Supplementary Table 1. Main results of included studies

Study	Study design	Measures/analysis	Results
E-cigarettes			
Amato, 2015	Cross-sectional, probability sample	Descriptive statistics were used to examine reasons for e-cigarette use.	A greater proportion of current e-cigarette users cited "come in flavors other than menthol" as a reason for their e-cigarette use than past users (55.5% vs. 25.0%).
Berg, 2016	Cross-sectional, convenience sample	ANOVAs were used to compare continuous variables across groups, and Chi-square tests were used to compare categorical variables.	32% of nonusers included ‘‘they come in appealing flavors’’ as a reason for possible future e-cigarette use. 39% of current smokers, who are non-e-cigarette users, chose “they come in appealing flavors” as a reason for possible e-cigarette use; this is compared to <31% of nonsmokers and former smokers, p<0.001. 60.2% of current e-cigarette users chose “they come in appealing flavors” as a reason for e-cigarette use; 59.5% of those same users chose “I like experimenting with various flavors” as a reason for e-cigarette use. 69.7% of never cigarette smokers who use e-cigarettes chose “they come in appealing flavors” as a reason for e-cigarette use; 61.4% of former cigarette smokers who use e-cigarettes chose “I like experimenting with various flavors” as a reason for e-cigarette use. 20.3% of former e-cigarette users reported no recent use of e-cigarettes because they ‘‘don’t like the flavor(s)’’.
Czoli, 2015	Cross-sectional, convenience sample	Multinomial logit regression was used to analyze the effect of attributes on consumer choice for each outcome.	Participants were significantly more interested in trying ecigarettes with cherry (p<0.0001, r=0.2) and menthol (p=0.01, r=0.1) flavors Younger smokers expressed interest in trying e-cigarettes with a preference for products with cherry flavor (p<.001, r=0.2) while younger nonsmokers indicated interest in trying cherry

			(p<.0001, r=0.3), menthol (p<.0001, r=0.2) and coffee flavor (p<.001, r=0.2); Older smokers indicated greater interest in trying tobacco-flavoured e-cigarettes (p<0.0001, r=0.6). E-cigarettes with the following characteristics were perceived as less harmful and greater quit efficacy : menthol (p<0.0001, r=0.6; p<0.0001, r=0.2) and coffee flavors (p<0.0001, r=0.3; p<0.001, r=0.2) Younger non-smokers were more likely to perceive coffee-flavoured (p=0.02, r=0.1) e-cigarettes as less harmful while younger smokers held these beliefs about products with cherry flavour (p=0.03, r=0.1); Older smokers perceived products with tobacco flavour (p<0.001, r=0.2) as less harmful. Compared to other attributes, flavor accounted for 24% of the relative importance on intention to try, 36% for perceptions of reduced product harm, and 25% on perceptions of enhanced product quit efficacy
Etter, 2010	Cross-sectional, convenience sample	Open-ended questions about the most positive and negative points about e-cigarettes were analyzed.	The most frequently cited positive feature of e-cigarettes was that respondents liked the taste and variety of flavors (18% of total open-ended comments).
Farsalinos, 2013	Cross-sectional, convenience sample	X^2 tests compared categorical variables (e.g., type of e-cigarette flavors regularly used) between current and former smokers. A stepwise binary logistic regression analysis was used with smoking status (former vs current smoker) as the independent variable and age,	More current smokers were using tobacco flavors compared to former smokers (X^2=14.6, p<.001), while more former smokers were using fruit (X^2=14.0, p<.001) and sweet flavors (X^2=21.8, p<.001). The average score for importance of flavors variability in reducing or quitting smoking was 4 (“very important”) on a 5-point scale. 39.7% of participants reported that restricting variability of flavors would make reducing or completely substituting

		gender, education level, smoking duration, number of flavorings used regularly, and e-cigarette consumption as covariates.	smoking less likely. Binary logistic regression analysis showed that number of flavors regularly used (β=0.089, p=0.038) were associated with complete smoking among dedicated long-term users.
Farsalinos, 2014	Cross-sectional, convenience sample	Descriptive statistics examined reasons for initiating e-cigarette use.	Initiating e-cigarette use to enjoy the variability of flavors in e-cigarettes was ranked as 3 on a 5-point scale from 1 (not important) to 5 (most important).
Ford, 2016	Cross-sectional, probability sample	Paired t-tests were run on weighted data to produce mean scores; the Friedman test was used on ordinal data, then post hoc tests were conducted using the Wilcoxon signed rank test	Perceptions of harm from the different flavors ranged from a mean of 3.00 (SD = 1.35) for candy floss flavor to 3.06 (SD = 1.29) for cherry, 3.47 (SD = 1.22) for coffee and 3.99 (SD = 1.14) for tobacco flavor. Perceptions of harm differed depending on the flavor, v2 (4) = 851.59, p<0.001. Post hoc analysis showed that, when compared against perceptions of harm of e-cigarettes in general, tobacco flavor e-cigarettes were perceived as being more harmful (p<0.001) while cherry and candy floss flavors were each perceived as less harmful (p<0.001). Coffee flavor e-cigarettes were perceived as having the same level of harm as e-cigarettes in general. Perceptions of likelihood of an adult smoker using each differed depending on the flavor, v2 (3) = 153.9, p <0.001 as did perceptions of likelihood of a never smoker of their age v2 (3) = 879.01, p<0.001. Post hoc analysis showed that, when compared with tobacco flavor e-cigarettes, adult smokers who were trying to give up smoking were perceived to be less likely to use cherry, candy floss or coffee flavors (p<0.001). Conversely, a never smoker of their age was perceived to be more likely to try cherry (p<0.001), candy floss (p<0.001) or coffee flavor (p<0.01) than a tobacco flavor e-cigarette.

			An adult smoker was perceived to be more likely than a never smoker of their age to use tobacco ($p<0.001$) and coffee ($p<0.001$) flavors whereas a never smoker of their age was perceived to be more likely than an adult smoker to try candy floss ($p<0.001$) and cherry ($p<0.01$) flavors.
Kong, 2014	Cross-sectional, convenience sample	X^2 tests evaluated school level differences (middle school, high school, college) on all variables. Multinomial logistic regression analyses evaluated the extent to which reasons for e-cigarette experimentation differed based on cigarette smoking status.	43.8% of respondents reported the availability of flavors as a reason for experimentation with e-cigarettes. School level differences were observed ($X^2(2,N=1,157)=18.63$, $p\leq.001$), with high school students more likely to experiment with e-cigarettes because of appealing flavors compared to college students (47.0% vs 32.8%, $X^2(1,N=1,116)=13.61$, $p\leq.001$).
Krishnan-Sarin, 2014	Cross-sectional, convenience sample	Descriptive statistics explored flavors of e-cigarettes that had been tried and preferred.	Most lifetime e-cigarette users in middle school and high school, across cigarette smoking status, reported that they had tried and preferred sweet flavors compared to menthol and tobacco flavors.
Nonnemaker, 2015	Cross-sectional, convenience sample	Calculated coefficients and corresponding 95% CIs for a series of multivariate linear regression models; regressed indicators for each characteristic on respondents' reported willingness to pay for an e-cigarette with a specific set of attributes	Among the full sample, losing the attribute "coming in flavors" significantly reduced the price respondents were willing to pay for an e-cigarette ($p<0.05$). Among cigarette-only users, losing the attribute "coming in flavors" significantly reduced the price respondents were willing to pay for an e-cigarette ($p<.01$); this relationship was not significant for dual users.
Pepper, 2013	Cross-sectional, national probability sample	Logistic regression examined willingness to try any kind of e-cigarette (plain, flavored, or both).	The same proportion of respondents were willing to try plain e-cigarettes or to try flavored e-cigarettes ($p=.15$).
Pepper, 2014	Cross-sectional,	Descriptive statistics assessed	Less than 10% of respondents reported starting e-cigarette

	national probability sample and convenience sample	reasons for first trying e-cigarettes.	use because “e-cigarettes come in flavors they like.”
Shiffman, 2015	Cross-sectional, convenience sample	Comparisons of teen and adult respondents’ ratings of their interest by flavor and comparisons of ratings by flavor within the adult sample by e-cigarette use status (recent user, past user, never user).	Adult smokers’ e-cigarette ratings (overall mean=1.73±1.0 on a 0-10 scale) were significantly higher ($p<.0001$) than nonsmoking teens’ (overall mean=0.41±0.14). For each of the 15 flavors, adult smokers’ interest in trying e-cigarettes was significantly higher than nonsmoking teens’ interest (all p values<.05, most p values<.0001). Adults who were recent (past 30-day) e-cigarette users had the highest overall e-cigarette interest (mean=3.19±0.21), followed by past users (mean=1.62±0.17), and then never users (mean=1.08±0.15), and comparisons between groups were all significant (p values <.0001).
Shiplo, 2015	Cross-sectional, convenience sample	Logistic regression models examined factors associated with use of flavors	Among current e-cigarette users, a common reason for use was taste (32.3% of younger non-smokers, 18.4% of younger smokers, 6.5% of older smokers). Use of flavored e-cigarettes varied by smoking status ($\chi2=74.66$, $p<0.001$). It was less common for older smokers to use flavoured e-cigarettes compared to younger smokers (OR=0.36, 95% CI 0.25 to 0.51; $p<0.001$). Younger non-smokers were less likely to try a flavored e-cigarette than younger smokers (OR=0.13, 95% CI 0.08 to 0.22; $p<0.001$) and older smokers (OR=0.36, 95% CI 0.22 to 0.62; $p<0.001$).
Tackett, 2015	Cross-sectional, convenience sample	Descriptive statistics examined preferred e-liquid flavors. Logistic regression, controlling for age and sex, was performed to assess associations between	Non-traditional flavors, such as fruity (46.7%; e.g., strawberry, blueberry) and candy/nuts (12.6%; e.g., cotton candy, SweetTart, Hazelnut, Almond) e-liquids were the most preferred flavors. People who reported using non-tobacco and non-menthol

		flavor (traditional tobacco/menthol vs non-traditional e.g., fruity, coffee, candy) on participants' biochemically verified smoking status.	flavors were more likely to have quit smoking (OR=2.626, 95% CI=1.133-6.085, p=.024).
Vasiljevic, 2015	Cross-sectional, convenience sample	Mann-Whitney tests and logistic regression were used to assess exposure to advertisements and increase in ratings of appeal, interest in buying and trying e-cigarettes. Logistic regression was also used to examine exposure to advertisements and effects on susceptibility to smoking.	Exposure to the flavored e-cigarette adverts increased the appeal of e-cigarette adverts: Mann-Whitney test, U=10 056.500, Z=−2.777, p=0.005, whereby those who saw the flavored e-cigarette adverts rated them as more appealing (mean rank=170.92) than those who saw the non-flavored e-cigarette adverts (mean rank=142.45). Exposure to the flavored e-cigarette adverts increased interest in buying and trying e-cigarettes: Mann-Whitney test, U=9140.000, Z=−3.949, p<0.001, whereby those who saw the flavored e-cigarette adverts expressed greater interest in buying and trying e-cigarettes (mean rank=176.44) than those who saw the non-flavored e-cigarette adverts (mean rank=136.26).
Yingst, 2015	Cross-sectional, convenience sample	T-tests and X^2 tests were used to identify differences between current first generation device (FGD) and advanced generation device (AGD) users. Descriptive statistics examined how respondents transitioned between devices.	Participants using an AGD were more likely to rate variety of flavor choices as important (FGD 54.6% vs AGD 94.9%, p<.0001). Most (58.9%) e-cigarette users began use with a FGD, and of these users 63.7% subsequently transitioned to current use of an AGD. Among users who began use with an AGD (41.1%), only 5.7% transitioned to a FGD.
Cigarettes			
Agaku, 2014	Cross-sectional, probability sample	Multiple logistic regression models were fitted to assess subgroup differences in	1.4% of current and former cigarette smokers indicated that a specific, fruity or spicy flavor in cigarettes was an important factor in their initial smoking.

		receptivity to various cigarette design and marketing features related to initial smoking (current and former smokers) and brand choice (current smokers), controlling for sex, age, region of residence, socioeconomic status, residence type, and age at initiation of regular smoking.	Respondents aged ≥55 were less likely to report sweet, fruity or spicy flavors as being important to their initial smoking than respondents aged 15-24 (AOR=0.38; 95% CI: 0.20, 0.73). Respondents in Eastern Europe were less likely to report sweet, fruity or spicy flavors as being important to their initial smoking than respondents in Western Europe (AOR=0.59; 95% CI: 0.35, 0.98). 33% of current smokers reported a specific sweet, menthol, fruity or spicy flavor as being important in their cigarette brand choice. Female smokers were more likely to choose a cigarette brand based on specific tastes such as menthol or spicy, fruity or sweet flavors (AOR=1.33; 95% CI: 1.14, 1.56).
Ashare, 2007	Cross-sectional, convenience sample	Repeated-measures ANOVAs were used to examine positive and negative expectancies of Camel Exotic cigarettes (flavored) and Camel Lights cigarettes (non-flavored). Logistic regression was used to examine intention to try a brand (willing or not willing) as the outcome variable.	Camel Exotics produced greater positive expectancies than did Camel Lights (brand $F(1,421)=38.4$, $p<0.001$, partial $n^2=0.08$), with the strongest difference among susceptible/experimenters ($M=0.45$, $F(1,109)=30.6$, $p<0.01$, partial $n^2=0.22$). Camel Lights were rated more negatively than were Camel Exotics ($F(1,421)=8.2$, $p<0.01$, partial $n^2=0.02$) across nonsmokers, susceptible/experimenters, and regular smokers. Participants were 2.4 times more willing to try Camel Exotics as positive expectancies increased by 1 point. Negative expectancies were not reliably related to intention to try Camel Exotics.
Doxey, 2011	Cross-sectional, convenience	Regression models were used to examine the effect of	No significant differences in tar delivery and health risk ratings were observed for cigarette packs with and without flavor

	sample	experimental condition (i.e., fully branded female cigarette brands, same brands without descriptors, same brands without brand imagery or descriptors ("plain packs"), and fully branded non-female packs) for 3 primary outcomes: brand ratings, smoker trait ratings, and beliefs about smoking. Models were adjusted for age, education, income, self-esteem, smoking status, and weight concerns.	descriptors. Participants rated Capri Cherry and Capri Vanilla cigarette packs as better tasting than packs without flavor descriptors ($p<.05$). Participants rated Capri Vanilla cigarette packs as more appealing than packs without flavor descriptors ($p<.05$).
Hammond, 2011	Cross-sectional, convenience sample	Logistic regression of appeal, taste, tar, and health risk index variables examined differences across experimental conditions (i.e., fully branded female cigarette packs, the same packs without descriptor words, the same packs without brand imagery or descriptors ("plain packs") and branded non-female brands). Models were adjusted for age, education, income, ethnicity, smoking status, and weight concerns.	Participants rated Capri Cherry cigarette packs as better tasting ($p<.05$) compared to packs without flavor descriptors.
Hammond, 2013	Cross-sectional, convenience sample	Logistic regression of appeal, taste, tar, and health risk index variables examined differences across experimental conditions	Participants rated Capri Cherry and Capri Vanilla cigarette packs as having less health risk ($p<.05$) and lower tar delivery ($p<.05$) compared to packs without flavor descriptors.

		(i.e., fully branded female cigarette packs, the same packs without descriptor words, the same packs without brand imagery or descriptors ("plain packs") and branded non-female brands). Models were adjusted for age, education, income, ethnicity, smoking status, and weight concerns.	Participants rated Capri Cherry and Capri Vanilla cigarette packs as more appealing ($p<.05$) and better tasting ($p<.05$) compared to packs without flavor descriptors.
Kaleta, 2014	Cross-sectional, probability sample	X^2 tests used to compare trends in intention to quit smoking among current flavored and non-flavored cigarette smokers.	Among women, the prevalence of flavored cigarette use increased with declining likelihood to quit (p for trend <.02). Over 30% of female smokers who did not intend to quit used flavored cigarettes, a higher percentage than those who did intend to quit. Only 8% of male smokers who did not intend to quit used flavored cigarettes, a lower proportion than male flavored cigarette smokers who did intend to quit (p for trend <.04).
Manning, 2009	Cross-sectional, convenience sample	2 (descriptor: flavored vs. traditional) x2 (sensation seeking: high vs. low) x2 (school location) x3 (cigarette brand) repeated measures ANCOVA model.	Flavor descriptors led to more positive beliefs about the hedonic qualities of brands than the traditional descriptors ($F(1,215)=18.36$, $p<0.001$). A significant effect was observed for the interaction between package descriptor and sensation seeking ($F(1,211)=10.47$, $p<0.001$). A contrast revealed a significant effect ($p=0.003$) of the descriptor manipulation among higher sensation seekers with brand attitudes being more favorable among those exposed to the flavor rather than the traditional descriptors. A significant interaction was observed between package descriptor and sensation seeking ($F(1,215)=8.92$, $p=0.003$) in which flavored descriptors led to higher trial intentions than

			the traditional descriptors (p=0.01).
O'Connor, 2007	Cross-sectional, convenience sample	2 (variety: flavored Camel Exotic or non-flavored Camel Light cigarettes) x2 (order) mixed model ANOVA.	Neither mean liking/satisfaction nor harshness/irritation ratings differed significantly between Camel Light (non-flavored) and Camel Exotic (flavored) cigarettes.
Thrasher, 2015	Longitudinal, convenience sample	Smokers identified the brand family for the cigarettes that they usually or currently smoked, after which they were shown images of cigarette packages for brand family varieties on the market at the time of the survey. The brand varieties were coded into 3 categories of flavor (i.e., regular non-flavored cigarettes; flavored cigarettes, no capsule; flavor capsule) based on analysis of descriptive words in the variety names (e.g., menthol; cool; crush).	Smokers' preference for flavor capsule brands significantly increased over time in Mexico (6% in 2012 to 14% in 2014) and Australia (0.1% to 3%). In the US, preference for flavor capsule brands did not change significantly over time (roughly 4% at each wave). Younger ages were most consistently associated with preferring flavor capsule brands across countries. In Mexico ($p<.001$) and the US ($p<.05$), women were more likely to prefer flavor capsule brands. In Australia, smokers with lower HSI (heaviness of smoking index) were more likely to prefer flavor capsule brands ($p<.001$).
White, 2012	Cross-sectional, convenience sample	Logistic regression models were used to examine the effect of the experimental conditions (standard branded packages, same packs without brand imagery ("plain packaging") and same packs without brand imagery or descriptors (e.g., flavors)). Linear regression models were used to examine the effect of the experimental conditions on the appeal, taste, and health	Plain (i.e., no brand imagery) cigarette packages with descriptors were rated as significantly more appealing ($\beta=0.89$, $p=0.002$) and given higher taste ratings than plain packages without descriptors ($\beta=1.60$, $p< 0.001$). Linear regression indicated no significant main effect of condition (i.e., branded vs. plain vs. plain-no descriptors) on perceptions of health risk ($F=1.6$, $p=0.207$).

		risk index variables. Models were adjusted for age, education, ethnicity, and smoking status.	
Little cigars, cigarillos, and cigars			
Delnevo, 2015	Cross-sectional, nationally representative sample	Logistic regression was used to model preference for a brand that is flavored (brand includes flavors/brand does not include flavors). Multiple linear regression was used to model the percent flavored market share of the respondent's preferred cigar brand.	Reporting a usual brand that makes flavored cigars decreased significantly with age, as 95.1% of 12-17 year olds reported a usual brand that makes flavored cigars compared with 63.2% of cigar smokers aged 35+. Females reported usual cigar brands for which a higher proportion is flavored (46.4%) more often than males (35.8%). The usual brand of black smokers had a higher flavored market share (43.9%) than those brands reported by whites (36.3%) and Hispanics (36.7%). Brands that offered flavored varieties were preferred more by cigar smokers were who current cigarette smokers (vs. those who do not smoke cigarettes) (AOR=2.5, 95% CI=1.9-3.2). Having a usual brand with a largely flavored market share was highest among 12-17 year olds and decreased with age.
Leatherdale, 2011	Cross-sectional, nationally representative sample	Logistic regression models were used to examine factors associated with cigarillo ever and current use and cigar ever and current use. Models for ever use excluded the measure of ever used flavored tobacco since they may represent the same product.	Respondents who reported ever using flavored tobacco were more likely to currently use cigarillos or little cigars (OR=5.62, 95% CI: 5.00,6.33; p<.001) or currently use cigars (OR=4.28, 95% CI: 3.71, 4.95; p<.001) compared to respondents who have never used flavored tobacco.
Yates, 2014	Cross-sectional, convenience	Descriptive statistics were used to examine reasons for	56.4% of respondents reported "flavor" as the main reason for smoking cigarillos.

	sample	smoking cigarillos.	
Hookah			
Dani, 2015	Cross-sectional, convenience sample	Dichotomous variables (yes/no) were analyzed for significance	36.8% of hookah users indicated that hookah "contains pleasant flavors", compared to only 24.6% of non-users, p<.01
Salloum, 2015	Cross-sectional, purposive convenience sample	Multinomial logit models were used to estimate the impact on consumer choice of attributes.	Flavor accounted for almost two-thirds (65%) of the waterpipe smoking decision, compared to price (22%) and nicotine content (13%). Compared with males, females were more likely to prefer Blue Mist and Pirate's Cave flavors and less likely to prefer tobacco flavor (non-flavored). Participants were significantly more likely to choose Double Apple and Blue Mist flavors and significantly less likely to choose tobacco flavored (non-flavored) waterpipe products. The flavor attribute had the strongest influence on preferences, with fruit flavored waterpipe products on average preferred to tobacco flavored products; the effect was stronger among females and non-smokers of cigarettes.
Smith, 2011	Cross-sectional, convenience sample	Descriptive statistics examined why respondents thought hookah is safer or less addictive than cigarettes.	4.6% of respondents reported the reason why hookah is safer or less addictive than cigarettes is that "the tobacco/smoke is flavored."
Smokeless tobacco			
Adkison, 2014	Cross-sectional, convenience sample	Differences regarding perceptions of health risks associated with smokeless tobacco pack design characteristics were examined using X^2 tests. Multinomial regression was	More than half of respondents indicated there was no difference between packaging elements (e.g., flavor descriptor) on their product opinions regarding health risk and perceptions of appeal. Youth (ages 14-17), compared to older adults (ages 26-65), were more likely to report the pack with the flavor descriptor as having the best taste (OR: 1.7, CI: 1.9-2.4), that they want

		employed to evaluate the association between packaging elements and participant age.	to be seen using the product (OR: 2.1, CI: 1.4-3.2), that it appeals to people their age (OR: 2.1, CI: 1.5-3.0), and that it has reduced health risks (OR: 1.8, CI: 1.0-3.1) compared to reporting no difference between packs. Young adults (ages 18-25), compared to older adults (ages 26-65), were more likely to report the pack with the flavor descriptor as attracting their attention (ORI: 1.7, CI: 1.2-2.2), having the better taste (OR: 2.0, CI: 1.5-2.8), to want to be seen using (OR: 2.4, CI: 1.2-3.3), and appealing to people their age (OR: 2.3, CI: 1.7-3.2). Young adults also had increased odds of reporting the pack without the descriptor would deliver more dangerous chemicals than older adults (OR: 1.8, CI: 1.1-2.9).
Oliver, 2013	Combined data from 5 previously conducted studies	Descriptive statistics were used to examine product choices among smokeless tobacco users. Flavors were placed into 2 categories: No Flavor (Classic, None, Straight) or Mint Flavor (Ice, Mint, Spearmint, Wintergreen).	Approximately 60% of respondents used a mint-flavored product as their first product used or product that they first used regularly or daily. Smokeless tobacco users who started by using non-flavored products were more likely to switch to mint-flavored products compared with the other way around ($p<.0001$).
Bidi			
CDC, 1999	Cross-sectional, convenience sample	Descriptive statistics were used to examine why bidis were smoked instead of cigarettes among adolescents.	1.4% of respondents (4/280) cited “like the flavor” as the reason of why they smoked bidis instead of cigarettes. 23% of Responses (63/280) reported the reason of why they smoked bidis instead of cigarettes was that bidis tasted better than cigarettes.
Various tobacco products			
Ambrose, 2015	Cross-sectional, nationally representative sample	Descriptive statistics were used to examine proportion of flavored use among users, and reasons for tobacco product	Product flavoring was consistently reported as reason for use across all product types; e-cigarettes (81.5%), hookahs (78.0%), cigars (73.8%), smokeless tobacco (69.3%), and snus pouches (67.2%).

		use.	For past 30-day youth tobacco use, the overall proportion of flavored product use was 79.8% (95% CI, 77.3%-82.3%) among users of any product and 89.0% among hookah users, 85.3% among e-cigarette users, 71.7% among users of any cigar type, and 59.5% among cigarette smokers. The majority of ever-users reported that the first product they had used was flavored, including 88.7% of ever hookah users, 81.0% of ever e-cigarette users, 65.4% of ever users of any cigar type, and 50.1% of ever cigarette smokers. The overall proportion of flavored product use was 80.8% (95% CI, 79.1%-82.5%)
King, 2014	Cross-sectional, nationally representative sample	Descriptive statistics were used to determine differences in intention to quit by respondent characteristics.	Among current cigar smokers, the prevalence of those not thinking about quitting tobacco use was higher among current flavored little cigar users (59.7%) than non-flavored users (49.3%). Among current cigarette smokers, the prevalence of those who were thinking about quitting tobacco use within the next 30 days was lower among current flavored cigarette users (9.8%) compared to non-flavored users (18.4%).
Lee, 2015	Cross-sectional, nationally representative sample	Associations between multiple product use and all other characteristics were examined among current cigarette smokers by multinomial logistic regression. Adjusted relative risk ratios (aRRR) were calculated in reference to exclusive cigarette	Among current cigarette smokers, use of flavored products was significantly associated with dual use (aRRR=2.08, p<.01) and polytobacco use (aRRR=6.09, p<.001).

		use in a model that included all variables.	
Minaker, 2015	Cross-sectional, nationally generalizable sample	Logistic regression models were used to examine differences in smoking susceptibility by use of flavored and all ATPs and by sociodemographic and lifestyle characteristics.	Students who had ever tried a flavored ATP had significantly higher odds of being susceptible to cigarette smoking (OR=2.07, 95% CI 1.54 to 2.78) compared to students who never tried any types of tobacco. Students who tried flavored tobacco in the past 30 days had significantly higher odds of being susceptible to smoking relative to students who had never smoked a cigarette and had not consumed ATPs in the past 30 days (OR=1.86, 95% CI 1.25 to 2.77). Students who reported smoking flavored ATPs ever or in the past 30 days did not have significantly different cigarette smoking susceptibility compared to those who smoked flavored ATPS ever or in the past 30 days, respectively.

Supplementary Table 2. Risk of bias assessed by Quality Assessment Tool (QATSDD)

Study ID (Author, Year)	Adkison, 2014	Agaku, 2014	Amato, 2015	Ambrose, 2015	Ashare, 2007	Berg, 2016	CDC, 1999	Czoli, 2016	Delnevo, 2015	Doxey, 2011	Etter, 2010	Farsalinos, 2013	Farsalinos, 2014
Total score	19	21	35	31	25	29	13	31	31	25	20	16	19
%[a]	45%	50%	83%	74%	60%	69%	31%	74%	74%	60%	48%	38%	45%
Explicit theoretical framework	0	0	0	0	2	0	0	3	0	0	0	0	0
Statement of aims/objectives in main body of report	3	3	3	3	3	3	2	3	3	3	3	3	3
Clear description of research setting	2	2	3	3	2	3	3	3	3	3	3	3	3
Evidence of sample size considered in terms of analysis	0	1	3	2	0	3	0	0	1	0	1	0	0
Representative sample of target group of a reasonable size	2	3	3	3	2	2	1	2	3	2	2	1	2
Description of procedure for data collection	2	1	3	3	1	3	3	3	3	2	2	1	2
Rationale for choice of data collection tool(s)	0	1	3	3	2	2	0	2	3	2	1	1	1
Detailed recruitment data	1	1	3	3	1	3	1	1	3	1	1	1	1
Statistical assessment of reliability and validity of measurement tool(s)	0	0	1	0	1	0	0	0	0	1	0	0	0
Fit between stated research question and method of data collection	2	3	3	3	3	2	2	2	3	3	2	1	2
Fit between research question and method of analysis	3	3	3	3	3	3	1	3	3	3	2	2	2
Good justification for analytical method selected	1	2	1	2	3	2	0	3	3	2	1	1	1
Evidence of user involvement in design	0	0	3	0	0	0	0	3	0	0	0	0	0
Strengths and limitations critically discussed	3	1	3	3	2	3	0	3	3	3	2	2	2

Study ID (Author, Year)	Ford, 2016	Hammond, 2011	Hammond, 2013	Kaleta, 2014	King, 2014	Kong, 2014	Krishnan-Sarin, 2014	Leatherdale, 2011	Lee, 2015	Manning, 2009	Minaker, 2016	Nonnemaker, 2016	O'Connor, 2007
Total score	32	26	26	28	32	31	26	29	28	35	33	24	25
% [a]	76%	62%	62%	67%	76%	74%	62%	69%	67%	83%	79%	57%	60%
Explicit theoretical framework	0	0	0	0	0	0	0	0	0	3	0	0	0
Statement of aims/objectives in main body of report	3	3	3	3	3	3	3	3	3	3	3	3	3
Clear description of research setting	3	3	3	3	3	3	3	3	3	3	3	3	3
Evidence of sample size considered in terms of analysis	3	0	0	1	1	1	1	2	1	0	2	0	1
Representative sample of target group of a reasonable size	3	2	2	3	3	3	3	3	3	2	3	2	1
Description of procedure for data collection	3	3	2	2	3	3	3	3	2	3	3	3	2
Rationale for choice of data collection tool(s)	2	2	2	2	3	3	0	2	2	3	2	0	3
Detailed recruitment data	1	1	1	3	3	3	3	2	2	1	3	1	1
Statistical assessment of reliability and validity of measurement tool(s)	0	1	1	0	1	0	0	0	0	3	0	0	3
Fit between stated research question and method of data collection	3	3	3	3	3	2	2	3	3	3	3	3	2
Fit between research question and method of analysis	3	3	3	3	3	3	3	3	3	3	3	3	3
Good justification for analytical method selected	3	2	3	2	3	3	3	3	3	3	3	3	1
Evidence of user involvement in design	2	0	0	0	0	2	0	0	0	2	2	0	0
Strengths and limitations critically discussed	3	3	3	3	3	2	2	2	3	3	3	3	2

Study ID (Author, Year)	Oliver, 2013	Oswal, 2015	Pepper, 2013	Pepper, 2014	Salloum, 2015	Shiffman, 2015	Shiplo, 2015	Smith, 2011	Tackett, 2015	Thrasher, 2015	Vasiljevic, 2016	White, 2012	Yates, 2014	Yingst, 2015
Total score	20	15	35	34	31	26	27	24	26	32	33	29	19	21
% [a]	48%	36%	83%	81%	74%	62%	64%	57%	62%	76%	79%	69%	45%	50%
Explicit theoretical framework	0	0	3	2	3	0	0	0	0	0	2	0	0	0
Statement of aims/objectives in main body of report	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Clear description of research setting	2	3	3	3	3	3	3	3	3	3	3	3	3	2
Evidence of sample size considered in terms of analysis	1	0	1	1	0	2	3	0	3	3	3	0	0	0
Representative sample of target group of a reasonable size	1	2	2	3	2	1	2	2	1	3	2	2	1	2
Description of procedure for data collection	2	1	3	2	3	3	3	3	2	3	2	2	1	2
Rationale for choice of data collection tool(s)	2	0	2	3	3	2	0	2	2	2	3	3	1	1
Detailed recruitment data	1	1	3	3	3	3	3	1	2	2	1	1	1	3
Statistical assessment of reliability and validity of measurement tool(s)	1	0	3	0	0	1	0	0	0	1	3	1	0	0
Fit between stated research question and method of data collection	1	2	3	3	2	1	2	2	3	3	2	3	3	3
Fit between research question and method of analysis	3	1	3	3	3	3	3	3	3	3	3	3	2	2
Good justification for analytical method selected	2	0	3	3	3	1	2	3	2	3	1	3	2	1
Evidence of user involvement in design	0	0	0	2	0	0	0	0	0	0	2	2	0	0
Strengths and limitations critically discussed	1	2	3	3	3	3	3	2	2	3	3	3	2	2

Note. [a] Percentage = the total score of a study / the full score 42 (14 items x 3 per item)