Published in final edited form as:

Health Behav Policy Rev. 2016 November ; 3(6): 590–596. doi:10.14485/HBPR.3.6.8.

Electronic Cigarette Use among Current Smokers: A Pilot Qualitative Study

Ban A. Majeed, PhD [Post-doctoral Research Associate],

Tobacco Center of Regulatory Science, School of Public Health, Georgia State University, Atlanta, GA.

Cassandra A. Stanton, PhD [Senior Epidemiologist],

Behavioral Health Group, Westat, Rockville, MD.

Shanta R. Dube, PhD [Associate Professor],

Division of Epidemiology and Biostatistics, School of Public Health, Georgia State University, Atlanta, GA.

Kymberle L. Sterling, DrPH [Associate Professor],

Health Promotion and Behavior, Georgia State University, School of Public Health, Atlanta, GA.

Joy D. Burns, MEd [Graduate Research Assistant], and

School of Public Health, Georgia State University, Atlanta, GA.

Michael P. Eriksen, ScD [Dean and Regents' Professor]

School of Public Health, Georgia State University, Atlanta, GA.

Abstract

Objective—This pilot study explored psychosocial influences of e-cigarette use among dual users.

Methods—Two focus groups among adult current smokers who had ever used e-cigarettes were conducted in Georgia. Discussions were audio-recorded. Principles of grounded theory and thematic analysis were employed.

Results—Reasons for initial use included curiosity and social influence. Themes related to regular use included enjoyment of sensory experiences and perception of reduced harm. Nicotine craving, social image, and convenience were reasons for initial and regular dual use. Two patterns of use emerged – (1) using e-cigarettes to supplement combustible cigarettes; and (2) to replace combustible cigarettes.

Conclusions—Reasons for dual use were related to nicotine dependence, social influence, product appeal, and perception of reduced harm. Understanding contextual nuances of dual use can inform policy and communication.

Correspondence Dr Majeed; Bmajeed1@gsu.edu.

Human Subjects Approval Statement

The study protocol was approved by the Institutional Review Board (IRB) at Georgia State University (GSU).

Conflict of Interest Disclosure Statement

The authors have no conflict of interest to declare.

Keywords

e-cigarettes; dual use of e-cigarettes and combustible cigarettes; cigarette smoking; nicotine craving; nicotine addiction; social influence; social image

Rates of electronic cigarette (e-cigarette) use among adults in the United States (US) continue to rise, especially among smokers of combustible cigarettes.^{1,2} In 2014, among current adult smokers 51% have tried e-cigarettes and 21% concurrently used e-cigarettes and combustible cigarettes in the past 30 days.² This pattern of use, also known as dual use, warrants further examination to understand its possible trajectories and potential health consequences, particularly with respect to combustible cigarette smoking behavior.³

Psychosocial factors associated with e-cigarette use may vary depending on demographic characteristics, smoking status, and history of use of other tobacco products.⁴ A survey study among women of reproductive age revealed that whereas impulsivity predicted e-cigarette use among never smokers, intention to quit smoking in the next 30 days and exhibiting higher nicotine dependence were important factors for e-cigarette use among current smokers.⁴ A study of British smokers who had used e-cigarettes showed that initiation of e-cigarette use was influenced by social and psychological factors, such as using e-cigarettes with friends and family and the belief that e-cigarettes were less harmful than combustible cigarettes.⁵

Research on perceptions and reasons for e-cigarette use shows that users believe e-cigarettes are less harmful than combustible cigarettes⁶⁻⁸ and are potentially useful to manage withdrawal symptoms related to smoking cessation.⁹ These beliefs influence e-cigarette use.¹⁰ Current smokers report using e-cigarettes to reduce the number of cigarettes they smoke,^{8,11} quit smoking completely,¹¹ overcome smoking restrictions,^{12,13} or satisfy their curiosity.¹⁴ Thus, dual users may vary in their reasons for trying and continuing to use e-cigarettes.

In this qualitative study we explored reasons for dual use and explored the psychological and social contexts of e-cigarette use by current adult smokers. We present the influences that shaped experimentation, first-time use, and regular use of e-cigarettes by current adult cigarette smokers.

METHODS

Two focus groups were conducted in 2014, in Atlanta, Georgia with 14 current cigarette smokers who had ever used e-cigarettes. Focus Pointe Global (FPG), a marketing research company recruited the study participants purposively. FPG keeps a database of approximately 1.4 million opt-in potential participants for qualitative research. The panelists received an e-mail invitation that included a link to the screener survey, designed by the research team, to identify eligible individuals. Individuals who were eligible and willing to participate in the study received a phone call. Trained recruiters conducted phone interviews with potential participants to ensure their eligibility for the study: being 18 years and older; self-identified as current smokers; had used e-cigarettes, even once; and had not been part of

a focus group in the previous 6 months. To uncover variations in experiences of e-cigarette use among dual users of both combustible cigarettes and e-cigarettes, we sought diversity in the focus groups' composition in terms of demography and smoking behavior. The group sizes, 7 participants per group, were ideal to have interactive discussion and to allow enough time for each participant to share views. The focus groups were semi-structured, facilitated by an experienced moderator, and utilized a discussion guide that the authors developed. The facilitator guide included questions related to imagery and feelings associated with e-cigarettes, reasons for use, and preferred time and place for use. This guide helped the facilitator focus on key issues under research. The research team observed the focus groups from an adjacent observation room using one-way glass. The participants were informed that they were observed by the research team. Each focus group lasted for 90 minutes. Participants received a monetary cash incentive of \$125 for their participation. Data were captured by voice recording, and records were then transcribed verbatim.

One coder, the first author of the manuscript, coded the transcripts of the focus group discussions. Data coding was done line by line by iterative cyclical readings using NVIVO (v. 10) a qualitative data analysis software, to organize, code, and analyze the transcripts. Saturation was reached and we stopped coding when no new issues emerged from the data after several cycles of reading. We conducted thematic analysis, followed the broad principles of grounded theory, and identified emergent themes related to first-time e-cigarette use as well as regular use. Additionally, we described patterns of e-cigarette use among cigarette smokers, complementary use versus substitution.

RESULTS

Table 1 shows the characteristics of the study participants. The sample consisted of 7 male and 7 female adult participants; 10 were white, and 4 were African Americans; half of the sample were light cigarette smokers ($10 < \text{cigarettes per day}$) versus heavy smokers (>10 cigarettes per day). All participants were currently using e-cigarettes, and 3 were everyday users of e-cigarettes; the rest used e-cigarettes some days (Table 1).

Table 2 depicts specific themes related to first-time experimentation, and subsequent regular use of e-cigarettes among current cigarette smokers. All participants described the context of their first time using an e-cigarette and discussed the reasons for choosing to continue to use and become regular users. Themes that emerged from accounts of first-time use included curiosity, craving for nicotine, convenience, coolness, and influence of a persuasive person.

E-cigarettes aroused curiosity among cigarette smokers. Study participants expressed their intrigue regarding e-cigarettes' flavors and taste, technology and novel design, nicotine content and delivery, and satisfaction. Another prominent theme in first-time use was nicotine craving. Participants identified the symptoms associated with nicotine withdrawal as craving for nicotine. This experience was marked by an intense desire to smoke, irritability or bad attitude, or an urgent need for nicotine withdrawal relief. To combat these symptoms, some participants reportedly tried e-cigarettes for the first time because they were unable to smoke combustible cigarettes indoors or ran out of cigarettes. In such circumstances, smokers used e-cigarettes because they were a convenient way to reduce the

nicotine craving. The theme of convenience was used to describe smoking indoors, particularly when either time or weather prohibited going outdoors for a smoke break.

Another theme associated with first-time use was “coolness.” Using e-cigarettes (rather than smoking combustible cigarettes in public places such as clubs) was considered, by some, to be “chic” or “cool.” This reflects social acceptability and absence of smoking-related stigma. Social norms and stigmatization of smoking play powerful rule in initiation, reduction, and cessation of combustible cigarette smoking.^{15,16} The perceived social acceptability was a clear motivation to try e-cigarettes. Moreover, a strong theme among all participants’ first-time use of e-cigarettes was the presence of a “convincing” person. Current smokers were influenced or persuaded to try e-cigarettes by trusted people such as a family member, a friend, or a colleague, all of whom were current smokers. However, one participant reported being influenced by a clerk at a convenience store to buy e-cigarettes instead of combustible cigarettes.

Themes related to reasons for regular use of e-cigarettes, dual use, included craving for nicotine, sensory experience, convenience, coolness, and perceived harm reduction. Three of these themes were also related to first-time use, craving, convenience, and coolness. The remaining themes were unique to regular use, sensory experience and perceived reduced harm. The participants enjoyed the sensory experience of e-cigarette use. This pleasant experience was attributed to the appeal of the product such as their attractive smell, flavor, and taste, and the resemblance of smoking-related sensations in both their hands and mouths.

Another unique theme to regular use was related to perceptions of reduced harm. Participants perceived e-cigarettes to be less harmful than combustible cigarettes because they were “less harsh on the throat” and did not produce an after taste, tar, or second hand smoke. In addition, e-cigarette use was considered a healthier option than smoking combustible cigarettes because of the perception that e-cigarettes contained fewer chemicals and produced vapor. This belief made e-cigarette use a “guilt-free pleasure.” Participants also mentioned “breathing better” when substituting an e-cigarette for a combustible cigarette.

Based on the analysis of the focus group transcripts, 2 main patterns of e-cigarette use emerged from the data that we define as complementary use and replacement. The overall consensus was that e-cigarette and combustible cigarettes were used “hand in hand,” to supplement combustible cigarette use, as a complementary activity. E-cigarettes complemented combustible cigarettes in the sense that the former satisfied the desire to smoke in situations when smoking is not allowed. Interestingly, some participants who used e-cigarettes in this pattern referred to it as “smoking e-cigarettes.” On the other hand, only one participant out of the 14 participants had a pattern of use marked by replacing combustible cigarettes with e-cigarettes, ie, substitution with the intent of reducing combustible cigarettes to ultimately quit. This participant used the term “vaporizing” to distinguish vaping from smoking, because the participant believed that contrary to smoking, vaporizing has a positive connotation.

DISCUSSION

Our study adds to the limited knowledge available on the psychological and social contexts of e-cigarette use among current smokers, the reasons for e-cigarette experimentation and first-time use, versus regular use. Curiosity and the social environment were more strongly endorsed as reasons for experimentation. Themes related to regular e-cigarette use highlighted the importance of sensory experience and perception of reduced harm. Product appeal, cravings, coolness, and convenience were important motivations to try and to continue e-cigarette use. These findings are consistent with previous studies of adults on initiation of cigarette smoking¹⁷ and e-cigarette use^{14,18} that document the role of curiosity and social influence.

Consistent with the literature,¹³ findings among this group of dual users reveal 2 patterns of e-cigarette use: using e-cigarettes as a complementary product or as a substitute to replace combustible cigarettes. Dual users who use e-cigarettes to complement versus to replace combustible cigarettes tend to be occasional e-cigarette users,¹³ a pattern confirmed in the current study. These different patterns of dual use have implications for how e-cigarettes may promote or delay cessation. Therefore, health effects of dual use in general, and harm reduction in particular, depends on how and why e-cigarettes are used. The contexts revealed in this analysis suggest that there are specific triggers and factors influencing dual users and warrant further investigation to improve both clinical and policy level interventions.

This qualitative study drew from 2 focus groups of adult current smokers and did not discuss various types of e-cigarettes that have come on the market subsequently.¹⁹ Another limitation of our study was the *a priori* decision concerning the numbers of focus groups and participants. Furthermore, the study did not include participants that belonged to racial groups other than white and African-American, and thus, the results may not be transferable to dual users of other racial groups such as Hispanic adult smokers. However these data provide insight into the contexts of e-cigarette use by adult smokers drawn from a southeastern US state, a region with one of the highest smoking rates.² These data provide a comparison to other qualitative studies in different sub-populations such as young adult smokers in Hawaii.²⁰ Similar to this previous qualitative report on the context of e-cigarette use by young adult smokers,²⁰ smokers in this sample reported use of e-cigarettes when cigarettes were not available or smoking was not allowed. All study participants used nicotine containing e-cigarettes and nicotine cravings were cited as a major reason for use among all participants. Future research on e-cigarette use needs to examine inter-dependence of craving and convenience when identifying important reasons for use. We note that the majority of study participants reported only occasional e-cigarette use (Table 1) and only one participant reported explicitly that e-cigarettes were used with intent to quit combustible cigarettes completely. Motivation to use e-cigarettes appears to be an important factor to understand the potential impact of their use among current cigarette smokers.

Overall, the emergent themes associated with the contexts of e-cigarette use were most often related to nicotine dependence, social influence, and product appeal such as perceived lower harm, flavors, and being new and exciting products. Understanding these factors through more extensive measurement in population-based quantitative studies will provide more

informed evidence to regulatory authorities on the impact of nicotine content and product appeal on patterns of e-cigarette use. Such knowledge will enable the US Food and Drug Administration to assess whether these products meet the public health standard. Findings of this study also support that social influences and “word of mouth” are influential in initial use of e-cigarettes among smokers who were naïve to e-cigarettes. All accounts in these focus groups of first-time use of e-cigarettes included specific individuals, friends or family who influenced the initial trial. Consistent with previous research,^{5,21} this study underscores the rule of social acceptability, “social opportunity,” and perceived improved social image in e-cigarette use. Given the importance of social influence on e-cigarette initiation,¹⁴ continuous monitoring of social climate surrounding e-cigarette use and marketing will inform regulation policy, enforcement, and health communication. Health education efforts may be able to use social context to maximize health communication approaches, such as social media channels and social network approaches. Ultimately, a better understanding of dynamic e-cigarette use patterns among existing cigarette smokers must be understood within context to weigh the potential public health benefits and harms more accurately.

IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

The study revealed that in addition to using e-cigarettes as a nicotine delivery device and to satisfy cravings, current smokers may be attracted to e-cigarettes because of the pleasant sensory experience and the perceptions that e-cigarettes are socially more acceptable and less harmful than combustible cigarettes. These findings may be useful to inform the regulation of e-cigarette marketing, advertisement, and evaluation of the health impact of dual use.²² At the population level, the impact of dual use on health greatly depends on the risk profile of the product used, use patterns, and motivation of use.^{3,13} Given that harm reduction may result only if dual use is a short-term pathway to complete switching away from combustible cigarettes,²³ future quantitative research, using the emergent themes and context of dual use, may inform regulatory science necessary for evaluation of e-cigarettes as a potential tool of harm reduction.

Acknowledgements

This work was supported by the Georgia Cancer Coalition [SP000ELM76] and by grant number [P50DA036128] from the National Institute of Health/National Institute on Drug Abuse (NIH/NIDA) and the Food and Drug Administration (FDA) Center for Tobacco Products (CTP), as well as from the Center for Evaluation and Coordination of Training and Research (CECTR) in Tobacco Regulatory Science (1U54CA189222-01; NIDA/FDA). The content is solely the responsibility of the authors and does not necessarily represent the official views of NIH or FDA.

References

1. King BA, Patel R, Nguyen KH, et al. Trends in awareness and use of electronic cigarettes among US adults, 2010–2013. *Nicotine Tob Res.* 2015; 17(2):219–227. [PubMed: 25239961]
2. Weaver SR, Majeed BA, Pechacek TF, et al. Use of electronic nicotine delivery systems and other tobacco products among USA adults, 2014: results from a national survey. *Int J Public Health.* 2016; 61(2):177–188. [PubMed: 26560309]
3. Walton KM, Abrams DB, Bailey WC, et al. NIH electronic cigarette workshop: developing a research agenda. *Nicotine Tob Res.* 2015; 17(2):259–269. [PubMed: 25335949]

4. Chivers LL, Hand DJ, Priest JS, et al. E-cigarette use among women of reproductive age: impulsivity, cigarette smoking status, and other risk factors. *Prev Med.* Aug 2.2016 (16):S0091–7435. 30206–7. doi: 10.1016/j.ypmed.2016.07.029. [Epub ahead of print].
5. Wadsworth E, Neale J, McNeill A, et al. How and why do smokers start using e-cigarettes? Qualitative study of vapers in London, UK. *Int J Environ Res Public Health.* 2016; 13(7):E661. doi: 10.3390/ijerph13070661. [PubMed: 27376312]
6. Goniewicz ML, Lingas EO, Hajek P. Patterns of electronic cigarette use and user beliefs about their safety and benefits: an internet survey. *Drug Alcohol Rev.* 2013; 32(2):133–140. [PubMed: 22994631]
7. Tan AS, Bigman CA. E-cigarette awareness and perceived harmfulness: prevalence and associations with smoking-cessation outcomes. *Am J Prev Med.* 2014; 47(2):141–149. [PubMed: 24794422]
8. Rass O, Pacek LR, Johnson PS, et al. Characterizing use patterns and perceptions of relative harm in dual users of electronic and tobacco cigarettes. *Exp Clin Psychopharmacol.* 2015; 23(6):494–503. [PubMed: 26389638]
9. Harrell PT, Marquinez NS, Correa JB, et al. Expectancies for cigarettes, e-cigarettes, and nicotine replacement therapies among e-cigarette users (aka vapers). *Nicotine Tob Res.* 2015; 17(2):193–200. [PubMed: 25168035]
10. Wackowski OA, Delnevo CD. Young adults' risk perceptions of various tobacco products relative to cigarettes: results from the National Young Adult Health Survey. *Health Educ Behav.* 2016; 43(3):328–336. [PubMed: 26304709]
11. Etter JF. Electronic cigarettes: a survey of users. *BMC Public Health.* 2010; 10:231. [PubMed: 20441579]
12. Li J, Newcombe R, Walton D. The prevalence, correlates and reasons for using electronic cigarettes among New Zealand adults. *Addict Behav.* 2015; 45:245–251. [PubMed: 25744712]
13. Farsalinos KE, Romagna G, Voudris V. Factors associated with dual use of tobacco and electronic cigarettes: a case control study. *Int J Drug Policy.* 2015; 26(6):595–600. [PubMed: 25687714]
14. Pepper JK, Ribisl KM, Emery SL, et al. Reasons for starting and stopping electronic cigarette use. *Int J Environ Res Public Health.* 2014; 11(10):10345–10361. [PubMed: 25286168]
15. Evans-Polce RJ, Castaldelli-Maia JM, Schomerus G, et al. The downside of tobacco control? Smoking and self-stigma: a systematic review. *Soc Sci Med.* 2015; 145:26–34. [PubMed: 26439764]
16. Stuber J, Galea S, Link BG. Smoking and the emergence of a stigmatized social status. *Soc Sci Med.* 2008; 67(3):420–430. [PubMed: 18486291]
17. Pierce JP, Distefan JM, Kaplan RM, et al. The role of curiosity in smoking initiation. *Addict Behav.* 2005; 30(4):685–696. [PubMed: 15833574]
18. Sutfin EL, Reboussin BA, Debinski B, et al. The impact of trying electronic cigarettes on cigarette smoking by college students: a prospective analysis. *Am J Public Health.* 2015; 105(8):e83–e89.
19. Dube SR, Pathak S, Nyman AL, et al. Electronic cigarette and electronic hookah: a pilot study comparing two vap ing products. *Prev Med Rep.* 2015; 2:953–958. [PubMed: 26740911]
20. Pokhrel P, Herzog TA, Muranaka N, et al. Young adult e-cigarette users' reasons for liking and not liking e-cigarettes: a qualitative study. *Psychol Health.* 2015; 30(12):1450–1469. [PubMed: 26074148]
21. Coleman BN, Johnson SE, Tessman GK, et al. "It's not smoke. It's not tar. It's not 4000 chemicals. Case closed": exploring attitudes, beliefs, and perceived social norms of e-cigarette use among adult users. *Drug Alcohol Depend.* 2016; 159:80–85. [PubMed: 26708706]
22. Backinger CL, Meissner HI, Ashley DL. The FDA "deeming rule" and tobacco regulatory research. *Tob Regul Sci.* 2016; 2(3):290–293.
23. Deeming tobacco products to be subject to the Federal Food, Drug, and Cosmetic Act, as amended by the Family Smoking Prevention and Tobacco Control Act; restrictions on the sale and distribution of tobacco products and required warning statements for tobacco products. Final rule. *Fed Regist.* 2016; 81(90):28973–29106. [PubMed: 27192730]

Table 1

Characteristics of the Study Sample

Characteristics	Frequency
Focus groups	2
Number of participants	14
Age (years)	
Mean (SD)	37.6 (11.2)
Median	37.5
Mode	47.0
Sex	
Male	7
Female	7
Race	
White	10
African-American	4
Education	
High School	3
Some College	6
College Graduate +	5
Age started smoking	
17years	8
18-23 years	6
Smoking frequency	
Everyday	9
Some days	5
Cigarettes smoked per day	
1-10 cigarette	7
11-20 cigarette	7
Intention to quit smoking	
Will quit in the next month	3
Will quit in the next 6 months	3
Will quit in the next year	8
Year first used e-cigarette	

Characteristics	Frequency
2012	1
2013	10
2014	3
Current e-cigarette use	
Everyday	3
2-5 times a week	5
Once a week	3
Less than once a week	3
E-cigarette nicotine level	
8 mg	5
16 mg +	7
Other/not sure	2

Table 2

Themes Related to Reasons for Dual Use of Combustible and Electronic Cigarettes among Adults

Overall themes	Specific themes	Example narrative
What are the reasons for experimentation?	Curiosity	"My 27 year old son – I asked him what he wanted for his birthday and he said he wanted an e-cigarette...he had given me specifically what he wanted, and again, it was the starter kit, but it was a certain flavor and I was very, very curious about it. And so, I opened it up [Laughter] – I had to pull over; I couldn't drive at the same time. So, I pulled over and I had to read the directions and I tried it and I liked it."
	Craving	"We were leaving from the sports bar and I had my last cigarette and on the way out, just lighting it up, it was pouring rain. It just came down and I couldn't cover the cigarette up enough to keep it from getting soaked and so, I had an attitude, had a nicotine craving and my friend had the electronic cigarette and he actually – you know, he was like, "Here ... check this out." And so, I didn't want to do it at first, but that craving was in high gear ... so I took it and tried it. It was different, but it was okay... after a while, I smoked a couple of more times ... a few more pulls on it ... It tasted pretty good."
	Coolness	"I just felt very cool ... and so it really, it attracted me to it and I purchased one of the more traditional, simple – it looks like a traditional cigarette."
	Convenience (smoke indoors)	"We were studying at the library ... and it was the middle of winter and I really needed a cigarette and I did not want to have to get dressed to go outside and put on my layers, put on my hat and deal with all of that stuff. So one of my friends offered me – he had an extra Blu cigarette that was charged up – we were in the conference room and nobody saw me, so we were smoking inside the library and it – after that, I ended up picking up one the next day just to have for the convenience aspect of it."
	Persuasive persons	"I was at my sister's house and she was telling me all about it, 'Yeah, yeah, try these. They're different and healthier...'"
What are the reasons for regular use?	Craving	"... if I'm at the movie theatre, even as a cigarette smoker, I won't go outside to smoke a cigarette. I'll just wait the 2 hours, whatever, no big deal, but now that I have the opportunity to smoke and it's not – the only thing that it's giving me is like nicotine, I just smoke it just on impulse."
	Sensory experience	"... it smells really sweet and that's just alluring"
	Coolness	"I'll smoke an E-cigarette, so – because it's more trendy ... I just feel more girly."
	Perceived reduced harm	"... there's no secondhand smoke that goes around, so I think that's a good health fact about them [e-cigarettes]."
	Convenience	"... it was really cold when I got it [e-cigarette], so I wouldn't have to go outside and smoke in the freezing weather. I used it when the convenience is necessary, like when I can't go outside and smoke and stuff."