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Hospitalized Smokers' Expectancies for Electronic Cigarettes versus Tobacco Cigarettes

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Abstract

Introduction—To compare hospitalized smokers' expectancies for electronic cigarettes (e-cigarettes) against their expectancies for tobacco cigarettes and evaluate relationships between e-cigarette expectancies and intention to use e-cigarettes.

Methods—Analysis of baseline data from a one-year longitudinal observational study. The setting was a tertiary care academic center hospital in the Southeastern U.S. Participants were 958 hospitalized tobacco cigarette smokers. A questionnaire of e-cigarette expectancies based on the Brief Smoking Consequences Questionnaire-Adult (BSCQ-A) was developed and administered along with the original, tobacco-specific, BSCQ-A. Intention to use e-cigarettes was assessed with a single 10-point Likert scale item.

Results—Participants reported significantly weaker expectancies for e-cigarettes relative to tobacco cigarettes on all 10 BSCQ-A scales. Participants held sizably weaker expectancies for the health risks of e-cigarettes ($p < .001$, Cohen's $d = -2.07$) as well as the ability of e-cigarettes to relieve negative affect ($p < .001$, Cohen's $d = -1.01$), satisfy the desire for nicotine ($p < .001$, Cohen's $d = -.83$), and taste pleasant ($p < .001$, Cohen's $d = -.73$). Among the strongest predictors

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of intention to use e-cigarettes were greater expectancies that e-cigarettes taste pleasant ($p < .001$, adjusted $\beta = .34$), relieve negative affect ($p < .001$, adjusted $\beta = .32$), and satisfy the desire for nicotine ($p < .001$, adjusted $\beta = .31$).

Conclusions—Hospitalizedtobacco smokers expect fewer negative and positive outcomes from e-cigarettes versus tobacco cigarettes. This suggests that e-cigarettes might be viable though imperfect substitutes for tobacco cigarettes.

Keywords

Electronic cigarettes; E-cigarettes; Expectancies; Smoking; Hospitalized smokers

INTRODUCTION

Electronic cigarettes (e-cigarettes; also called electronic nicotine delivery systems) are battery-operated devices that heat and vaporize a nicotine solution. They are designed to mimic the sensorimotor aspects of tobacco cigarette smoking and deliver nicotine without combusting tobacco. E-cigarettes first appeared in the Chinese domestic market approximately 10 years ago and have since grown into a multibillion-dollar global industry (Cressey, 2013). Indeed, as many as 7% of American adults report ever using e-cigarettes and as many as 21% and 6% of American adult tobacco smokers report ever using and recently (past 30 days) using e-cigarettes, respectively (Choi & Forster, 2013; King, Alam, Promoff, Arrazola, & Dube, 2013; Pearson, Richardson, Niaura, Vallone, & Abrams, 2012; Regan, Promoff, Dube, & Arrazola, 2013).

The efficacy for tobacco smoking cessation and safety of e-cigarettes are matters of contention (Benowitz & Goniewicz, 2013; Bullen et al., 2013; Caponnetto et al., 2013; Chapman, 2013; Cobb & Abrams, 2011; Etter, 2013; Hajek, Foulds, Le Houezec, Sweanor, & Yach, 2013; Wagener, Siegel, & Borrelli, 2012). Although e-cigarettes are banned in some countries such as Australia, Brazil, Canada, and Norway, they remain widely available on the Internet (Adkison et al., 2013). In addition, the U.S. Food and Drug Administration's Center for Tobacco Products has not yet issued regulations for e-cigarettes despite plans to do so (U.S. Food and Drug Administration, 2014). Given the easy access to e-cigarettes, their use might be expected to increase. However, uptake of e-cigarettes will likely depend, in part, on the expected consequences (i.e., expectancies) of e-cigarette use among tobacco smokers and other populations that are disposed to use the products. For instance, if tobacco smokers have internalized marketing messages that e-cigarettes confer the benefits of tobacco cigarette use (e.g., craving reduction) without its ill effects (e.g., health risks, stigmatization), then the prevalence of e-cigarette use should be expected to rise. Conversely, if tobacco smokers view e-cigarettes as unsuitable replacements for tobacco cigarettes (e.g., inferior withdrawal relief, equivalent health risks), then the prevalence of e-cigarette use should be expected to plateau or even decline. Indeed, tobacco use expectancies predict increases in cigarette use and dependence over time and are among the best predictors of tobacco smoking cessation (Heinz, Kassel, Berbaum, & Mermelstein, 2010; Hendricks, Wood, Baker, Delucchi, & Hall, 2011).

A few studies have evaluated variables that touch on tobacco smokers' expectancies for e-cigarettes relative to tobacco cigarettes. This research suggests that US adult tobacco smokers believe e-cigarettes are less harmful to a person's health than tobacco cigarettes (Adkison et al., 2013; Choi and Forster, 2013; Pearson et al., 2012) and that e-cigarette users believe e-cigarettes are healthier alternatives to tobacco cigarettes that satisfy the craving to smoke (Dawkins, Turner, Roberts, & Soar, 2013; Etter & Bullen, 2011). While illustrative, these studies raise concerns about characteristics that might produce favorable responses to e-cigarettes (e.g., potentially leading questionnaire items such as "Are e-cigarettes less harmful than cigarettes?" and recruiting e-cigarette enthusiasts from discussion forums and websites). Furthermore, they did not assess the range of expectancies smokers may hold regarding the use of e-cigarettes and tobacco cigarettes. Indeed, smokers report that they expect smoking tobacco cigarettes to reduce negative affect, craving, weight, and boredom; elicit stimulation, somatosensory pleasure, and negative physical feelings; and both facilitate and impede social interaction in addition to posing health risks (Rash & Copeland, 2008). The objective of the current study was to address this gap in the literature by assessing smokers' expectancies for e-cigarettes relative to tobacco cigarettes across the full spectrum of expectancy domains. Results will not only portend potential population trends in e-cigarette use, but will allow for a better understanding of subjective responses to e-cigarettes (inasmuch that expectancies shape future experience; Hendricks & Leventhal, 2013) and inform tobacco use interventions. For example, assuming e-cigarettes represent an asset to the public health (Etter, 2013; Hajek et al., 2013; Wagener et al., 2012), uptake of e-cigarette use could be increased via messages intended to boost positive expectancies found to be lacking in comparison to tobacco cigarettes while minimizing negative expectancies that are discovered to be commensurate with tobacco use.

In this study, we developed a questionnaire of e-cigarette expectancies based on the Brief Smoking Consequences Questionnaire-Adult (BSCQ-A; Rash & Copeland, 2008), a validated short-form of smokers' tobacco use expectancies. We administered this e-cigarette expectancy questionnaire along with the original, tobacco-specific BSCQ-A to a sample of hospitalized smokers and compared participant responses across the two measures. We also evaluated the relationships of e-cigarette expectancies to demographic and e-cigarette use variables, as well as intention to use e-cigarettes. Hospitalized tobacco smokers may represent an especially appropriate population for exploring e-cigarette expectancies because, having received mandatory tobacco smoking cessation messages during hospitalization (Freund et al., 2008), these individuals may be quite motivated to quit smoking tobacco (Katz, Goldberg, Smith, & Trick, 2008; Reid et al., 2010) and as a consequence may be quite likely to consider e-cigarette use (Pokhrel, Fagan, Little, Kawamoto, & Herzog, 2013). We hypothesized that participants would hold weaker expectancies for the health risks of e-cigarette use compared with tobacco cigarette use; the remainder of expectancy comparisons was exploratory. We further hypothesized that, given the notion that the relief of withdrawal is the primary motive of cigarette use and other addictive behavior (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004), expectancies for negative affect reduction and craving relief would be among the strongest predictors of intention to use e-cigarettes.

METHODS

Participants and Procedure

Participants were 979 tobacco cigarette smokers admitted for stay in a 900-bed tertiary care academic center hospital in Birmingham, AL (Southeastern U.S.). Eligibility criteria were: (i) ≥ 19 years old (the age of consent in AL); (ii) identified as a tobacco cigarette smoker by hospital admission record and reported smoking within the past 30 days; (iii) fluent in English. Patients admitted to maternity wards, locked psychiatric wards, and some intensive care units were not recruited to participate in the study. All patients identified as tobacco cigarette smokers were provided brief smoking cessation advice by staff between December 2012 and September 2013. Those meeting eligibility criteria were informed of and recruited to participate in a one-year longitudinal observational study. The current report presents baseline data gathered from structured bedside assessment. Preliminary data on the relations of demographic and tobacco use characteristics with e-cigarette use history among a portion of this sample were reported in a previous publication (Harrington et al., in press). Those who were not aware of e-cigarettes (n = 21; 2.1%) were excluded from the analyses, leaving a final sample of 958. This study was approved by the University of Alabama at Birmingham's Institutional Review Board.

Measures

Demographic and Smoking Information Questionnaire—An author-constructed questionnaire was used to measure demographic characteristics, tobacco use, and a number of variables related to e-cigarette exposure and use. All participants in the current study were queried regarding exposure to e-cigarette advertising (yes/no), whether a healthcare provider recommended e-cigarette use (yes/no), ever use of e-cigarettes (yes/no), and past 30-day e-cigarette use (yes/no). Motivation to quit smoking tobacco was measured by one item on a 10-point Likert scale from the Thoughts About Abstinence Questionnaire (Hall, Havassy, & Wasserman, 1990; Hendricks, Delucchi, & Hall, 2010), with greater scores reflecting greater motivation to quit. Intention to use e-cigarettes was assessed with one item (“How likely are you to use an e-cigarette?”) on a 10-point Likert scale (1 = “not at all likely” to 10 = “very likely”).

BSCQ-A (Rash & Copeland, 2008). The BSCQ-A instructs respondents to rate how likely they believe 25 consequences are to occur when they smoke tobacco cigarettes (0 = “completely unlikely” to 9 = “completely likely”). It measures smokers’ tobacco use expectancies on 10 scales: (i) *Negative Affect Reduction*, which assesses expectancies that smoking alleviates negative affective states; (ii) *Stimulation/State Enhancement*, which assesses expectancies that smoking is energizing; (iii) *Health Risks*, which assesses expectancies that smoking poses long-term health risks; (iv) *Taste/Sensorimotor Manipulation*, which assesses expectancies that smoking tastes pleasant; (v) *Social Facilitation*, which assesses expectancies that smoking aids social interaction; (vi) *Weight Control*, which assesses expectancies that smoking helps manage weight and appetite; (vii) *Craving/Addiction*, which assesses expectancies that smoking satisfies the desire for nicotine; (viii) N*egative Physical Feelings*, which assesses expectancies that smoking irritates the mouth and throat; (ix) *Boredom Reduction*, which assesses expectancies that

smoking helps pass time; and (x) *Negative Social Impression*, which assesses expectancies that smoking is stigmatizing. Results of a confirmatory factor analysis of the BSCQ-A used in the current sample were similar to those of the original BSCQ-A validation study (Rash & Copeland, 2008) and yielded a root mean square error of approximation (RMSEA) of .04, a standardized root mean square residual (SRMR) of .03, a Tucker-Lewis Index (TLI) of .94, and a comparative fit index (CFI) of .96, indicating good fit (Hu & Bentler, 1999). Coefficient alpha reliabilities based on the current sample were comparable to the original BSCQ-A and ranged from .63 to .85.

A second version of the BSCQ-A used in this study was comprised of items specific to e-cigarettes; e-cigarette items were constructed by slightly rewording the original, tobacco-specific BSCQ-A items (e.g., replacing the word “cigarette” with “electronic cigarette” or specifying “an electronic cigarette” in those items that refer only to “smoking” in general). Results of a confirmatory factor analysis of the e-cigarette-specific BSCQ-A were similar to those of the tobacco-specific BSCQ-A and yielded a RMSEA of .05, a SRMR of .03, a TLI of .93, and a CFI of .95, suggesting good fit (Hu & Bentler, 1999). Cronbach's alpha reliabilities of the e-cigarette-specific BSCQ-A also were comparable to the tobacco-specific BSCQ-A and ranged from .67 to .88.

Data Analysis

We conducted dependent sample *t*-tests to compare mean values of the e-cigarette-specific BSCQ-A to those of the tobacco-specific BSCQ-A. We then calculated correlations between the e-cigarette-specific BSCQ-A scales and demographic, tobacco use, and e-cigarette exposure and use variables. Finally, we used linear regression models to evaluate the associations of the e-cigarette specific BSCQ-A to intention to use e-cigarettes. Each model included a single BSCQ-A scale as the predictor and intention to use e-cigarettes as the outcome. We re-tested these models after adjusting for demographic, tobacco use, and e-cigarette exposure and use variables that were significantly correlated with the corresponding BSCQ-A scale. Results of regression models are reported as standardized β's, effect size metrics that are closely related to correlation coefficients (Becker & Wu, 2007; Bowman, 2012).

RESULTS

Sample Characteristics

The sample was 55% male with a mean age of 45.31 (*SD* = 12.90); 56.5% was White, 40.9% was African American, and 2.6% belonged to other racial groups; 22.2% completed some high school, 37.9% earned a high school degree, 32.2% completed some college, and 7.6% earned a college degree or more. Participants reported smoking a mean of 13.55 tobacco cigarettes per day (*SD* = 9.84), 78.5% reported exposure to e-cigarette advertising, 3.3% reported that a healthcare provider recommended e-cigarette use, 50.6% reported ever use of e-cigarettes, and 21.5% reported past 30-day use of e-cigarettes. The sample had a mean motivation to quit tobacco smoking score of 8.27 (*SD* = 2.48) and a mean intention to use e-cigarettes score of 6.75 (*SD* = 3.17).

Primary Analyses

Descriptive statistics on each e-cigarette-specific and tobacco-specific BSCQ-A scale are presented in Table 1. As indicated in the table, participants reported significantly weaker expectancies for e-cigarettes as compared to tobacco cigarettes on each scale of the BSCQ-A. Health Risks evinced the largest difference, followed by Negative Affect Reduction and Craving/Addiction. Taste/Sensorimotor Manipulation, Boredom Reduction, and Negative Social Impression demonstrated the next three largest differences, with effect sizes in the medium to large range, followed by Weight Control, Stimulation/State Enhancement, Social Facilitation, and Negative Physical Feelings, with effect sizes in the small to medium range.

Statistically significant intercorrelations of e-cigarette-specific BSCQ-A scales and demographic, tobacco use, and e-cigarette exposure and use variables are displayed in Table 2. Though correlations were modest in strength, notable findings include: older age and White race associated with greater scores on 5/10 scales; greater number of tobacco cigarettes smoked per day associated with greater scores on 6/10 scales; ever use of e-cigarettes associated with lower scores on 4/10 scales whereas past 30-day use was associated with greater scores on 4/10 scales (with a fifth scale, Weight Control, negatively associated with past 30-day use); and motivation to quit smoking tobacco associated with greater scores on 6/10 scales.

Table 3 shows results from regression models predicting intention to use e-cigarettes from e-cigarette-specific BSCQ-A scales. Greater Negative Affect Reduction, Stimulation/State Enhancement, Taste/Sensorimotor Manipulation, Social Facilitation, Weight Control, Craving/Addiction, and Boredom Reduction scale scores were associated with greater expected likelihood of future e-cigarette use, with Taste/Sensorimotor Manipulation, Negative Affect Reduction, and Craving/Addiction exhibiting the strongest relationships. Greater Health Risks and Negative Physical Feelings scale scores were associated with decreased expected likelihood of future e-cigarette use, though associations were weak. Negative Social Impression scale scores were unrelated to intention to use e-cigarettes.

DISCUSSION

Consistent with our hypothesis, hospitalized smokers held considerably weaker expectancies for the health risks of e-cigarettes as compared with tobacco cigarettes, an appraisal that could prove accurate given reduced toxicants in e-cigarette vapor (Goniewicz et al., 2013). Although not specifically hypothesized, participants also held weaker expectancies for e-cigarettes relative to tobacco cigarettes across all other expectancy domains pertaining to both positive and negative outcomes. Most notably, participants reported that e-cigarettes are much less likely to relieve negative affect, satiate nicotine cravings, and taste pleasant than tobacco cigarettes. Smokers' expectancies for tobacco cigarettes, therefore, do not appear to generalize to e-cigarettes.

To shed light on which set of expectancies might drive e-cigarette use, we evaluated the relationships of e-cigarette-specific expectancies with self-reported intention to use e-cigarettes. As hypothesized and consistent with a prominent model of addiction motivation (Baker et al., 2004), greater expectancies for negative affect reduction and nicotine craving

relief were among the strongest predictors of intention to use e-cigarettes. Greater expectancies that e-cigarettes taste pleasant also were robust predictors of intention to use e-cigarettes, confirming the importance of non-nicotine factors to smoking behavior (Baker, Japuntich, Hogle, McCarthy, & Curtin, 2006; Hendricks & Brandon, 2008). Interestingly, expectancies that e-cigarettes pose health risks, elicit negative physical feelings, and carry social stigma were marginally or not at all predictive of intention to use e-cigarettes.

Taken together, our findings suggest that smokers may view e-cigarettes as viable but incomplete substitutes for tobacco cigarettes, perhaps in much the same way they view nicotine replacement therapy (NRT). Indeed, Juliano and Brandon (2004) compared adult smokers' expectancies for tobacco cigarettes versus nicotine gum, nicotine patch, and nicotine nasal spray on the Health Risks, Negative Affect Reduction, Craving/Addiction, and Weight Control scales of the Smoking Consequences Questionnaire-Adult and found stronger expectancies for tobacco cigarettes as compared with all NRTs all on four scales. Smokers' e-cigarette expectancies may be well-informed, as results from clinical trials of e-cigarettes for tobacco smoking cessation suggest similar efficacy to NRT (Bullen et al., 2013; Caponnetto et al., 2013). Considering the low utilization of NRT among tobacco smokers (Cummings & Hyland, 2005), our findings may therefore foreshadow limited sustained uptake of e-cigarettes by tobacco smokers in the future. However, as e-cigarettes are not yet subject to regulation in the US, a number of changes could be made to the products to improve their appeal to tobacco smokers in relatively rapid order (Hajek et al., 2013).

Insofar that expectancies actively shape future experience (Hendricks & Leventhal, 2013), our results also suggest that tobacco smokers' subjective responses to e-cigarettes might fall short of their responses to tobacco cigarettes, possibly limiting the efficacy of e-cigarettes in tobacco treatment settings. If e-cigarettes represent useful tobacco cessation tools (Etter, 2013; Hajek et al., 2013; Wagener et al., 2012), clinicians may seek to boost e-cigarette expectancies pertaining to positive outcomes, with an emphasis on the ability of e-cigarettes to reduce negative affect and craving via nicotine delivery as well as the potential pleasant taste offered by e-cigarette liquid flavorings. If, however, e-cigarettes pose a threat to the public health (Chapman, 2013; Cobb & Abrams, 2011), those seeking to prevent e-cigarette use should capitalize on the notion that e-cigarettes do not adequately replicate the tobacco smoking experience despite decreased health risks, and emphasize the ultimate "efficacy" of nicotine *abstinence* in minimizing withdrawal symptoms and craving (Schlam, Piper, Cook, Fiore, & Baker, 2012).

The current research has a number of limitations. First, although hospitalized tobacco smokers may be a particularly appropriate population for exploring e-cigarette expectancies, our findings may not generalize to other tobacco use populations or populations inclined to initiate e-cigarette use (e.g., adolescents). Second, we designed the e-cigarette-specific BSCQ-A to assess expectancies for e-cigarettes in a generic sense, with the goal of maximizing generalizability of results to the range of e-cigarette products. As there is heterogeneity in e-cigarette product characteristics (Benowitz & Goniewicz, 2013), the current results may not be specific to any one type of e-cigarette. Nevertheless, those with direct experience with e-cigarettes (and their inherent heterogeneity) held similar

expectancies as those without such experience, suggesting there might be consensus with regard to the e-cigarette concept. Third, since e-cigarettes are new to the market, it is possible that e-cigarette expectancies will change with increased product exposure (e.g., via advertisements, word-of-mouth, and vicarious and direct experience) and engineering alterations (e.g., changes to nicotine solutions and flavorings). Fourth, although the range of tobacco use expectancies were compared between e-cigarettes and tobacco cigarettes, the current study did not assess for expectancies specific to e-cigarette use (e.g., the utility of e-cigarettes in facilitating a tobacco quit attempt). An e-cigarette expectancy measure was recently developed (Pokhrel, Little, Fagan, Muranka, & Herzog, 2014) and this and related measures should prove useful in parsing distinct e-cigarette expectancy domains. Fifth, a number of smoking history variables not assessed in the current study (e.g., quit attempts) may share meaningful relationships with e-cigarette expectancies. Finally, although expectancy theory suggests that e-cigarette expectancies drive intention to use e-cigarettes, because data were collected cross-sectionally, the directionality of our findings is not conclusive. Future research should address these limitations by exploring the predictive validity of all potential e-cigarette expectancies and their respective covariates in varied samples and longitudinal designs. Whether e-cigarette use can be altered by modifying expectancies is also a question for future investigations.

In summary, results from the present study suggest that tobacco smokers' expectancies for tobacco cigarettes do not generalize to e-cigarettes. Although tobacco smokers hold considerably weaker expectancies for the health risks posed by e-cigarettes, they also hold much weaker expectancies for the ability of e-cigarettes to manage negative affect and craving and provide pleasant taste, among other outcomes. These findings might forecast limited uptake of e-cigarettes and reduced efficacy of e-cigarettes for tobacco smoking cessation.

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Highlights

- We compare smokers' expectancies for e-cigarettes vs. tobacco cigarettes.
- Smokers expect substantially fewer negative and positive outcomes from e-cigarettes.
- E-cigarettes may be viable though imperfect substitutes for tobacco cigarettes.

Table 1

Comparisons of E-cigarette-specific and Tobacco-specific Brief Smoking Consequences Questionnaire-Adult (BSCQ-A) Scale Scores

BSCQ-A Scale	E-cigarette-specific *M (SD)*	Tobacco-specific *M (SD)*	*p*-value	Cohen's *d*
Negative Affect Reduction	4.67 (2.39)	6.88 (1.98)	<.001	−1.01
Stimulation/State Enhancement	3.18 (2.43)	4.10 (2.72)	<.001	−.36
Health Risks	3.52 (2.71)	8.11 (1.58)	<.001	−2.07
Taste/Sensorimotor Manipulation	4.59 (2.47)	6.31 (2.26)	<.001	−.73
Social Facilitation	3.28 (2.29)	4.01 (2.28)	<.001	−.32
Weight Control	2.76 (2.30)	3.96 (2.68)	<.001	−.48
Craving/Addiction	5.23 (2.48)	7.10 (2.00)	<.001	−.83
Negative Physical Feelings	2.62 (2.23)	3.30 (2.53)	<.001	−.29
Boredom Reduction	4.65 (2.58)	6.26 (2.45)	<.001	−.64
Negative Social Impression	3.12 (2.20)	4.44 (2.30)	<.001	−.59

Note. *N* =958. Possible range of BSCQ-A is 0-9, with greater scores representing stronger expectancies. Cohen's *d* values of .2, .5. and ≥ .8 correspond to small, medium, and large effects, respectively.

Table 2

Statistically Significant Intercorrelations of E-cigarette-specific Brief Smoking Consequences Questionnaire-Adult (BSCQ-A) Scales and Demographic, Tobacco Use, and E-cigarette Exposure and Use Variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Male Gender	---									
2. Age	---	---								
3. White Race	---	−.07*	---							
4. Education (High School Degree or More)	−.07*	---	---	---						
5. Tobacco Cigarettes Smoked per Day	.13***	---	.29***	---	---					
6. Exposure to E-cigarette Advertising	---	---	---	.09**	---	---				
7. Healthcare Provider Recommended E-cigarettes	--	--	--	--	--	.09**	---			
8. Ever Use of E-cigarettes	---	−.17***	.30***	---	.09**	.09**	.11***	---		
9. Past 30-day Use of E-cigarettes	---	---	.21***	.10**	.11**	---	.14***	.51***	---	
10. Motivation to Quit Smoking Tobacco	---	.15***	−.07*	---	−.10**	---	--	---	---	---
11. BSCQ-A Negative Affect Reduction	−.08*	---	.11***	---	.10**	---	.07*	---	.08*	.08*
12. BSCQ-A Stimulation/State Enhancement	---	.13***	---	---	.09**	---	--	−.07*	---	.07*
13. BSCQ-A Health Risks	---	---	---	---	---	---	--	---	---	.07*
14. BSCQ-A Taste/Sensorimotor Manipulation	---	---	.12***	---	.12***	.07*	--	---	.14***	.10**
15. BSCQ-A Social Facilitation	---	.16***	---	---	.08*	---	--	−.12***	---	.08*
16. BSCQ-A Weight Control	---	.17***	---	---	---	---	--	−.09**	−.07*	---
17. BSCQ-A Craving/Addiction	−.06*	---	.12***	---	.08*	---	.08*	---	.12***	.10**
18. BSCQ-A Negative Physical Feelings	---	.11**	---	---	---	---	--	−.07*	---	---
19. BSCQ-A Boredom Reduction	---	---	.13***	.09**	.12***	---	.07*	---	.10**	---
20. BSCQ-A Negative Social Impression	---	.11**	.10**	---	---	---	--	---	---	---

Note. N = 958. Greater scores on the BSCQ-A represent stronger expectancies.

* p<.05

** $p<.01$
*** $p<.001$.

Table 3

Standardized β Predicting Intention to Use E-cigarettes from E-cigarette-specific Brief Smoking Consequences Questionnaire-Adult (BSCQ-A) Scales

BSCQ-A Scale	Unadjusted	Adjusted
Negative Affect Reduction	**.35*****	**.32*****
Stimulation/State Enhancement	**.21*****	**.19*****
Health Risks	**−.07***	**−.08***
Taste/Sensorimotor Manipulation	**.37*****	**.34*****
Social Facilitation	**.23*****	**.22*****
Weight Control	**.14*****	**.14*****
Craving/Addiction	**.34*****	**.31*****
Negative Physical Feelings	**−.07***	**−.08***
Boredom Reduction	**.25*****	**.25*****
Negative Social Impression	−.01	−.02

Note. N = 958. Greater scores on the BSCQ-A represent stronger expectancies. Unadjusted models include only the BSCQ-A scale. Adjusted models include covariates found significantly correlated with each BSCQ-A scale as presented in Table 2. Findings in bold are significant.

** $p<.01$

* $p<.05$

*** $p<.001$.