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Young adult e-cigarette users' reasons for liking and not liking e-cigarettes: A qualitative study

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Abstract

Objective—To gain an in-depth understanding of what young adult electronic- or e-cigarette users like or dislike about e-cigarettes. We aimed to determine the reasons that may encourage young adults to use e-cigarettes or discourage them from using e-cigarettes.

Design—Twelve focus group discussions were conducted with 62 current daily e-cigarette users (63% men) of mean age = 25.1 years (Standard Deviation = 5.5). Data were analyzed following principles of inductive content analysis.

Results—Results indicated 12 categories of reasons for liking e-cigarettes (e.g., recreation, smoking cessation) and 6 categories of reasons for not liking e-cigarettes (e.g., poor product quality, poor smoking experience).

Conclusions—Young adults' motives for using or not using e-cigarettes appear to be varied and their relative importance in terms of predicting e-cigarette use initiation, dependence, and cigarette/e-cigarette dual use needs to be carefully studied in population-based, empirical studies. The current findings suggest that e-cigarettes may serve social, recreational, and sensory expectancies that are unique relative to cigarettes and not dependent on nicotine. Further, successful use of e-cigarettes in smoking cessation will likely need higher standards of product quality control, better nicotine delivery efficiency and a counseling component that would teach smokers how to manage e-cigarette devices while trying to quit smoking cigarettes.

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Keywords

electronic cigarette; young adults; motives; qualitative; smoking

Introduction

Electronic or e-cigarettes are battery-powered devices that deliver vapor which may be inhaled in the manner tobacco is smoked. Because of the vapor, e-cigarette use is often called “vaping” as opposed to smoking. The vapor is released when a liquid—popularly known as e-liquid or e-juice—is heated. The e-liquid is usually a solution containing propylene glycol and/or vegetable glycerin, nicotine, and flavor concentrates. Consensus about the long- and short-term public health consequences of e-cigarette use, including the effects of e-cigarette use on tobacco use initiation or cessation, seems to be lacking (West & Brown, 2014). Although e-cigarettes appear to promote smoking cessation among cigarette smokers who are motivated to quit smoking (Biener & Hargraves, 2014; Etter & Bullen, 2014), concerns have been raised about e-cigarettes’ potential to encourage cigarette use initiation and relapse and discourage complete cessation (Chapman, 2014; Dutra & Glanz, 2014).

Recent reports indicate that e-cigarette use prevalence rates among U.S. and U.K. adults are steadily increasing over the past few years (King et al., 2013; Dockrell, Morison, Bauld, & McNeill, 2013; McMillen, Gottlieb, Shaefer, Winickoff, & Klein, 2014). For example, among U.S. adults, prevalence of ever e-cigarette use increased from 1.8% in 2010 to 13% in 2013. E-cigarette use prevalence is highest among current cigarette smokers, among whom the prevalence ranges between 30% and 34% (McMillen et al., 2014). Among adults, younger age has been consistently associated with greater likelihood of having tried e-cigarettes (Hajek, Etter, Benowitz, Eissenberg, & McRobbie, 2014).

Despite the obvious relevance of e-cigarettes to public health, thus far, psychological research on e-cigarette use behavior has been limited. In particular, the current literature has lacked a systematic study of the reasons that may encourage or discourage individuals, particularly young adults, to use e-cigarettes; although, several past survey-based and qualitative studies have attempted to address the motivational factors associated with e-cigarette use in one way or the other (Etter, 2010; Etter & Bullen, 2011; Dockrell et al., 2013; Dawkins, Turner, Roberts, & Soar, 2013; Choi, Fabian, Mottey, & Forster, 2012; Peters, Meshack, Lin, Hills & Abughosh, 2013; McQueen, Tower, & Sumner, 2011). A systematic approach to the study of e-cigarette use motives and deterrents may not only improve the theories concerning e-cigarette use behavior but also advance research methods by optimizing constructs and measures. Such an approach may involve an in-depth qualitative research that would generate a variety of concepts, followed by population-based surveys that would validate those concepts.

Of the reasons for using e-cigarettes that have been documented by the existing survey studies (Etter, 2010; Etter & Bullen, 2011; Dockrell et al., 2013; Dawkins et al., 2013), the most commonly reported reasons have been reduction or cessation of cigarette smoking, use for safer or healthier smoking experience, cheaper cost, indoor use compatibility, and ability

to use without bothering or harming others and in situations where smoking is not permitted. Other reasons have included the vapor's pleasant taste and smell and the absence of tobacco's unpleasant smell (Dockrell et al., 2013). Commonly documented reasons for stopping use have been poor product quality, inability of the product to help reduce craving or result in smoking cessation, difficulty of accurately controlling the dose of nicotine, and fear of side-effects (Etter, 2010; Etter & Bullen, 2011). Some of the adverse physical effects of e-cigarette use noted or reported have included dry mouth and throat, vertigo, headaches, and minor respiratory problems (Etter, 2010; Chen, 2013).

A focus group study with college students (Choi et al., 2012) noted that young adults found the novelty and technology represented by e-cigarettes to be attractive. Another, more recent focus group study (Peters et al., 2013) with e-cigarette-using high school students found the youths' positive attitudes towards e-cigarettes to be based on beliefs that e-cigarettes were safer and healthier than cigarettes, did not make their teeth yellow or make them smell bad, and that e-cigarette use enhanced their social image. The youths noted that e-cigarettes were highly convenient because e-cigarettes could be consumed anytime, anywhere, without getting caught; as unlike tobacco smoke, the vapor could not be smelled or detected easily.

Based on interviews with e-cigarette users, McQueen et al. (2011) reported several other reasons why cigarettes smokers may like e-cigarettes as an alternative to smoking cigarettes. These included use of e-cigarettes to improve or regain the sense of taste and smell and stamina for physical activity and to enjoy a better quality of life. The individuals noted that e-cigarettes allowed them to control the amount of nicotine intake and were more satisfying than the traditional smoking cessation aids such as the Nicotine Replacement Therapy (NRT) products. The negative aspects of e-cigarettes mentioned included the presence of a "learning curve" in the use of e-cigarettes which may vary among individuals and the time that may be spent in trying to find a product that is a good match for one's needs.

Studies on e-cigarette outcome expectancies (Pokhrel, Little, Fagan, Muranaka, & Herzog, 2014; Harrell et al., 2014; Hendricks et al., 2015) shed further lights on motivational factors related to e-cigarette use. Positive outcome expectancies such as social enhancement, affect regulation, and positive sensory experience (e.g., smell, taste) have been associated with recent e-cigarette use and intentions to use e-cigarettes in the future (Pokhrel et al., 2014; Hendricks et al., 2015). Harrell et al. (2014) found that compared with cigarettes, e-cigarettes were perceived to have fewer risks, cause lower craving and withdrawal symptoms, taste better and be less addictive and more satisfying. However, e-cigarettes were perceived to be inferior to cigarettes in regard to providing stimulation, controlling weight, and reducing negative affect and stress.

The majority of the existing qualitative studies on e-cigarette use behavior have not directly focused on understanding the reasons for e-cigarette use. Further, barring a few early online surveys that collected open-ended qualitative data on using or discontinuing use of e-cigarettes (Etter, 2010, Etter & Bullen, 2011), most survey-based studies have either used ad hoc self-report items or directly adapted items from previous studies on cigarette smoking to assess e-cigarette use reasons or expectancies. The present study was designed to understand in detail 1) the reasons that motivate young adults to use e-cigarettes; and 2) the reasons that

may discourage young adults from using e-cigarettes. Thus far these questions have not been directly addressed by using focus group discussions, which provide an efficient means of gathering far-ranging information through interactive discussions with members of the population of interest. Thus this study sought to garner a wide variety of reasons for young adults' liking and not liking e-cigarettes, and in doing so, sought to address the limitations of the existing studies in the area.

Despite the fact that e-cigarette use prevalence is highest among young adults, there have been very few studies that have attempted to understand e-cigarette use motives among young adults. The Choi et al. (2012) was a focus group study that included e-cigarette questions but this study did not focus specifically on e-cigarette use or e-cigarette users. Although not focused on young adults, the McQueen et al. (2011) study delved into themes related to e-cigarette use. However, this study relied on one-on-one interviews with a relatively small of number of e-cigarette users. While one-on-one interviews have an advantage over focus groups in terms of eliciting comprehensive information separately from individual participants, interviews lack the comparative advantages of focus groups such as relatively larger and diverse samples and data augmentation through peer-interactions. Thus we expected the current study to expand on the findings of McQueen et al. (2011) by discovering new themes that may be more relevant for young adults.

Although self-report questionnaire methods have an obvious advantage over focus groups in terms of collecting data from a larger, more representative sample, such methods lack the advantage that focus groups have of eliciting information through probing and peer interaction. Focus groups offer a balance between one-on-one interviews and self-report questionnaires in terms of collecting in-depth and wide-ranging qualitative data on a subject matter about which relatively little is known. Hence, the present study chose to use focus group discussions as the research methodology. Thus far only one study (Peters et al., 2013) has specifically studied e-cigarette users using focus groups. This study, which provided valuable insights, was based on an adolescent, predominantly African-American, male-only sample. The current study, which includes both genders and a sample that is ethnically diverse, is likely to significantly advance the current understanding of e-cigarette use motives and deterrents among young adults.

Methods

Participants

Participants were current daily e-cigarette users. Table 1 summarizes their demographic and e-cigarette and cigarette use characteristics. Participants ranged between 18 and 35 years in age. More men were represented in the sample than women and the sample was ethnically diverse with approximately 55% representing Asian/Pacific Islanders. Forty one percent of the participants had been using e-cigarettes for one year and more and 41% had been using e-cigarettes for 2–6 months. Approximately 26% of the participants were light e-cigarette users or vapers (i.e., vaped only few times a day) and 56% were heavy vapers (i.e., vaped frequently or constantly throughout the day). Forty-eight percent of the participants reported to be current daily cigarette smokers and 63% reported having smoked a cigarette at least once in the past 30 days.

Procedures

Recruitment—Participants were recruited in Hawaii, mainly Oahu, through advertisements in print media (e.g., newspapers, magazine) and through distribution of flyers on college campuses. The study was advertised as a focus group study with young adult (18–35 year old) e-cigarette users. Interested individuals telephoned the research site and were screened by a research staff. They were invited to participate in a focus group session if they met the study inclusion/exclusion criteria. Participants were required to be 1) current daily e-cigarette users; 2) between 18 and 35 years in age; 3) fluent in English; and 4) able and willing to travel to the research site. Verbal consent was obtained from the participants before the screening was conducted. Five to 6 selected individuals were invited to participate in one focus group session. Participants' whose friends or family members had also been selected to participate in the study were invited to participate in separate groups. Because the discussions focused on a gender-neutral topic such as e-cigarettes, groups convened were mixed-gender. Attempts were made to balance the number of men and women in a group.

This study was approved by Western Institutional Review Board. Participants were asked to visit the research site with a government-issued ID and their electronic cigarette product of regular use. Once the age was verified, participants read the informed consent form, provided written consent and completed a self-report questionnaire which included measures of demographic characteristics (i.e., age, gender, ethnicity, and annual household income), and e-cigarette use and cigarette use behavior. Focus group discussions commenced immediately after all group members had completed the self-report questionnaire.

Focus groups—Total 62 individuals participated across 12 focus groups over a period of 4 months, from November 2013 to February 2014. On average, each focus group consisted of 5 individuals and each discussion session lasted for approximately 1 hour and 15 minutes. The same protocol was followed across all sessions. After the initial "engagement" questions (e.g., "How did you first come to know about e-cigarettes?" "What were your first impressions of e-cigarettes?"), participants were asked three sets of questions. The first set of questions asked included: "What do you like about e-cigarettes?" "Why do you use e-cigarettes?" and "What are the positive consequences that you expect out of using e-cigarettes?" The second set of questions asked: "What do you not like about e-cigarettes?" "What are the negative consequences that you expect out of using e-cigarette?" and "What are the reasons that may make you stop using e-cigarettes?" The third set of questions focused on the patterns and reasons concerning dual use of e-cigarettes and cigarettes and is not relevant to the current investigation.

All focus groups were moderated by the first author. The moderator was accompanied by a note-taker in all sessions. The note-taker noted each participant's contribution to the discussions as well as his or her non-verbal behavior. Both moderator and note-taker were men in their thirties and non-smokers. The moderator's and the note-taker's smoking status was not made explicit to the participants proactively. All sessions were audio-recorded. The note-taker transcribed the audio-recorded data following each session. The transcriptions were cross-checked against the audio-recording and focus-group notes by the moderator.

Identities of subjects and places or events that might identify subjects were excluded from transcripts. Next, the moderator and the note-taker reviewed transcriptions, notes and discussed areas of consensus and discrepancies. Transcriptions were considered to be ready for analysis after discrepancies were addressed. Then the data were coded separately by the moderator and the note-taker. The research team met to review the coding and coding procedures. Recruitment was stopped after the 12th session because 11th and 12th group discussions added no new information, implying data saturation.

Data analysis

Quantitative data were analyzed by using SAS (Version 9.3) software. The NVIVO software (Version 9) was used to code, manage, and analyze the qualitative data. Data were analyzed following the principles of inductive content analysis (Elo & Kyngas, 2008). First, open coding was performed. Two research staff separately read the transcripts, noting down each "reason" concept related to liking and not liking e-cigarettes. At this stage, the maximum possible number of concept categories (i.e., reasons) was generated separately for reasons for liking, and reasons for not liking, e-cigarettes. Thus a list of codes was created on an ongoing basis. Next, the codes were grouped under higher order concepts. We looked for themes across focus groups and identified convergent and divergent themes. A final master code list was created along with primary or higher order code definitions up to the point of saturation (Strauss, 1987; Lincoln & Guba, 1985). We compared and contrasted the codes for all 12 focus groups. Because our focus groups were not stratified by gender or race/ethnicity, we report the data for the multiethnic, mixed-gender groups used to collect the data.

Results

As part of the data reduction process, we identified 12 primary codes and 41 subcodes pertaining to the reasons for liking e-cigarettes. For reasons for not liking e-cigarettes, we identified 6 codes and 31 subcodes.

Reasons for liking e-cigarettes

Table 2 lists the representative quotes that exemplify each category. Below we describe each of the 12 main categories and subcategories subsumed within them:

Smoking cessation and reduction—Perceived usefulness of e-cigarettes in smoking cessation efforts emerged as a category representing reasons for liking e-cigarettes that were based on perceptions or experience that e-cigarettes a) help quit or reduce cigarette smoking in general (12 groups); b) are more effective in helping quit cigarette smoking than conventional NRT products (10 groups); and c) make a satisfying cigarette substitute (6 groups). All 12 groups included at least some participants who had quit or reduced cigarette smoking with the help of e-cigarettes. Among them, those who had tried NRT products before trying e-cigarettes invariably believed that e-cigarettes were more helpful as smoking cessation aids than the NRT products they had tried which mainly included gum, patch, and lozenge. Further, participants who had successfully quit cigarette smoking mentioned that they found e-cigarette vapor to be as good as, if not better than, cigarette smoke in terms of

satisfying their needs as a smoker. For example, they found e-cigarette vapor satisfactory in terms of "throat-hit" it provided and believed that e-cigarette vapor could be inhaled and exhaled in a satisfying manner.

Health improvement—Subsumed under this category are reasons based on the perceptions or experience related to the positive or lack of negative health consequences of e-cigarette use to self and others. Five specific reasons were discussed: e-cigarettes a) provide healthier alternative to tobacco smoke (12 groups); b) improve physical fitness (12 groups); c) reduce negative health symptoms (9 groups); d) do not cause harmful secondhand exposure (5 groups); and e) improve the senses of taste and smell (4 groups).

Sensory satisfaction—Included within this category are reasons for liking e-cigarettes because e-cigarettes a) provide a better "buzz" than cigarettes (4 groups); b) allow the user to enjoy a vast range of flavors (12 groups); c) taste better than cigarettes (12 groups); and d) smell pleasanter than cigarettes (12 groups). Participants commonly opined that the positive sensory experience intrinsic to e-cigarettes helped them quit or reduce cigarette smoking.

Self-regulation—Participants mentioned self-regulatory reasons for liking e-cigarettes. These reasons include use of e-cigarettes a) to relax or relieve stress (10 groups); b) to feel good (11 groups); c) to suppress appetite for food (2 groups); d) to relieve headaches (1 group); and e) to control fidgetiness (4 groups). Participants commonly remarked that self-regulatory help provided by e-cigarettes supported their efforts to quit or reduce cigarette smoking.

Convenience of indoor "smoking."—Participants liked the fact that e-cigarettes made the lives of "smokers" easier by enabling indoor "smoking." Three reasons were discussed related to this: a) e-cigarettes preclude the necessity to go outdoors or seek "smoking zone" to "smoke" (12 groups); b) e-cigarettes do not set off a smoke detector (2 groups); and c) e-cigarettes could be used in the car while driving (7 groups). In a participant's words, an e-cigarette could be "pulled out whenever and wherever." Further, to dual users of e-cigarette and cigarette, e-cigarettes provided a way to cope with craving before they found an opportunity to smoke a real cigarette.

Cleaner alternative to cigarette smoking—Participants further linked the odorless quality of e-cigarette vapor with other qualities that made e-cigarettes a cleaner alternative to cigarette smoking for them. Thus, subsumed under this category are reasons for liking e-cigarettes because, unlike cigarettes, e-cigarettes do not a) produce ash or create litter (e.g., butts) (12 groups); b) burn upholstery (4 groups); and c) make body or hair smell bad (12 groups).

Discreet "smoking."—Another theme related to the relative ordorlessness of e-cigarettes that emerged concerned how e-cigarettes made it possible to "smoke" discreetly or without attracting others' attention. Included in this category were reasons for liking e-cigarettes because e-cigarettes could be a) used in schools and dorms, without getting caught by the authority (4 groups); and b) used in public places without attracting the attention of others (11 groups).

Professional benefits—Participants noted that e-cigarettes better suited their professional life than cigarettes. Three reasons were specified: e-cigarettes a) eliminate the need to take multiple breaks while working (5 groups); and b) prevent a person's clients/customers/students from finding out that he/she smokes (3 groups). The second reason applied especially to professionals who were health professionals or who worked with minors or worked in close physical proximity to their clients/customers (e.g., hair dressers).

Recreation—Included in this category are reasons for liking e-cigarettes because e-cigarettes are a) novel and fashionable (12 groups); b) represent personalized items that can be customized in ways reflective of one's individuality (8 groups); c) make an interesting hobby (5 groups); d) allow the user to play with vapor (4 groups); and d) provide enjoyable opportunities to shop for products and flavors (1 group). Participants mentioned that e-cigarettes looked "cool" and "intriguing" and came in many colors and styles that were attractive. Participants linked customizability of e-cigarettes to promotion of self-identity, reflective of their personal sense of fashion and lifestyle preference. Some participants mentioned that maintenance of modifiable or tank-system e-cigarettes can turn into a pleasurable hobby. According to them, tending to such e-cigarettes, the process of rebuilding or cleaning or modifying the product according to advances in technology, was similar to taking care of a special, personal toy. Some users found the ability of certain e-cigarettes to release large amounts of vapor very attractive because they could perform "tricks" with the vapor. They recalled occasions when friends competed among themselves on producing large vapor clouds of different shapes. A group discussed how shopping for different types of e-cigarette products and e-juice flavors could be an enjoyable experience.

Social enhancement—Participants mentioned liking e-cigarettes for social reasons. Three reasons were discussed: e-cigarettes a) enhance social interactions (10 groups); b) are socially more acceptable than cigarettes (10 groups); and c) can be used around children (4 groups). Participants reasoned that e-cigarettes allowed users to enjoy the company of smokers without having to smoke a real cigarette; and, to enjoy the company of non-smokers without fear of harmful secondhand exposure. In addition, e-cigarette use could help meet or know new people who also use e-cigarettes. Participants commonly noted that people around them were more approving of e-cigarette use than cigarette use. For example, spouse or parents encouraged cigarette smokers to replace cigarettes with e-cigarettes. Some participants noted that because of e-cigarettes they did not have to get away from their children, and leave the children unattended, to go to "smoke."

Control over intake—A set of reasons for liking e-cigarettes pertained to the perception or experience that an individual had more control over e-cigarettes than cigarettes in terms a) intake of vapor (9 groups); b) intake of nicotine (5 groups); and c) overall dependence (4 groups). Participants mentioned that with cigarettes, there was a pressure to finish off the whole cigarette once a cigarette was lit; but the user could use e-cigarettes as needed, a few puffs at a time. Further, participants liked the fact that e-cigarettes allowed control over nicotine intake. A user could select the nicotine concentration of his or her choice or mix e-liquids of different nicotine concentrations or easily switch from one degree of concentration to another. Importantly, participants who claimed to have switched over completely from

cigarettes to e-cigarettes mentioned that their dependence on e-cigarettes tended to be less intense than their dependence on cigarettes. For example, craving was reported to be less intense for e-cigarettes than for cigarettes.

Cost effectiveness—Participants provided three reasons as to why e-cigarette use, relative to cigarette use, saved money in the long run: a) maintaining e-cigarette use habit is less expensive than maintaining cigarette smoking habit (12 groups); 2) no one asks to "bum" an e-cigarette (3 groups); and 3) e-cigarettes do not crush as easily and go to waste like cigarettes (1 group). Participants who thought e-cigarettes were inexpensive reasoned that purchasing an e-cigarette tool-kit appeared expensive at first but over time the cost of maintaining an e-cigarette use habit turned out to be much lower than buying pack after pack of cigarettes. Participants mentioned that in colleges and at bars and clubs, it was quite common for friends and strangers to "bum" cigarettes off someone. However, people hardly asked anyone to borrow their e-cigarettes.

Reasons for not liking e-cigarettes

Table 3 shows the 6 primary categories and corresponding example quotes. Below we report the reasons for not liking e-cigarettes subsumed under each main category.

Product-related reasons—Participants discussed several product-related characteristics that they did not like about e-cigarettes: a) frequent problems with battery and cartridges (12 groups); b) e-juice getting in one's mouth (12 groups); c) frequent e-juice leakage (7 groups); d) hassles involved in maintaining the product (9 groups); e) inconsistencies in product quality across makes and models (5 groups); f) product breaking down too often (10 groups); g) difficulty in replacing the product once broken; for example, not as easy as borrowing a few cigarettes or replacing a pack of cigarettes (3 groups); h) battery over-heating and the fear of the product exploding (9 groups); i) products not being regulated by the FDA (7 groups); j) lack of knowledge regarding the health risks involved in using the product (12 groups); k) widespread availability of questionable e-juices (5 groups); and l) the "learning curve" involved in getting used to one's e-cigarette (6 groups). In general, participants were concerned about the lack of quality control among products currently available in the market. Poor quality products often caused inconvenience by not providing the service when needed.

Poor "smoking" experience—Participants discussed reasons that made e-cigarette use less pleasurable or enjoyable than cigarette smoking: a) e-cigarette vapor does not provide a strong "throat hit" (4 groups); b) disposable e-cigarettes do not produce enough "smoke" (i.e., vapor; 3 groups); c) the "hit," "buzz," or "nicotine fix" obtained from e-cigarettes is weak (11 groups); d) e-cigarettes cannot be shared like cigarettes (2 groups); and e) too much planning is involved in maintaining a regular e-cigarette use habit (10 groups). Regarding the last point, participants mentioned that they had to be constantly vigilant in order to make sure that they could use their e-cigarettes when needed. They had to make sure that the battery had enough charge, the cartomizer remained functional, and the e-liquid lasted. For example, if in the middle of a party the battery died, then another e-cigarette would not be as accessible as another cigarette.

Excess use and addiction—Participants discussed the possibilities of excessive use of e-cigarettes, development of e-cigarette use dependence, and prolongation of nicotine dependence. Specifically, three reasons were mentioned: a) difficulty managing intake of vapor (7 groups); b) failure to quit "smoking" (9 groups); and c) possibility of developing vaping dependence (10 groups). It was pointed out that because an e-cigarette did not burn out or end like an individual cigarette did, keeping track of how much one vaped became difficult. Thus, a bout of e-cigarette use could last a relatively long time. There was no specific end to the act as a metric of e-cigarette use. Some users reported that they tended to use e-cigarettes constantly throughout the day. Some noted that substituting cigarettes by e-cigarettes merely perpetuated the habit of "smoking." Participants were concerned that vaping could turn into an addiction.

Negative health consequences—Potential or experienced negative health consequences of e-cigarette use were discussed as reasons for not liking e-cigarettes. Specifically three reasons were discussed: e-cigarette use a) does not improve health (6 groups); b) has adverse physical effects (4 groups); and c) may cause pneumonia (3 groups). Participants argued that inhaling e-cigarette vapor may not be entirely risk-free because it still involved inhaling chemicals. In regard to negative physical effects, participants stated that they had experienced mouth and throat dryness, mouth and throat irritation, and headaches, especially after heavy bouts of e-cigarette use. A few participants mentioned that they had heard of cases of e-cigarette use causing pneumonia, although, none had had such experience firsthand.

High expenditure—Participants discussed the possibilities of e-cigarettes becoming an expensive habit. Specifically three reasons were discussed: a) good e-cigarette products and accessories are expensive to purchase and replace (8 groups); b) excessive money is spent on buying e-liquids of various flavors as new flavors keep cropping up in the market (9 groups); b) seemingly endless customization options means money is continually spent on improving the efficiency and/or the appearance of the product (5 groups).

Negative social consequences—Participants linked e-cigarettes to certain negative social consequences, which include: a) social disapproval (7 groups); b) use by minors (11 groups); c) use by non-smokers (8 groups); and d) use of e-cigarettes as a fashion accessory and status symbol (4 groups). Some participants mentioned that people on street considered e-cigarette to be not normal ("weird objects") and frowned upon e-cigarette use as a strange, harmful behavior. The majority of the participants believed that e-cigarettes should only be used by former and current smokers as an alternative to cigarettes; they were concerned about the possibility of minors and non-smokers developing e-cigarette use habit because of flavors, low harm perceptions, and easy availability of e-cigarettes. Further, participants expressed concerns about a subculture that was fast emerging around e-cigarettes in which youths and young adults used variously customized e-cigarettes as symbols of status among peers.

DISCUSSION

The present results indicate that the reasons why young adults find e-cigarettes attractive could be understood in terms of perceptions or characteristics related to e-cigarettes that fall in four broad domains. The first domain is characterized by the perception that e-cigarettes are safer than cigarettes. Reasons for liking e-cigarettes such as ‘smoking cessation and reduction’, ‘health improvement’, and ‘social enhancement’ fall under this domain. It is the assumption that e-cigarettes are safer than cigarettes that encourages the use e-cigarettes as smoking cessation aids and a healthier alternative to smoking. As previous studies show (Etter, 2010; Etter & Bullen, 2011; Dockrell et al., 2013; Dawkins et al., 2013), smoking cessation or reduction and health benefits tend to be some of the reasons that attract smokers to e-cigarettes. Other studies (Choi & Forster, 2014; Amrock, Zakhar, Zhou, Weitzman, 2014) have suggested that safety assumptions may lead non-smokers to experiment with e-cigarettes. The current results showed that safety assumptions have important social implications as well. For example, belief that e-cigarette use results in no secondhand exposure to harmful substances can encourage e-cigarette use while interacting with, or in the presence of, non-smokers and children.

The second domain concerns the nature of e-cigarette vapor which contrasts the nature of tobacco smoke in many ways, even though e-cigarette vapor may resemble tobacco smoke enough to enable smokers simulate smoking. Mainly, the e-cigarette vapor lacks the lingering, obtrusive smell of tobacco smoke. Thus the reasons for liking e-cigarettes such as ‘convenience of indoor “smoking”’, ‘discreet “smoking”’, ‘professional benefits’, ‘social enhancement’, and ‘cleaner smoking alternative’ fall under this domain. Absence of the burning-tobacco smell is likely the most important reason why indoor use of e-cigarettes is considered more acceptable; and why e-cigarette is used in situations where smoking is prohibited or where, for professional or private reasons, keeping smoking habit a secret is perceived as necessary. It may be also because of the less obtrusive nature of the e-cigarette vapor that friends, family members, and by-standers tend to be more tolerant towards e-cigarette use (Berg et al., 2015). Further, individuals who like to smoke but dislike cigarettes for the smell of its smoke may prefer e-cigarettes (Pokhrel & Herzog, in press). On the other hand, because the vapor does not linger in the air for as long as tobacco smoke does, youths may secretly use e-cigarettes in schools and home without being detected (Peters et al., 2013).

The third domain concerns flavors and reasons for liking e-cigarettes such as ‘sensory satisfaction’ and ‘recreation’ fall under this domain. Previous studies (Farsalinos et al., 2013; Vardavas, Filippidis, & Agaku, 2014) have highlighted the importance of flavors in attracting cigarette smokers to switch over to e-cigarettes. Flavors contribute an additional advantage to e-cigarette vapor by adding pleasant smell and taste. Because currently e-liquids are available in a wide range of flavors, users can easily pick the flavors that they find pleasant. There is considerable evidence showing that flavored tobacco products are especially attractive to youths (Carpenter, Wayne, Pauly, Koh, & Connolly, 2005; Villanti, Richardsn, Vallone, & Rath, 2013). However, the specific role of flavors in e-cigarette use initiation among youths and young adults is currently unknown and needs future research.

The current results highlighted a unique fourth domain: the use of e-cigarettes as a recreational activity. The inherent characteristics of the e-cigarette as an electronic device provide e-cigarettes an edge over traditional cigarettes as a medium of entertainment. Traditional cigarettes meet none of the reasons for liking e-cigarettes for non-nicotine related recreational reasons such as ‘hobby’, ‘customizability’, ‘playing with vapor’, ‘fashion/novelty’, and ‘shopping for products/vapor’.

Young adults may like e-cigarettes as a type of hobby, a personalized electronic item, much like a smartphone, and as an object of fashion. Participants reported finding joy in maintaining and improving their e-cigarettes. For some, their e-cigarettes seem to represent an aspect of their self-identity, reflective of their sense of fashion and lifestyle preference; while some e-cigarette users seem to enjoy blowing out large clouds of vapor for entertainment. How recreational motives affect e-cigarette use initiation or addiction among young adults is currently unclear and deserves future research, especially in the context of the hypothesis that e-cigarette use leads to cigarette use initiation or relapse. It is a question of great interest whether e-cigarette use for purposes other than smoking cessation eventually leads to cigarette use initiation among non-smokers, relapse among former cigarette smokers, or dual use and increased nicotine dependence among current cigarette smokers. The hypothesis that e-cigarette use may act as a gateway to cigarette use has not yet been empirically supported (Hajek et al., 2014). This gateway hypothesis is mainly founded on the assumption that nicotine from e-cigarettes primes individuals for cigarettes (Bell & Keane, 2014; Kandel & Kandel, 2014), which are likely to deliver nicotine more efficiently. Perhaps the gateway hypothesis should also be appraised from the points of view of motives unrelated to nicotine, such as social, recreational (e.g., pursuing e-cigarettes as a hobby), and flavor-related. It is currently unclear whether cigarettes fulfil the same non-nicotine-related needs that e-cigarettes do for e-cigarette users who have never used cigarettes.

It appears that proper and timely use of e-cigarettes in tobacco control efforts would necessitate prompt development of regulations that ensure the safety of and quality control over e-cigarette products, including e-liquids. Cigarette smokers trying to reduce or quit cigarette smoking using e-cigarettes seem to maintain some skepticism regarding e-cigarettes being safe, perhaps because of the availability of a range of products in the market some of which are of doubtful origins. Measures to enforce better manufacturing practices would also help prevent the production of inferior quality e-cigarettes and their mechanical and electronic components. Perhaps continued research and development will help manufacturers engineer products that are reliable, durable, and convenient. Also, as has been argued before (Etter, 2014), research and development to improve e-cigarettes’ nicotine delivery efficiency may benefit the potential use of e-cigarettes in smoking cessation.

In summary, the present study replicated some of the findings of the previous research among young adults as well as elucidated several new reasons prevalent among e-cigarette users for liking and not liking e-cigarettes. The current study is formative in the sense that the reasons for liking and not liking generated herein are expected not only to enhance the theoretical understanding of why individuals may choose to use or not use e-cigarettes but also provide a basis for the development of self-report instruments to be used in population-

based studies to assess e-cigarette use motives or expectancies. Thus this study is likely to advance the systematic study of the motivational factors associated with e-cigarette use. Although efforts of this nature have already been underway (Pokhrel et al., 2014), current findings indicate that such efforts may need to be carried out at a much larger scale. There appear to be important discrepancies between cigarette and e-cigarette use motives which argue against the direct adaptation of measures from tobacco to e-cigarette research. New standardized measures inclusive of the reasons for liking and not liking e-cigarettes found in the current study may help better understand the etiology and consequences of e-cigarette use.

Strengths and Limitations

There are limitations to the current research that need to be addressed. As opposed to one-on-one interviews, which allow for in-depth discussions with individual subjects, focus groups involve group dynamics. Some individuals are inhibited from talking in a group setting, especially from providing personal opinions or opinions that they perceive to be unpopular among other group members (Greenbaum, 1998). Thus the current research may be subject to the general threats intrinsic to focus group research. In particular, participants may have been relatively less outspoken about the negative aspects of e-cigarettes as all participants were current e-cigarette users. Furthermore, the moderator's effort to have all participants contribute equally to discussions may not have been always successful. Some participants may have contributed more to the discussions than others, potentially introducing bias into the data.

Other limitations are more specific to the current study. This study focused on young adults; hence, the current results may not generalize to adolescents and older adults. We defined young adults as 18–35 year olds, which represents a somewhat wide age-range. Findings could be different in some ways if the study focused on 18–25 year olds only. This study was conducted with e-cigarette users many of whom were also cigarette smokers. Thus the current findings may not generalize to non-cigarette-smoking young adults at risk for e-cigarette use. Also, the sample did not include non-e-cigarette users, whose reasons for liking and not liking e-cigarettes could be different. It should also be noted that both the moderator and note-taker were men in their thirties and non-smokers. The extent to which this might have biased the data is unclear but it is possible that participants may have held back some opinions because of the researchers' presumed non-smoking status. Lastly, conducting focus groups separately for individuals who had been using e-cigarettes to quit smoking and the rest would have been desirable.

Nevertheless, there are strengths to the current study that need to be recognized. Compared with one-on-one interviews, focus groups are cost efficient and less time-consuming. For example, conducting one-on-one interviews with 62 e-cigarette users would demand a lot more resources and time than the resources and time taken to complete the current study. Because little is known about e-cigarette use behavior currently, focus groups provide a relatively more expedient means of collecting valuable data on attitudes and behavior from a relatively large number of e-cigarette users. Moreover, focus groups have an advantage of peer interactions over one-on-one interviews or open-ended survey. Peer interactions add

depth and breadth to discussions as participants build on each other's inputs, probe each other, and help each other discover and express viewpoints. The focus group method helped us obtain a wide variety of reasons for liking and not liking e-cigarettes which one-on-one interviews might not have yielded.

Thus, focus group discussions with a relatively large, ethnically diverse sample of young adults represent a clear strength of the current study. Despite the increased vulnerability of young adults to e-cigarettes compared with other age groups, hitherto only one focus group study (Choi et al. 2012) had examined attitudes towards e-cigarettes among young adults. E-cigarettes and e-cigarette users, however, were not the focus of this study. The current study expanded on the findings of McQueen et al. (2011) and Peters et al. (2013), early studies that provided important insights into some of the experiences of e-cigarette users. The current study generated a more up-to-date and wide-ranging lists of factors that may encourage or discourage e-cigarette use among young adults.

Conclusions

The current results suggest that there may be multiple dimensions to young adults' motives for using or not using e-cigarettes. Future standardized measures of e-cigarette use motives and/or expectancies may need to be designed such as to be inclusive of these dimensions. Clearly, well-designed population-based empirical studies are needed to determine the relative importance in terms of e-cigarette use motives in predicting e-cigarette use initiation, dependence, and cigarette/e-cigarette dual use. The current findings suggest that e-cigarettes may serve social, recreational, and sensory expectancies that are unique relative to cigarettes and not dependent on nicotine. Further, successful use of e-cigarettes in smoking cessation will likely need higher standards of product quality control, better nicotine delivery efficiency and a counseling component that would teach participants how to manage e-cigarette devices.

References

Amrock SM, Zakhar J, Zhou S, Weitzman M. Perception of e-cigarettes' harm and its correlation with use among U.S. adolescents. Nicotine & Tobacco Research. 2014 Advance online publication. doi:

Bell K, Keane H. All gates lead to smoking: The 'gateway theory', e-cigarettes and the remaking of nicotine. Social Science & Medicine. 2014; 119C:45–52. [PubMed: 25150650]

Berg CJ, Stratton E, Schauer GL, Lewis M, Wang Y, Windle M, Kegler M. Perceived harm, addictiveness, and social acceptability of tobacco products and marijuana among young adults: marijuana, hookah, and electronic cigarettes win. Substance Use & Misuse. 2015; 50:79–89. [PubMed: 25268294]

Biener L, Hargraves JL. A longitudinal study of electronic cigarette use in a population-based sample of adult smokers: Association with smoking cessation and motivation to quit. Nicotine & Tobacco Research. 2014 Advance online publication. doi:

Carpenter CM, Wayne GF, Pauly JL, Koh HK, Connolly GN. New cigarette brands with flavors that appeal to youth: tobacco marketing strategies. Health Affair. 2005; 24:1601–1610.

Chapman S. E-cigarettes: the best and the worst case scenarios for public health. British Medical Journal. 2014; 349:g5512. [PubMed: 25204397]

Chen IL. FDA summary of adverse events on electronic cigarettes. Nicotine & Tobacco Research. 2013; 15:615–616. [PubMed: 22855883]

Choi K, Fabian L, Mottey N, Forster J. Young adults' favorable perceptions of snus, dissolvable tobacco products, and electronic cigarettes: findings from a focus group study. Am J Public Health. 2012; 102:2088–2093. [PubMed: 22813086]

Choi K, Forster JL. Beliefs and experimentation with electronic cigarettes: a prospective analysis among young adults. American Journal of Preventive Medicine. 2014; 46:175–178. [PubMed: 24439352]

Dawkins L, Turner J, Roberts A, Soar K. 'Vaping' profiles and preferences: an online survey of electronic cigarette users. Addiction. 2013; 108:1115–1125. [PubMed: 23551515]

Dockrell M, Morrison R, Bauld L, McNeill A. E-cigarettes: prevalence and attitudes in Great Britain. Nicotine & Tobacco Research. 2013; 15:1737–1744. [PubMed: 23703732]

Dutra LM, Glantz SA. Electronic cigarettes and conventional cigarette use among U.S. adolescents: a cross-sectional study. JAMA Pediatrics. 2014; 168:610–617. [PubMed: 24604023]

Elo S, Kyngas H. The qualitative content analysis process. Journal of Advanced Nursing. 2008; 62:107–115. [PubMed: 18352969]

Etter J-F. Electronic cigarettes: a survey of users. BMC Public Health. 2010; 10:231. [PubMed: 20441579]

Etter J-F, Bullen C. Electronic cigarette: users profile, utilization, satisfaction and perceived efficacy. Addiction. 2011; 106:2017–2028. [PubMed: 21592253]

Etter JF, Bullen C. A longitudinal study of electronic cigarette users. Addictive Behaviors. 2014; 39:491–494. [PubMed: 24229843]

Etter JF. Commentary on Goniewicz et al. (2014): if wisely regulated, electronic cigarettes can make cigarettes obsolete. Addiction. 2014; 109:508–509. [PubMed: 24524322]

Greenbaum, TL. The Handbook for Focus Group Research. Thousand Oaks, CA: Sage; 1998.

Farsalinos KE, Romagna G, Tsiapras D, Kyrzopoulos S, Spyrou A, Voudris V. Impact of flavor variability on electronic cigarette use experience: an internet survey. International Journal of Environmental Research & Public Health. 2013; 10:7272–7282. [PubMed: 24351746]

Hajek P, Etter JF, Benowitz N, Eissenberg T, McRobbie H. Electronic cigarettes: review of use, content, safety, effects on smokers and potential for harm and benefit. Addiction. 2014; 109:1801–1810. [PubMed: 25078252]

Harrell PT, Marquinez NS, Correa JB, Meltzer LR, Unrod M, Sutton SK, Simmons VN, Brandon TH. Expectancies for cigarettes, e-cigarettes, and nicotine replacement therapies among e-cigarette users ("vapers"). Nicotine & Tobacco Research. 2014 Advance online publication.

Hendricks PS, Cases MG, Thorne CB, Cheong J, Harrington KF, Kohler CL, Bailey WC. Hospitalized smoker's expectancies for electronic cigarettes versus tobacco cigarettes. Addictive Behaviors. 2015; 41:106–111. [PubMed: 25452052]

Kandel D, Kandel E. The gateway hypothesis of substance abuse: developmental, biological, and societal perspectives. Acta Paediatrica. 2014 Advance online publication.

King BA, Alam S, Promoff G, Arrazola R, Dube SR. Awareness and ever use of electronic cigarettes among U.S. Adults, 2010–2011. Nicotine & Tobacco Research. 2013; 15:1623–1627. [PubMed: 23449421]

Lincoln, YS.; Guba, EG. Naturalistic Inquiry. Thousand Oaks, CA: Sage; 1985.

McMillen RC, Gottlieb MA, Shaefer RM, Winickoff JP, Klein JD. Trends in electronic cigarette use among U.S. adults: use is increasing in both smokers and nonsmokers. Nicotine & Tobacco Research. 2014 Advance online publication. doi:

McQueen A, Tower S, Sumner W. Interviews with "vapers": implications for future research with electronic cigarettes. Nicotine & Tobacco Research. 2011; 13:860–867. [PubMed: 21571692]

Peters RJ Jr, Meshack A, Lin MT, Hill M, Abughosh S. The social norms and beliefs of teenage male electronic cigarette use. Journal of Ethnicity in Substance Abuse. 2013; 12:300–307. [PubMed: 24215223]

Pokhrel P, Herzog TA. Reasons for quitting cigarette smoking and electronic cigarette use for cessation help. Psychology of Addictive Behaviors. 2014 Advance online publication.

Pokhrel P, Fagan P, Little MA, Kawamoto CT, Herzog TA. Smokers who try e cigarettes to quit smoking: Findings from a multiethnic study in Hawaii. American Journal of Public Health. 2013; 103:e57–e62. [PubMed: 23865700]

Pokhrel P, Little MA, Fagan P, Muranaka N, Herzog TA. Electronic cigarette use outcome expectancies among college students. Addictive Behaviors. 2014; 39:1062–1065. [PubMed: 24630824]

Strauss, AL. Qualitative Analysis for Social Scientists. New York, NY: Cambridge University Press; 1987.

Vardavas CI, Filippidis FT, Agaku IT. Determinants and prevalence of e cigarette use throughout the European Union: a secondary analysis of 26566 youth and adults from 27 countries. Tobacco Control. 2014 Advance online publication: 10.1136/tobaccocontrol-2014 051922.

Villanti AC, Richardson A, Vallone DM, Rath JM. Flavored tobacco product use among U.S. young adults. American Journal of Preventive Medicine. 2013; 44:388–391. [PubMed: 23498105]

West R, Brown J. Electronic cigarettes: fact and faction. British Journal of General Practice. 2014; 64:442–443. [PubMed: 25179048]

Table 1

Participant characteristics (N = 62)

Characteristics		Mean (SD) / Frequency (n)
Age		25.1 (5.5)
Gender		
	Male	62.9% (39)
	Female	37.1% (23)
Ethnicity	Asian-American	19.4% (12)
	African-American	8.1% (5)
	Filipino	12.9% (8)
	Hispanic/Latino	6.5% (4)
	Native Hawaiian/other Pacific Islander	22.6% (14)
	White	30.7% (19)
Annual Income		
	0–$19,999	29.5% (18)
	$20,000–$29,999	16.4% (10)
	$30,000–$39,999	13.1% (8)
	$40,000–$49,999	19.7% (12)
	$50,000 or more	21.3% (13)
Length of time having been using e-cigarettes		
	Less than a week	0% (0)
	About 1–2 weeks	1.6% (1)
	About 1 month	11.5% (7)
	About 2–5 months	26.2% (16)
	About 6 months	14.8% (9)
	About 7–11 months	4.9% (3)
	About 1 year	21.3% (13)
	More than a year	19.7% (12)
Size of e-liquid container usually bought		
	15ml	68.4% (39)
	30ml	31.6% (18)
	Other	0% (0)
Length of time a container lasts		
	More than a month	23% (14)
	About a month	16.4% (10)
	3–4 weeks	9.8% (6)
	1–2 weeks	37.7% (23)
	Less than a week	8.2% (5)
	2–3 days	3.3% (2)
	1 day	1.6% (1)
	Less than a day	0% (0)
Daily e-cigarette use behavior		

Characteristics		Mean (SD) / Frequency (n)
	Vape only few times a day	25.8% (16)
	Vape frequently but only at certain times of the day	17.7% (11)
	Vape frequently thoughout the day	40.3% (25)
	Vape constantly throughout the day	16.1% (10)
Lifetime cigarette use		
	Never smoked a cigarette	3.2% (2)
	Smoked < 100 cigarettes	17.8% (11)
	Smoked ≥ 100 cigarettes	79.0% (49)
Cigarette use behavior		
	Do not smoke	16.1% (10)
	Smoke sometimes	35.5% (22)
	Smoke daily	48.4% (30)
Past-30-day cigarette use		
	Yes	62.9% (39)
	No	37.1% (23)

Table 2

Reasons for liking e-cigarettes: concepts and example quotes

Concepts	Quotes
Smoking cessation and reduction	'With e-cigarette you still get to blow out smoke. Because I tried using that nicorette inhaler, and it just… Ugh… It just didn't stick with me. I guess because I'm not blowing out smoke, so it felt like I'm not doing anything. And the nicotine gum, that stuff kind of bites the back of your throat, and I don't really like that feeling.' (26 year old male) 'I was a pack every other day smoker…Then probably half a year later I just stopped smoking tobacco and just smoked the e-cigarette only. It did the trick.' (26 year old male)
Health improvement	'I can do this and then I can go to the gym and workout or condition, stuff like that. It doesn't affect me. Before it was like, if I was going to workout, it was like, "Okay, I guess I'll just dip or something, if I really need nicotine before the workout." Or if I smoked right before I'd just be drained the whole time.' (23 year old male) 'After switching over to e-cigs my lungs felt lighter. I didn't have the tightness in my chest anymore.' (30 year old male)
Sensory satisfaction	'I could just puff on it at home, and I could keep less of a constant head high if I just keep puffing it. Whereas cigarettes it's like after you finish it it's over. It's lasts a little bit and then goes down.' (20 year old male) 'I can have 20 different flavors, like I have a baggie and it's got different flavors in it, and I have cartridges and I can just switch them out whenever. And definitely the flavors is the best part, because once you get bored of something you can buy a small pack and it'll still last you forever.' (35 year old male)
Self-regulation	'E-cigarettes I like because when I'm stressed out it takes the edge off.' (35 year old female) 'But smoking for me is so much needing something in my hands. So I feel like even if I quit this I'd be missing out on something, I'd have to take up knitting or something. Like not having something in my hands… that sounds weird, but I need that.' (21 year old female)
Convenience of indoor "smoking"	'I used to smoke a pack a day or whatever. I would be stuck somewhere and I had to be like, "Oh can I use the restroom real quick?" And go smoke a cigarette, you know? I could be puffing on my e-cig right here and just kind of occupy me until I get a chance to smoke a cigarette. It's pretty cool.' (19 year old male) 'I think another perk is that you can smoke indoors. I smoke in the house now, when I would smoke regular cigarettes I would go outside.' (27 year old female)
Discreet "smoking"	'Cuz in my county, legally, you're not allowed, even if you're 18 it doesn't matter, if it's a school day, you're not allowed to smoke cigarettes, it doesn't matter where you are. But you can smoke these. No one can tell.' (19 year old female) 'But hands down they're a little more discreet too. Open range, even at the library… you can sit there and just vape inside the library…' (19 year old male)
Professional benefits	'That's the thing, like when I smoked cigarettes, and I was working, I'd have to stop what I was doing, go outside… you got to stop everything. Now I'd just pull this out, hit it, online.' (22 year old male) 'I work at a high school as a physical education teacher. I don't want to work with kids stinking like cigarettes. Before when I used to smoke real cigarettes, I used to have a hard time smoking when I was at work. I had to really hide from my students and change my shirt, chew gum and that kind of stuff. Now with e-cig I don't have all those problems.' (24 year old male)
Recreation	'It's fun…different tricks, you got fat clouds…. If you're with your boys blowing fat ass clouds, like, "Aw I can do a better one, dog!" Fat O's.' (19 year old male) 'It's almost like being a kid with a toy. And the way you have to put the oils in some of them, you have to break it down, and take it, and then take the juice and put the little thing, and concentrate on it.' (25 year old male)
Social enhancement	'Because of e-cigs you can enjoy the company of smokers without smoking.' (21 year old female) 'I've always been just a social smoker, and then with having two small kids I found it more easier that I didn't have to leave them inside to go take a break if I was stressing or anything. I could just use it, smoke it, be done with it.' (28 year old female)
Cleaner "smoking" alternative	'No cigarette butts, you're not tossing butts everywhere.' (35 year old male) 'What's really aggravating about smoking is that smoke gets everywhere. Gets on your hair, gets on your skin, on your tongue, on your tissue, and it never goes away. So when you're with a non-smoker they always tell you about it, and within ten feet they can smell it.' (29 year old male)
Control over intake	'And once you light a cigarette, you gotta smoke that cigarette! You can't just put it down and pick it up later. I might just want one little hit of nicotine, so I'll take a couple puffs and put it back in my pocket. The convenience is much better than cigarettes.' (30 year old male) 'I like the fact that you can have no nicotine in it, and it's smooth. Or you can have up to 12 and it makes it harsh, but some people need that to replace cigarettes. And I know a friend who started on 10, and it's a goal for them, it's like weight-watchers or something. He comes up to me like, "Hey bro! I made it down to 8!" He's so proud of himself, and now he's on 4 so… it's self-rewarding, psychologically.' (25 year old male)

Concepts	Quotes
Cost effectiveness	'I actually wanted to get it because it was cheaper than smoking cigarettes, because I was smoking like a pack, a pack and a half per day. So it was a lot cheaper than purchasing the cigarettes, which were like $8, if you're lucky. I mean every pack.' (25 year old man) 'I mean, I think sometimes people share them. But nobody's asking you to bum a smoke." (21 year old female)

Table 3

Reasons for not liking e-cigarettes: concepts and example quotes

Concepts	Quotes
Product-related reasons	‘So if my battery is not charged, then it's like, okay either I have to go and charge it and let it sit there, or if my tank is empty I have to go buy something or else I can't use it. With cigarettes, it's like, I run out of a pack, let me just go to the nearest gas station and pick up a pack.’ (20 year old female) ‘Things not liked are the inconsistencies with brands. There are many inferior products out there. If you invest in an inferior product, it is a waste of your money.’ (29 year old male)
Poor “smoking” experience	‘You don't have that burn in the back of your throat, which makes e-cigs less satisfying.’ (27 year old female) ‘I don’t feel like I get the nicotine or whatever. It doesn’t taste the same, like a cigarette tastes like you’re smoking, this is whatever. Juice, that’s what it is, the e-juice or whatever. But it doesn’t taste like a cigarette.’ (28 year old male)
Excess use/addiction	‘Yeah you don't know when it's over, it's not like a cigarette, like, "Oh I smoked one." It's easy to count how many you've had and keep a tally. But this you just fill it up, and I don't know how much I smoked, or how much nicotine I smoke. I probably smoke more than I used to. I probably do.’ (27 year old female) ‘I think for me the convenience makes me vape more. So I feel like I’m getting more nicotine than if I’m actually just smoking cigarettes, because I smoke less cigarettes because it’s inconvenient.’ (20 year old male)
Negative health consequences	‘Nothing is really good for you when you inhale it, doesn’t matter what. But these chemicals, putting them into your lungs, it’s still not good for you regardless of what it is, and I’m aware of that, but it’s a self-conscious choice that everyone has to make.’ (19 year old female) ‘Sometimes if I'm vaping a lot during the day I will wake up with a dry throat, a little phlegm sometimes.’ (35 year old male)
High expenditure	‘I spend way more money, like I started off by spending less. I got four or five different vaporizers, like variable voltage mechanical ones. If you buy it online it’s cheaper, but I smoke so much now that the thing of liquid, the bottle lasts three days, at the most.’ (25 year old male) ‘I guess that's one of the things I don't like about e-cigs, is you can customize them so much. So it's like this, but you can change it to make this better… why not just give me the best product there is? Instead of buying one, and getting a different wick… Same with the tip. They give you a crappy tip, you drop it, and it looks like your dog chewed on it. So I had to go out and buy the stainless steel tip.’ (29 year old female)
Negative social consequences	‘My 8 year old sister is always jacking it from me. I don’t condone it, but when she jacks it, she smokes it. And my other little sisters they do too. It makes them feel older, something like that. Because it’s such an age appropriated thing, it’s appeasing to them. But I don’t see any social void between the ages.’ (18 year old male) ‘I think it’s more addictive to people who don’t smoke cigarettes, because for me, and I know friends who didn’t smoke cigarettes but got the vape/this thing, now we’re always just hitting it. Because it’s like mist.’ (20 year old male)