the stigma attached to their former smoking habit was an additional dimension that traversed the data. Emma continued from the turning point like this:

> Suddenly I noticed that people did not label me as a smoker anymore – they couldn't label me because I didn't smell. It was such a relief getting rid of the social stigma, to be able to hold my head high and not be the victim of socially acceptable bullying.

Emma perceived e-cigarettes as important in coping with the incriminating stigma attached to smoking. Several interviewees echoed Emma in describing stigmatisation and the lack of the '*ugly*' smell when vaping. In addition, many talked about the importance of e-cigarettes not possessing the dimension of causing harm to others posed by conventional cigarettes.

Intertwined with the perceived low status of tobacco cigarettes, the controversies of how e-cigarettes ought to be defined were addressed. There was an evident ambiguity to the term 'e-cigarette' in their accounts. Statements such as Kenneth's (34) were common: *Vaporisers is the right term. This [referring to his e-cigarette] is not a cigarette*. In general, the term e-cigarette was perceived as misleadingly connoted with harmful and stigmatised smoking. Despite health being a focal point for the transition from smoking to vaping, most still rejected labelling e-cigarettes as a medical product. Ola said: *You can say that e-cigarettes are a smoking substitute and a product for pleasure. It is certainly not a medical product!* (Ola, 32). The harm-reduction dimension of the e-cigarettes was connected to their appeal, and the appeal to the fact that they were not a prescribed therapeutic remedy. Several interviewees instead suggested defining e-cigarettes as a pleasurable consumer good, stating that the e-cigarette and the e-liquid are neither harmful tobacco nor a medical product.

The interviewees' risk perceptions of vaping also conflicted strongly with the risk controversies suggesting that vaping could lead to renormalisation or serve as a gateway. Ingrid was provoked when questioned about this:

> If you start with e-cigarettes, there is no chance in hell that you will switch to tobacco cigarettes. Because it's not the same; it's not the same way of inhaling, it's not the same taste, it would hurt in comparison. (Ingrid, 41)

Ingrid rejected the idea of e-cigarettes renormalising smoking or serving as a gateway to smoking by highlighting the differences. Emphasising the lack of similarities was a common response. For example, interviewees focused on the relative risk by stating how much more harmful smoking was for the body, as well as the bad smell and distastefulness of smoking compared to the use of e-cigarettes. The negative normative climate around smoking was also a commonly used argument for dismissing the gateway and renormalisation theses. As Edward (25) stated: *Smoking is decidedly uncool. Smoking and vaping are just two very different things*. Their identity as former smokers was visible in their accounts, and they highlighted smokers as the target group for e-cigarettes. However, several stated that, if young people were to try a nicotine-containing product, e-cigarettes would be preferable to tobacco cigarettes:

> Young people have always wanted to test new things, especially if it's unavailable. And even though I would never encourage it, vaping is by far a better alternative than smoking. If they were to prohibit e-cigarettes because young people might start vaping, then they need to prohibit a lot of things. Why are cigarettes allowed? Why is alcohol allowed? How can they sell red wine if young people can turn into alcoholics? It is so unfair and it is not a valid argument! (Rita, 34)

Rita pointed to adolescence as a time for experimentation and maintained her perception of e-cigarettes as substantially less harmful than smoking. In addition, she displayed her frustration over the strict regulation of e-cigarettes in Norway, by attempting to discredit the perceived contrary position with whataboutery. Rolf continued in the same vein: *It's naive to think young people won't try any nicotine products, and it's better if they try e-cigarettes rather than cigarettes*. In general, interviewees gave ambivalent accounts on how non-smoking adults and non-smoking youth might become consumers of e-cigarettes. On the one hand, they argued that e-cigarettes are relatively safe and their use unproblematic. On the other, they dismissed the whole issue as irrelevant, stating that e-cigarettes only appeal to those with an existing addiction. However, in terms of young

people who otherwise might have taken up smoking, the majority presented e-cigarettes as a better alternative. Their negotiation of the risk of vaping is hence best captured by understanding their harm-reduction approach to vaping: many described the pleasure and the appeal of vaping, but still asserted harm reduction by switching from conventional cigarettes to e-cigarettes to be the most important underlying motive.

Dismissal of health authority messages

The interviewees generally shared a common narrative of taking responsibility for their own health by substituting smoking with vaping, and perceived the health authorities as failing to facilitate, support and acknowledge it. 'Health authorities' emerged as a collective term that commonly included and entangled Norwegian legislators and health officials, including researchers, holding a critical approach towards e-cigarettes.

> How can they say that e-cigarettes don't work as an aid to quitting smoking? They don't know what they are talking about! It really gets to me. I would not have been able to quit without my vaporizer. (Jack, 40)

According to Jack, 'they', referring to the health authorities, undermined the role of e-cigarettes in smoking cessation. In addition, Jack perceived that 'they' lacked proper knowledge of e-cigarettes and vaping. Several interviewees echoed this view. In these accounts, the public information on e-cigarettes conflicted with their personal experience of the harm-reduction side of e-cigarettes as a pleasurable and well-functioning smoking substitute. Hence, the frustration and reactance evident in these accounts seemed to be interlinked with the interviewee's former smoker status: they reported feeling stigmatised as smokers, and then they reported not feeling acknowledged as vapers. In addition, they were upset over the lack of clear communication on the relative harm of these products. Anne expressed it as follows:

> How can the health authorities not communicate how much less health-damaging this is [referring to her vape-pen] compared to smoking? There is no tar in this, no toxic metals and carcinogens, no combustion. It's just unbelievable! (Anne, 33)

Anne had a hard time understanding why e-cigarettes were not offered to smokers who wanted to stop smoking. She continued to talk about what she perceived as misleading risk communication in the form of newspaper headlines stating that use of e-cigarettes could lead to cancer, vaping being the same as – or worse than – smoking and the lack of both pro-vaping information and availability of products in physical stores. Several accounts echoed Anne's critique of what they perceived as negative media coverage of risk of e-cigarettes. Martin stated:

> We lose all the smokers who read all the wrong headlines on vaping in the newspaper. It's frustrating with all the misconceptions: all the ignorant people claiming that you are still smoking when that is so completely wrong. Yes, you have the vapour coming out, but this has nothing to do with combustion. (Martin, 40)

The interviewees' accounts of the risk communication of vaping frequently ended up negotiating how the mixed media content, health institutions' lack of harm-reduction-communication and the present regulatory status of nicotine-containing e-liquids, affected the publics views of e-cigarettes and vapers. In addition, the present market

situation was perceived as having negative impacts, in that it kept smokers away from the less harmful e-cigarettes, as well as creating uncertainty around the quality of existing products. In addition the importance of distinguishing between vaping and smoking-products was also evident in this regard, as they perceived the definition and regulation of e-cigarettes to be interlinked. Monica stated:

> They [public regulators] have handled e-cigs in a messy and confusing way. You have some drug legislation and then you have some tobacco legislation, despite e-cigarettes being neither medicine nor tobacco. (Monica, 22)

Monica described what she perceived as disorganised and unclear labelling of e-cigarettes. In general, the vapers were unhappy with the prohibition against selling nicotine-containing e-liquids in Norway, as the prohibition resonated poorly with their risk perceptions. Rather they reported availability as important, not only for current users, but particularly for all the remaining smokers.

> This [referring to his e-cigarette] should be sold over the counter, like a slightly more regulated kiosk product. The prohibition is unbearable and that it hasn't been changed yet is unbelievable to me! (Nils)

> The enormous potential e-cigarettes have to save lives is heavily curbed by the [Norwegian] sales restrictions. I will go so far as to say that it is completely unethical and irresponsible of the Ministry of Health. They are neglecting the smoking population. (Rita, 34)

Nils and Rita critically expressed their dissatisfaction with the present situation and the health authorities. The repeated account was that the government should help smokers switch from conventional cigarettes to e-cigarettes, but instead vapers were forced into buying nicotine-containing e-liquid and vaporisers online, or abroad. According to them, this created a harmful barrier to swapping ordinary cigarettes for e-cigarettes. The interviewees also presented low availability as an important explanation for the low vaping prevalence in Norway. The elderly and the marginalised were often referred to as '*the losers*' in the present regulatory regime. Moreover, some interviewees expressed fear and uncertainty for their own future vaping:

> I must admit that I worry a lot about how the government will end up regulating e-cigarettes in the future. I'm so grateful for the existence of e-cigarettes, if it wasn't for them I would never have become smoke-free (Tone, 49).

> I just hope that the health authorities value our right to remain smoke-free and that they take our health seriously (Lotta, 43).

Tone and Lotta talked about the distress of stricter future regulations, such as prohibition against importing nicotine. In their accounts, vaping was framed as the only alternative to smoking. Data revealed a cost connected to what the interviewees perceived as uncertainty and inconclusive treatment of e-cigarettes at the time of the interviews. As Roger (44) said: *If they take the wrong path with the regulation, they create an unnecessary disaster – or to be more accurate – thousands of them*. Accounts such as Roger's imply that the interviewees believed in regulation and, in general, they agreed that a certain level of regulation of e-liquids and e-cigarettes was important. However, they argued that the regulation should mirror the risk; they suggested measures such as setting the

minimum age for purchasing e-cigarettes to 18 [same as for tobacco products], child-proof containers for e-liquids, content declarations and battery controls.

> When I buy the nicotine-containing e-liquids, I can't know for sure who made them. I can't know if the people producing juice in England are doing it in their backroom, whether they have clean hands or mix it in a dirty bowl. (Monica, 22)

Monica described what she perceived as the present regulation leading to unnecessary increased risk from vaping by decreasing consumer safety. Online purchases from various sources allowed for products of lesser quality, uncertainty around the content of e-liquids and lack of transparency in the manufacturing process. Kenneth (34) reported on the room for improvement with regard to both the health authorities' risk communication and their future regulation of e-cigarettes, and said: *If they [the health authorities] do it right this time, it will help many people quit. This could be the invention that finally ends the tobacco pandemic.* In general, the vapers seemed to perceive the health authorities as lacking in their knowledge of e-cigarette-related matters, such as the importance of numerous independent distributors for keeping the price low and maintaining appeal through product diversity.

A bottom-up movement celebrating lay expertise

Across various age groups and social backgrounds, the risk communication and treatment of e-cigarettes appeared to fail to resonate with their own experiences of improved health. In general, the interviewees' negative perception of the public risk communication of e-cigarettes seemed connected to a discrepancy between their harm-reduction approach to e-cigarettes, on the one hand, and the Norwegian health authorities risk communication and regulation' being more aligned with the precautionary principle, on the other:

> The best would be if the information from the public sector were accurate, but that ship sailed long ago. Today we just have these two alternative lines from them: the moralists or the precautionary principle. Even though the public health authorities should be responsible for providing the public with accurate information to enable us to make the right decisions, it seems they just fail completely and leave it up to us to seek this information through other channels. (Rolf, 25)

Rolf described the health authorities as moralists who have failed to inform the public of safer alternatives to smoking. The interviewees in general talked about how the dominant focus on the uncertainty of long-term health effects of vaping came with a 'high price' both for themselves as vapers having to defend their vaping, and also, and for the smokers who were not informed of the relative harm and hence were less likely to switch. Importantly, Rolf also reported on how the present situation made vapers search for information elsewhere. Several of the adult vapers echoed this and highlighted the importance of getting information from alternative sources:

> I have vaped for two years thanks to help and support from the vape forum. If it wasn't for them, I would never be able to stick to e-cigarettes and quit smoking. They provide support, information on equipment and a community. From my point of view, vaper forums are more important in the fight against tobacco smoking than the health authorities' campaigns and pages. On forums, everything is presented as more nuanced and not as politically coloured as the information from the health authorities. (Kåre, 51)

Vape forums and YouTube were described as important and more 'neutral' channels for vape-related information in contrast to the 'top down risk communication' in Norway. Similarly, to Kåre, several of the interviewees followed forums and/or vape-related profiles on YouTube in order to learn and stay up-to-date. In these accounts, it became evident that forums served as an entry point for many smokers into the world of e-cigarettes. The purpose of such vape forums was delineated as a way to learn how to navigate in the product jungle, learn how to use e-cigarettes and the various components such as coils, batteries, e-liquids and safety procedures. Vape forums were also arenas where participants shared up-to-date information on relevant research, media coverage of e-cigarettes and the present regulatory landscape.

Especially among some of the most dedicated vapers in the sample, the lack of pro-vaping information in the 'top-down' risk communication, was framed as creating a bottom-up movement. These vapers displayed a more organised 'revolt' against the authorities and described how they advocated the vape cause. Their activity was primarily visible online and made possible by user-edited platforms, such as vape forums and Facebook. They talked about the importance of more organised communities that had dispensed with traditional means of determining trustworthiness, based on information from the health authorities, in favour of digital tools and new network approaches. Oscar and Martin expressed it as follows:

> The Facebook pages of the Norwegian vape society are a 'must' when it comes to uniting vapers in the fight for the vape cause. As a user, you are educated in vaping and as a group, you can influence. (Oscar, 29)

> Without social media, vaping would not be where it is today. Forums were the place to go for information and help in Norway in the beginning. Few would have known so much about vaping without these networks. As the press have been limiting vapers' access to the media, user groups online are invaluable for the products and the users. (Martin, 40)

Martin pointed to how social media was a go-to-place for vaping-related information. The national health authorities and the media were perceived by several interviewees as having '*prevented them*' from easy access to '*valid*' public information on e-cigarettes. Moreover, as the interviewees had managed a switch from smoking to vaping in the present regulatory and discursive landscape, some accounted for a feeling of responsibility to help the '*unenlightened*' smokers. Oscar stated how, as a vaper, he possessed knowledge, and how vapers as a group became empowered. Hence, the public risk communication on vaping was not only framed as preventing smokers from quitting, but also as having a role in creating virtual platforms and vaping communities. These interviewees repeatedly described vape forums as a more trusted place for gathering information compared to public channels.

> There is research spreading doubt about the effectiveness of vaping in smoking cessation. If I hadn't stumbled upon a vaper forum and got in touch with other vapers, I wouldn't have been smoke-free for the last two and half years. (Andre, 45)

Andre was one of the dedicated interviewees who acknowledged the importance of the forum for managing his switch from combustible cigarettes to e-cigarettes. Among the interviewees who participated in vape forums, the social interaction in these settings was contrasted with the '*negatively biased*' health authorities' risk communication; they described the forums as empowering, in that members experienced increased control

over their own health because of the positive risk communication and the supportive actions characteristic of these environments.

The findings seemed to reflect the interviewees' various vaper identities; those who described feeling part of a community were also more likely to describe feeling more proud and more confident in their use of e-cigarettes, compared with the more pragmatic and defensive substitute users who saw their vaping as a private act, and displayed their frustration in the form of a more solitary complaint. In sum, participants' perceptions of the present regulation and risk communication were of increasing rather than preventing risk. Moreover the importance of lay expertise in this context, resonated not only with the experience of devaluation of official risk communication about e-cigarettes, but also as contributing to a bottom-up vaping movement.

Discussion

By exploring how thirty adult vapers negotiate risk and perceive the risk communication on the use of e-cigarettes in Norway, I identified three dimensions that resonated across the data and various user identities: first, the importance of vaping as harm reduction. Second, a devaluation of the health authorities' risk communication and regulation as anti-vaping. Third, the vapers perceptions of lay expertise as more trustworthy than 'top down' risk communication.

The Norwegian setting is contextually relevant for the discussion of the findings. This context include illegality of nicotine liquids and health authorities who traditionally have (with exceptions) based their risk communication on the precautionary principle, hence been reluctant towards adopting perspectives of relative risk and harm reduction in their risk communication on use of tobacco products (including snus and e-cigarettes). The understanding of e-cigarettes in relation to health and risk largely depends on the perspective underlying the argumentation; particularly whether we view e-cigarettes as a less hazardous smoking substitute or an isolated consumer product with potential harmful side effects following use.

Researchers and health authorities advocating the precautionary principle will typically be reluctant to recommend e-cigarettes as a smoking substitute and call for awareness in the adoption of e-cigarettes (Cai & Wang, 2017; Glantz & Bareham, 2018; Reidel et al., 2018). Conversely, being a current user of a product is associated with an optimistic bias (Masiero et al., 2015). In the interviewees' accounts of risk perception, vaping is harm reduction and, from the same perspective, they perceive the precautionary principle, the 'negative' risk communication and 'strict' regulation as creating risk by generating uncertainty that may prevent smokers from switching to a less harmful product. The elderly and the marginalised smokers were often referred to as '*the losers*' in this context, aligning with the literature that portrays the remaining smokers as middle-aged persons of low educational attainment living in rural areas (Peretti-Watel, Seror, et al., 2014b).

Moreover, the interviewees' former smoker status in a smoking-hostile environment is also relevant for the analysis. Numerous studies have identified the increasing stigma attached to conventional smoking (Peretti-Watel, Legley et al., 2014; Sæbø, 2017; Sæbø & Scheffels, 2017). The interviewees accounted for feeling as 'outsiders' and being socially acceptable victims of bullying when they previously smoked. Stigmatisation can lead to an 'outsider' position (Goffman, 2009) with the potential to explain some of the frustration, reactance and opposition present in the interviewees' accounts. In terms of

stigma, the participants' former-smoker status speaks to a more general conception of the individual's responsibility for avoiding health risks for the sake of their own health, as well as for the greater good of society (Lupton, 1993, p. 433). The vapers perceived that they had taken responsibility for their health by substituting cigarettes with e-cigarettes; however, instead of recognition, they accounted for the health authorities' lack of support. In terms of opposition, their former smokers' status was evident in the construction of 'them' and us' The authorities were simplistically presented as anti-vaping and unenlightened, despite the health authorities themselves being divided in their approach to the controversies attached to vaping (Green et al., 2018).

Lupton describes risk definitions as hegemonic conceptual tools that can maintain power structures in society (Lupton, 1993). According to Lupton (1993, p. 432), the laypeople's perspective is rarely accorded an equal hearing with that of big business and politicians. Moreover, risk controversy is of interest to the media (Sandman, 1993). Motivated by attracting readers, the media can use negative headlines to over-dramatise or simplify information about health risks, leaving the general public confused (Lupton, 1993). In this study, the interviewees' emphasised how negative- and mixed risk-communication of use of e-cigarettes in the media created uncertainty in the public around the harmfulness of vaping, which in turn affected the social meanings of vaping and their status as vapers. The public media could, in addition, influence and shape public policy by setting an agenda for the public discussion of risk.

My findings from exploring risk from the vapers' perspective also imply that messages from public health channels can be undermined and overlooked. The most dedicated vapers in the study were most likely to express an outspoken and organised opposition towards the Norwegian health authorities' handling of e-cigarettes. Their dissatisfaction was manifested as distrust in their risk communication, which they perceived as too anti-vaping with a dominant negative focus on e-cigarettes. More broadly, a narrative of insecurity about the long-term health effects of vaping may decrease the adoption of e-cigarettes (Pepper et al., 2017).

The participants in my study generally described vapers as the experts on vaping, possessing 'lay expertise' with their special knowledge based on their personal and cultural experiences (Lupton, 1999). As a consequence of the lack of trust risk in health authorities, many relied on consumers' expertise concerning e-cigarettes by gathering information online, often from forums or on YouTube. These findings reflect other studies that have identified how increased use of the internet has led to greater self-sufficiency (Lankes, 2008; Morris & Anderson, 2015). The information available on online networks marks a general shift in perceived credibility away from traditional authority models, to reliability approaches with increased room for user participation (Lankes, 2008). Similar processes of devaluing the expertise of health authorities are identified in other studies exploring substance-oriented forum-cultures (Bilgrei, 2019; Boothroyd & Lewis, 2016; Soussan et al., 2018).

Despite this study being set in a Norwegian context, the devaluation of health authorities information echo findings derived in different regulatory contexts (Annechino & Antin, 2016). The interviewees in this group describe being part of a movement where vapers are offering lay expertise to smokers to cater for a lack of public support and availability. Vaping forums and YouTube play a significant part in this, as important channels for what the participants perceive as trustworthy vape-related information. At the same time vaping companies seem to use this context – of uncertainty and challenged authority – as an opportunity, by promoting e-cigarettes through

social media influencers with status among peer-followers (Daniel et al., 2018), and YouTube (Willis et al., 2017). The lay expertise represents guidance in a bewildering context, marked by rapidly evolving product technology and new products entering the market (Niaura, 2018). In line with this, vaper forums are reported to be places for receiving support online and advice, hence my understanding of these social contexts in terms of 'vaping as a bottom-up movement'. Such developments point to a more general shift in risk communication on substance use, where the bottom-up structures of online communities not only seem to evolve as a reaction to top-down control, but also can challenge the discourse on risk matters and harm reduction in substance use.

There are limitations to the study. Firstly, this study are based on a sample of Norwegian adult vapers perceptions in a pre-TPD context, with restricted access to nicotine containing e-liquid, hence the viewpoints presented by the interviewees are not necessarily representative of the wider population of vapers. Secondly, data were collected over an extended period of time (2014–2018), and this may raise concerns about datedness, given the high level of innovation and changes characterising the field of e-cigarettes (Farrimond, 2017). However, there were highly consistent patterns in the interviewees' accounts of risk throughout the period. Nevertheless, there is a need for studies exploring vapers' perceptions' of risk and risk communication of e-cigarettes in different jurisdictive and moral contexts, as well as for studies of how those currently smoking tobacco cigarettes understand and perceive risks associated with vaping.

Conclusion

In the study above I have found evidence that controversies around technologies – in this case, e-cigarettes – can enlarge the gap between public health authorities and users of e-cigarettes. In the study, a dissonance between vapers' risk perceptions of e-cigarettes as harm reduction, and their perceptions of the regulations, negative risk communication and lack of assistance from the health authorities, have contributed to a bottom-up health movement based on peer assistance. Related processes of distrust can lead to a devaluing of messages from health authorities, and may hence extend challenges in risk communication and public health governance. A way of addressing such a trust-gap could be to consider examining more closely why harm reduction in the field of tobacco seems to have developed such a controversial status.

Disclosure statement

Funding

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