

Adolescents and young adults' perceptions of electronic cigarettes as a gateway to smoking: a qualitative study in Switzerland

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Abstract

Electronic cigarettes (ECs) acting as a gateway to smoking traditional cigarettes (TCs) is a growing public health concern of EC use among youths. To gather the opinions and perceptions of adolescents and young adults (AYAs) on whether and how EC can act as a gateway to smoking TC among youths. A qualitative method included 42 AYAs. Participants identified a significant risk of EC acting as a gateway to TC use, several factors contributing to this phenomenon such as a facilitated transition to smoking or its perception as a harmless toy. Participants considered an even greater gateway threat regarding very young adolescents. A minority did not identify the gateway risk and some believed that it was nicotine-dependent. This potential gateway effect brought forth several recommendations: health professionals should screen adolescents (even very young ones) for EC use and inform consumers of the potential gateway effect; this possible effect should be acknowledged to end the harmless perception many might have; there is an urge for better preventive and regulatory policies directed at protecting adolescents and children who never smoked and support those who have quit.

Introduction

Electronic cigarettes (ECs) were established around 2007, spreading fast ever since, and some studies

report that ECs are increasing in popularity amongst young people [1]. Whether among youths who have just tried ECs or those who use them regularly, prevalence rates have doubled [2] or almost tripled [1] in less than a year. This increasing popularity has also been found in Switzerland [3] and seems to be due to the aggressive marketing campaigns [4–6] and ECs being perceived as less harmful than traditional cigarettes (TCs) [7].

Some studies have found that many adolescents using ECs have never smoked TCs before [8]. A Finnish study [9] and several American studies [10, 11] indicated that between 8 and 12% of youths who have used ECs had never smoked TCs. These rates are higher than those found for adolescents in South Korea (1.1%) [12] or in Poland (3.2%) [13] but much lower than the one found in France (33.2%) [14]. EC use among young non-smokers could lead them from ECs to TCs once addicted to nicotine [15].

In fact, ECs acting as a gateway to TCs corresponds to a growing public health concern of EC use [4, 14, 15] and is subject to debate throughout the literature. Some studies conclude that EC use worsens rather than improves the tobacco epidemic among youths as it can initiate tobacco use [2, 12], contribute to nicotine addiction [2], or even have the effect of re-legitimizing tobacco use in society [15]. On the contrary, other authors put forward that ECs should be used in the combat against tobacco-induced health outcomes as aides for smoking cessation/reduction or as part of a strategy of harm reduction [16].

Despite this growing public health concern, there is a gap in understanding the relationship between ECs and tobacco smoking among young people from their own perspective. An understanding of this phenomenon is important to inform policy implications. Therefore, the aim of this study was to gather the opinions and perceptions of adolescents and young adults (AYAs) on whether and how ECs can act as a gateway to smoking TCs among youths.

Materials and methods

We conducted a qualitative study on EC use in the French-speaking region of Switzerland, including 42 AYAs (19 females) aged 16–26 years. Eight focus groups (FG) were led: 4 with current EC users, 2 with TC users, 1 with non-users, and 1 with mixed consumption types. Group size ranged from 2 to 8 participants. Groups were stratified by consumption type to determine if there are any differences by user types. All types of consumers were included in the study in order to obtain a full picture of the experience and perceptions of youths. Participants were recruited through online (adolescent-oriented websites) and offline (universities, adolescent clinic etc.) postings, and through a snowball method. AYAs were invited to participate in a study on ECs in general regardless of their own consumption. Recruitment went on until reaching data saturation; thus the final number of FGs was defined according to the progression of data collection.

Each FG lasted ~90 min and was moderated by a facilitator with expertise and training in conducting FGs (C.A.) and an observer (J.C.S.), a pediatrician specialized in adolescent health who took notes and answered participants health and substance use questions only at the end to not influence answers. At the beginning of each FG all participants received an information sheet about the study, signed a consent form, and filled out a one-page socio-demographic and consumption habits questionnaire. At the end of each FG, participants received a 40 Swiss Francs (~40 US\$) gift card for a large department store as a way to thank them for their time.

Protocol was approved by the Cantonal Ethics Committee.

An interview guide was developed according to our research question, previous qualitative study on substance use [17], and overall literature on e-cigarette use. It included questions about consumption modes (context of use, flavors, price etc.), EC onset reasons and modes, reasons to use or not to use ECs, and differences between ECs and TCs (in terms of health, image, preference etc.). Participants were also asked if they believed that ECs could act as a gateway to smoking. Only data concerning the potential gateway effect are presented here.

FGs were audio-recorded and transcribed verbatim. Transcripts were analyzed according to a thematic analysis procedure based on Grounded Theory [18]. Transcripts were read several times and coded by CA according to themes that emerged while staying as close as possible to perceptions of those concerned by the subject of interest. Data were then structured and classified in order to answer our research question, analyzing all the codes linked to the relationship between ECs and TCs. CA analyzed the data firsthand. Analyses were systematically revised by JCS for inter-reliability in order to discuss discrepancies until reaching consensus. Quotes were translated from French to English by CA and verified by J.C.S.

Results

Among the 42 participants [19 females, mean age 19.43 years (range: 16–26)], 31 were currently using or had ever used ECs, 37 were currently smoking or had ever smoked TCs, 13 were currently dual users and 4 had never used neither.

Overall, participants identified a significant risk of EC easing the access to TC and acting as a gateway to TC use among adolescents: 'I believe that it's an open door to start smoking cigarettes, clearly' (23-year-old male TC and EC user). The main reason being because ECs have the effect of erasing boundaries: 'There used to be a barrier that said either you're a smoker or a non-smoker, now I can smoke without smoking.' (20-year-old male TC and

EC user). Most of them agreed that while ECs can be fine for smokers, they can be a problem for non-smokers: 'I mean it's better if the smokers use them [ECs], not those who have never touched [cigarettes]. That's where the problem is.' (24-year-old male TC and EC user); 'For me the thing is that I am all for the EC etc. but I'm against the fact that non-smokers start with the EC.' (22-year-old male EC-only user). Several factors could contribute to this possible gateway phenomenon.

Preparing the ground for smoking

Participants suggested several ways they thought ECs could act as an introduction to smoking. First, ECs were said to initiate the whole concept of smoking: 'it's an open door to cigarettes because that's what it is, a cigarette. It has the same shape and all that. In terms of the brains, it introduces the cigarette, it makes them think of the cigarette right away.' (22-year-old male TC-only user). Second, ECs were also presented as a smooth way to begin smoking: 'It's maybe a little smoother to start smoking with an EC than by directly starting with a normal cigarette and then it follows them all their life . . .' (20-year-old male TC-only user), for those who found TCs to be too brutal at first: 'I think that people can find cigarettes too brutal – because that's what refrains people, it looks mean – [. . .] It could be a transit for a person who doesn't dare to smoke too much, who will hide to go and buy an EC to try it, and then will smoke proudly in front of his friends.' (21-year-old female EC and TC user). Third, EC users also got used to the smoking gestures, tastes, nicotine (if present), inhalation, and feel in the throat, all of which acted as an efficient preparation for real smoking: 'If I think of my little cousin [. . .] It will be easier because she will already have gotten used to the gestures, she will already be used to the fact of inhaling, it could be a habit that she will take and it won't be a shock to move on to the real cigarette afterwards.' (20-year-old female EC and TC user). ECs make the gesture a commonplace which in turn encourages the passage to TCs: 'The EC can make the gesture a commonplace, one will lose track of the danger of smoking by starting with the EC just for the taste

[. . .] and after why not pass on to TCs which is the following step.' (19-year-old male TC-only user).

A facilitated transition to smoking

Once initiated, the transition from ECs to TCs was described to be encouraged by several factors. First, EC did not bring much satisfaction in terms of effect, inducing a great risk to move on to TC. In that sense, ECs were often not considered as the 'real thing': 'EC I think it's fun for a little while but it lacks the whole aspect of the normal cigarette [. . .]' (23-year-old male TC and EC user). Second, groups of youths were said to always include those who want to take their consumption further and pull their peers along, in this case from EC to TC: '[There is a risk] in any case that they get tempted, because there will always be one who will want to be the guy who does better than the others and who will then have a try of normal cigarettes [. . .] and there we go.' (18-year-old male EC and TC user). Third, TCs were considered easier to use compared to ECs requiring a lot of preparation: 'There is the cigarette, there are the little bottles beside, there is the charger and all, so I don't know . . . it's not very attractive, it doesn't seem yet like something as simple as buying a pack of cigarettes, opening it, taking your lighter and lighting up your traditional cigarette.' (22-year-old male EC and TC user).

A reminder of the pleasures of smoking

Some participants reported that EC had acted as a gateway to TC for themselves or their peers in two different ways. The first way was by participants starting their overall cigarette consumption with an EC: '*I believe it [EC] could be a trampoline, like me, I started vaping, and finally I started smoking, while maybe I wouldn't have started smoking if I hadn't vaped*' (18-year-old female EC and TC user); or observing this phenomenon among peers: 'I have a friend, first he didn't smoke and he bought an EC when it first came out without nicotine, he smoked it for like 2-3 months without nicotine and by dint of seeing people smoking TCs he thought it was surely the same thing, so he started smoking TCs. Yup, and he doesn't touch his EC anymore . . .'

(18-year-old male EC and TC user). Second, a very common reported phenomenon was to start using an EC after having stopped smoking for a while leading to start smoking again: 'The second time I quit [TCs] during 3 months, I had a friend who used an EC [...] so little by little I started using an EC and then that made me want to smoke again normal ones. So now I do both [...] but now it's more the normal cigarette than the EC.' This participant also explained that EC 'reminded me of the pleasure of smoking ...' (20-year-old female EC and TC user).

An attractive and fashionable object

Participants worried about the fact that many young people found the EC very attractive due to: its fashion and popularity; the possibility of using EC in smoke-free areas 'it's more attractive to use [compared to TCs] because they can do it everywhere they want to for the moment' (22-year-old male EC-only user); its ease to hide from parents 'I think that if your parents don't want you to smoke, it's easier to hide' (19-year-old male TC-only user); its ease to obtain 'For sure it's a trampoline to TCs. For youths it's easier to buy [...] it's easier now to start smoking with that [ECs] than it used to be [when ECs did not exist] it seems' (22-year-old male EC and TC user); its sweet taste: 'I think it's dangerous for the youths who get used to it because then it's easier to move on to fags, because if one starts with a fag I think it doesn't taste very good so it can dissuade some from it, whereas if it has a peach or an apple flavor or anything else it's maybe more encouraging after to smoke normal cigarettes' (18-year-old male abstainer); and its attractive high-tech/modern aspect that made it look more like a toy: 'They do all kinds of different designs of the EC, so it looks more like a high-tech object than a cigarette, it totally removes the cigarette identity, and I think that it could be a danger too, it looks a little too much like a toy, it can attract children' (19-year-old male abstainer). All these elements made ECs very attractive and fashionable and were incentives put forward by participants for adolescents to try or use ECs.

Its perception as a harmless toy

Another concern participants put forward was a strong risk of young people perceiving ECs as harmless, especially compared to the TC that is 'demonized', and not anticipating that it can take them to smoking TCs: 'I wonder if with the lack of information, we are not taking the responsibility off certain youths who think that maybe the EC is harmless and, consequently by chain effect afterwards they will want to try it with nicotine and then want more, and then 'oh I need a cigarette' etc. and that's it!' (23-year-old male TC and EC user). In fact, they reported that EC gave the wrong message to young people who might think that they were 'only' vaping but not smoking, not seeing the potential underlying addiction, while enjoying the same socializing characteristics: 'It has a negative effect because people say to themselves 'I don't smoke, great, I can start using the EC, like that I can sit down and chill out with my friends and start vaping in bars etc, while I never smoked anything.' (22-year-old male EC-only user). They also resented the lack of available information on EC and notably on its harmfulness: 'I think that we are not informed enough about this subject and we take the guilt off the youths by telling them that it's all okay while in fact I don't know if it's really healthy' (20-year-old female EC-only user).

Other opinions about a gateway effect

Participants considered an even greater gateway threat regarding very young adolescents. They were presented as having an even greater potential to follow the trend: '[...] there are many youths now like 12-13 years old or even younger who take the EC for the looks, like a fashion [...] it can incite youths much younger than us to want to start and the problem is exactly that if they never smoked, it would be for them to start with that [ECs] and move on to real tobacco ...' (22-year-old male EC-only user); and imitating the older ones: '[...] they see that the older ones smoke [ECs], they will imitate, stupidly' (24-year-old male TC and EC user). The young ones have a naïve perception of

ECs as a harmless game, thus using it in a worryless manner and lacking any information regarding its contents: '[Kids] see this and they think that it's meant for the taste as if we were eating a piece of chocolate because it's not bad for health so there is no harm in doing it [...]' (20-year-old male EC and TC user); not anticipating the potential addictive dangers that can bring them to TCs: 'I have a younger brother who is 12 years old, and he is convinced that there is no... that it [EC] is really totally innocent and precisely what's a shame is that kids have the impression that it has no effect [...]' but they don't realize that they are already creating at their age an addiction to nicotine.' (18-year-old female EC and TC user). Only a minority of participants did not perceive EC as a risk for a gateway to TC for two reasons. First EC could have the reverse effect of keeping adolescents away from TC: 'I think it's not that bad that the tendency goes towards ECs for the young ones because if it wasn't for the EC they would all turn to tobacco.' (20-year-old male EC and TC user); because of the differences in taste: 'Youths now discover the EC, there are lots of flavors, and then they'll say to themselves 'why would I turn to tobacco'. [...] They will get used to these flavors and will find tobacco cigarettes disgusting, which is good.' (20-year-old male EC and TC user). Second, some believed that no one would want to start ECs if not smoking TCs in the first place: 'Why would one want to start using an EC if one doesn't smoke in the first place?' (16-year-old female TC-only user).

Finally, some participants believed that the gateway threat existed only (for some) or specially (for others) if ECs contained nicotine: 'I think that as long as there is no nicotine in the EC it's okay. It's like chewing on a piece of gum.' (19-year-old male TC-only user). Participants put forward a high risk of addiction in particular for non-smokers who started using an EC with nicotine: 'A non-smoker who starts [ECs], if there is nicotine inside well he can almost become addicted' (22-year-old male EC and TC user). But for others, a nicotine-free EC represented even a greater danger because it made them wrongly assume that they were protected against potential addiction and smoking TCs: 'At first I thought no

no no don't smoke anymore even if you feel like it, but then I gave way, I was thinking that if they look as happy to smoke that and there is no nicotine, why not try?' (20-year-old female EC and TC user).

Discussion

ECs were considered by all participating AYAs as having a great potential of acting as a gateway to smoking tobacco, especially for the youngest ones. The sweet flavors, the fun aspect, the fashionable facet, and the harmless image of ECs are factors that encourage non-smokers to try it. They also considered that EC initiated to the whole concept of smoking and introduced the gestures and first feelings of smoking. Therefore, participants highlighted how easily the transition to TCs could take place once EC use is initiated. These results seem to confirm those of a Finish study concluding that ECs follow the same pattern of initiation than TCs among adolescents [9].

In sum, ECs were considered as facilitators to enter the world of TC consumption. Results highlighted several factors that could contribute directly to the transition from EC to TC. These were that ECs could be a way to initiate to the concept of smoking, a smooth way to start, and a way to get used to the smoking gestures and feels. ECs could also have its limits in terms of effect and complex preparation which could induce a risk to move on to 'the real thing'. Finally, the presence of nicotine and use among younger adolescents can have a higher risk of transition.

Presence of nicotine in ECs was largely discussed by participants. Although some thought that it contributed to the gateway effect, others believed it did not. This result adds to an important legislative and public health debate about the authorization of nicotine in ECs. Countries have adopted different legislations regarding the nicotine issue. For instance, to date, Switzerland has prohibited nicotine in ECs, contrarily to other countries such as France. However, these local legislations do not seem very efficient as it is always possible to obtain nicotine-based products on the Internet or just across the border in France. Therefore, prevention efforts should be taken

regarding access to nicotine through ECs for adolescents. Moreover, gateway to TCs seems to occur regardless of nicotine content as participants mentioned that ECs could make people used to the gestures. Hence, regulations might have to prohibit ECs in general, with or without nicotine, under a certain age.

Interviewed AYAs also agreed to say that young people can easily start using an EC perceiving it as a toy or a candy, therefore harmless in comparison to TCs and not anticipating the habituation effect that can lead them to smoking TCs. This is not surprising considering that under Swiss legislation, ECs are not classified within tobacco products but within food products (as they do not contain nicotine), therefore can be sold anywhere—including pharmacies—and without any age limit. Literature has shown that a majority of adolescents perceived ECs as less harmful than TCs [7, 19, 20] which has shown to be associated with a consumption increase of EC, even for non-smokers [21, 22]. Yet, although less harmful *per se* compared to TCs, ECs can become a danger because of a potential gateway phenomenon. Young people should be informed of that.

Some authors have asserted that ECs were developed as a way to quit smoking and those adolescents were a non-expected public [8]. On the other hand, others have found that ECs could be a mean to quit smoking among adults but not among youths [11]. On the contrary, for adolescents, it seems to be more of a product to experiment and start smoking [10, 14] found in longitudinal studies [23, 24], a catalyst to EC use [25], and not useful for smoking cessation [26]. Similarly, focus group participants who had quit cigarette smoking reported that EC had most certainly contributed to them starting again. This is an important result as it shows that ECs can act as a gateway to TCs not only for non-smokers, but also for former smokers. As noted by several authors [4, 15, 16], if ECs are in fact an open door into TC consumption among adolescents, they represent an important drawback in the battle against tobacco consumption.

Despite the novelty of our research, a main limitation needs to be stressed. Study participants did not differentiate first-generation ECs which look mostly like TCs from more modern vaping devices which

tend to differentiate themselves from them. This can be explained by the fact that devices have been evolving very fast since they have appeared on the market, hence also between the beginning and the end of the study.

Nonetheless, several recommendations stem from this study. Health professionals should screen adolescents (even very young ones) for EC use and inform consumers of the potential gateway effect. The potential gateway effect of ECs should be acknowledged to break up with the harmless perception of ECs many might have; and preventive measures should be taken in this regard for young non-smokers and former smokers. From a public health perspective, there is an urge for better preventive and regulatory policies directed at protecting adolescents and children who have never smoked and support those who have quit smoking. Future longitudinal research is needed to determine to what extent this gateway effect affects youths.

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Conflict of interest statement

None declared.

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