



Published in final edited form as:

Am J Prev Med. 2016 February ; 50(2): 199–209. doi:10.1016/j.amepre.2015.06.032.

Electronic Cigarettes Among Priority Populations:

Role of Smoking Cessation and Tobacco Control Policies

Jidong Huang, PhD¹, Yoonsang Kim, PhD¹, Lisa Vera, BA², and Sherry L. Emery, PhD¹

¹Health Media Collaboratory, Institute for Health Research and Policy, University of Illinois at Chicago, Chicago, Illinois

²Moore Cancer Center, University of California San Diego, La Jolla, California

Abstract

Introduction—The electronic cigarette (e-cigarette) market has evolved rapidly in recent years with exploding growth in brands and product types; however, e-cigarette use among priority (sexual minority and low-income) populations and its relationship with smoking cessation and tobacco control policies has yet to be fully characterized.

Methods—The authors conducted a nationally representative online survey of 17,522 U.S. adults in 2013. Participants were drawn from GfK's KnowledgePanel®. Logistic regression models were used to analyze relationships between e-cigarettes (awareness, ever use, current use) and cigarette smoking and cessation behaviors, tobacco control policies, and demographics. Analyses were conducted in 2014.

Results—Approximately 15% of participants reported ever use of e-cigarettes, 5.1% reported current use, and 34.5% of ever users reported current use. E-cigarette awareness was lower among women, minorities, and those with low education. Ever and current use of e-cigarettes was higher among current cigarette smokers, young adults, and those in low SES; both ever use and current use were correlated with current cigarette smoking status, particularly when combined with quit intentions or attempts.

Lesbian/gay/bisexual/transgender respondents had higher rates of ever use and current use. Ever use was lower in states with comprehensive smoking bans. No significant relationship between cigarette price and e-cigarette use was detected.

Conclusions—Ongoing surveillance of e-cigarette use among subpopulation groups and monitoring their use for combustible cigarette cessation are needed. Important variations in the patterns and correlates of e-cigarette awareness and use exist among priority populations. These findings have implications for future e-cigarette policy decisions.

Address correspondence to: Jidong Huang, PhD, Health Media Collaboratory, Institute for Health Research and Policy, University of Illinois at Chicago, 1747 West Roosevelt Rd., Chicago IL 60608. jhuang12@uic.edu..

No financial disclosures were reported by the authors of this paper.

Introduction

Since their introduction to the U.S., awareness and use of electronic cigarettes (e-cigarettes) have grown exponentially among adults and youth,^{1–9} with pervasive marketing across media platforms.^{10–12} Annual e-cigarette sales could exceed \$3.5 billion in 2015.¹³ However, little is known about patterns of use across population subgroups or their long-term health risks.¹⁴

Carroll Chapman and Wu¹⁵ conducted a comprehensive review of the literature on e-cigarette prevalence and correlates of use. None of the reviewed papers reported prevalence data collected post-2012, a period when new generations of e-cigarette products proliferated. Six new studies have used nationally representative samples to look at e-cigarette use among U.S. adults in 2012–2013.^{5–9,16} However, extant studies have demonstrated mixed evidence regarding correlations between demographic characteristics and e-cigarette use (ever or current).^{3,6–9,16}

With a notable exception,⁵ no study has examined correlates of ever and current e-cigarette use among sexual minorities. Agaku et al.⁵ in 2014 reported use of any tobacco product (including e-cigarettes) by lesbian/gay/bisexual/transgender (LGBT) individuals. Unfortunately, that study did not conduct multivariate analysis to examine how other factors may affect e-cigarette use among the LGBT community. More research is needed to identify correlates of awareness and use and explore how they relate to current e-cigarette use, particularly among priority populations such as LGBT, a population with high smoking rates.^{17–21}

One of the current e-cigarette policy debates is whether they should be incorporated into clean indoor air laws. Proponents of such measures argue that studies have found bystanders are exposed to aerosols and vapors containing toxic metals.^{22–24} Opponents argue such measures would discourage smokers from switching combustible cigarettes to e-cigarettes.²⁵ Despite this policy context, no population-level studies have examined how existing tobacco control policies may influence e-cigarette awareness and use.

Another controversy is the role e-cigarettes play in smoking cessation. Although supporters argue e-cigarettes help smokers quit combustible cigarettes,²⁶ more cautious observers point to their potential role in prolonging nicotine addiction and promoting dual/poly use. Empirical evidence is mixed.²⁷ Population-level studies of adult smokers challenge the claim that e-cigarettes are effective aids for conventional smoking cessation.²⁸ Findings from three recent studies indicated that e-cigarette use was not associated with successful quitting of conventional cigarettes,^{29–31} and another found that e-cigarette use was followed by neither greater quit rates nor reduction in cigarette consumption.³² However, a few recent studies did find evidence pointing to the potential role of e-cigarettes in smoking cessation.^{16,33,34} Given this mixed evidence, additional research examining the relationships between e-cigarette use and intentions and attempts to quit smoking combustible cigarettes is warranted.

The present research seeks to fill these gaps by examining patterns of ever and current use of e-cigarettes across demographic groups and by combustible cigarette smoking status and

tobacco control policies in a large nationwide survey of U.S. adults. It also examines relationships between cigarette smoking status and identification as LGBT and current use of e-cigarettes, as well as whether/how intentions and attempts to quit combustible cigarettes and the tobacco control policy context relate to e-cigarette use.

Methods

The authors designed an online survey to be conducted by The GfK Group between February 22 and March 5, 2013 for the target population of non-institutionalized U.S. adults aged 18 years. A stratified sample of households was drawn from GfK's KnowledgePanel® (KP), a probability-based panel designed to be representative of the U.S.³⁵ Tobacco users were oversampled to ensure sufficient sample size for that group. The U.S. was stratified into 38 geographic areas by consolidating media markets to ensure:

1. a large enough sample of KP members to achieve statistical precision; and
2. exposure to a variety of tobacco control policy environments (smoke-free air laws, cigarette tax, and exposure to antismoking media campaign).

All of the continental U.S. states were represented in the 38 strata. Of the 20,907 sampled and screened KP members, 13,531 were eligible for the survey and 13,144 (97%) of those completed the survey. Owing to exhausting KP tobacco users in small population areas, 4,378 off-panel participants were added to the sample for a total of 17,522. Off-panel participants were recruited by online ads and screened for eligibility. GfK made weighting adjustments to offset known deviations from equal probability sampling, and post-stratification weights were developed to account for non-response, over-sampling of tobacco users, calibration of off-panel participants to probability-based sample, and other sources of non-sampling error. The IRB at the University of Illinois at Chicago approved the study.

Measures

All respondents were asked whether they had ever seen/heard of e-cigarettes. Participants responding *yes* to the question were coded as aware of e-cigarettes. Participants coded as aware of e-cigarettes were further asked whether they had ever used an e-cigarette. Participants who responded *yes* were defined as e-cigarette ever users. Those who responded *no* and those reporting never having heard of e-cigarettes were considered e-cigarette never users. Participants indicating they had ever used e-cigarettes were asked: Do you now (in the past 30 days) use e-cigarettes every day, some days, or not at all? Current e-cigarette users were defined as those who used e-cigarettes *every day* or *some days* in the past 30 days.

Respondents who had never smoked 100 cigarettes in their life were defined as never smokers. Of those who had smoked 100 cigarettes in lifetime, current smokers were defined as those who now (in the past 30 days) smoke some days or every day; remaining ever smokers were defined as former smokers.

Measures were constructed to capture intentions and attempts to quit smoking combustible cigarettes. Current smokers who responded that they planned to quit smoking combustible cigarettes for good in the next 30 days were regarded as having intention to quit. Those

indicating they had stopped smoking for 1 day during the past 3 months because they were trying to quit for good were coded as having attempted to quit. Various participant characteristics potentially related to e-cigarette awareness, ever use, and current use were considered, including age (18–24, 25–44, 45–64, 65 years), gender, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic other), highest completed education (less than high school, high school graduate, some college, bachelor's degree, any post college degree), annual household income (<\$20,000, \$20,000–\$34,999, \$35,000–\$49,999, \$50,000–\$74,999, \$75,000–\$124,999, \$125,000), and self-reported sexual orientation (heterosexual, LGBT, refused). Respondents were asked a separate gender identity question and 168 total respondents self-identified as transgender. These 168 participants were included in the current analysis as LGBT.

This study included state-level tobacco control policies associated with cigarette smoking among adults: average price per pack of cigarettes and state-level smoke-free air laws in bars, restaurants, and private workplaces in 2013, measures widely used in tobacco control policy research.^{36,37} The study categorized cigarette price by quartiles (\$0–<\$5.6371, \$5.6371–<\$6.022, \$6.022–<\$6.7838, >\$6.7838) and strength of smoke-free air laws into three categories (states without comprehensive smoking bans; states with bans in restaurants, bars, or private workplaces [but not in all three venues]; and states with comprehensive bans in restaurants, bars, **and** private workplaces).

Statistical Analysis

The weighted proportions and 95% CIs were calculated for outcome measures (e-cigarette awareness, ever use, current use, current use among ever users), cigarette smoking status, quitting behaviors, and demographic and socioeconomic variables. Current smokers were further broken down by intentions and attempts to quit. The authors created a set of cigarette smoking status variables by combining current use of cigarettes and intention to quit (never smoker, former smoker, current smokers with and without intention to quit) to look at their association with e-cigarette use. Survey logistic regression models with weights were used to examine the relationship of each outcome with explanatory variables. A logistic regression of current e-cigarette use among respondents who have ever used e-cigarettes was also modeled. Survey design was incorporated including weights and stratified sampling in the analysis. The weighted AORs and 95% CIs (controlling for all other covariates in the model) were estimated and Rao–Scott chi-square test *p*-values were calculated. SAS, version 9.3 was used for all analyses, which were performed in 2014.

Results

Table 1 presents basic descriptive statistics. Overall awareness of e-cigarettes was very high (86.4%). Approximately 15% of respondents reported ever use of e-cigarettes, and 5.1% reported current use. Among those who ever used e-cigarettes, about one third (34.5%) reported current use. Combustible cigarette smoking prevalence in the sample was 20.8%, consistent with other national estimates.^{6,29} Among current smokers, 12% indicated that they wanted to quit smoking combustible cigarettes for good in the next 30 days, and 32.4%

of current smokers reported that they had stopped smoking for 1 day during the past 3 months because they were trying to quit.

Table 2 presents e-cigarette awareness and use by smoking status and quitting behaviors. Current smokers had the highest rate of awareness and use among never smokers, former smokers, and current smokers. Prevalence of ever use of e-cigarettes among current smokers was five times higher than among former smokers (50.3% vs 10.1%), and current e-cigarette use among current smokers was ten times higher than within former smokers (20.9% vs 1.8%). Awareness of e-cigarettes was high among both current and former smokers (95% vs 90%). Awareness and use of e-cigarettes were lowest among never smokers. Current smokers who intended to quit smoking in the next 30 days had higher rates of ever use (54.9% vs 49.7%) and current use (34.7% vs 18.9%) than those without intention. Current smokers who had made quit attempts in the past 3 months had higher rates of ever use (56.5% vs 47.3%) and current use (30.2% vs 16.3%) than those who had not.

Table 3 examines how e-cigarette awareness and use differed by demographic characteristics. Young adults did not differ in use of combustible cigarettes from other adults, but were more likely to have ever used and currently use e-cigarettes. LGBT respondents had higher rates of both cigarette smoking (32.4% vs 20.3%) and of e-cigarette use than heterosexual respondents (25.1% vs 14.3% for ever use and 9.4% vs 4.9% for current e-cigarette use). Although there are no significant differences in e-cigarette awareness across income levels, a clear inverse relationship existed between income and rates of both e-cigarette use and smoking. Those with lower education levels tended to have higher rates of e-cigarette use and smoking than those with college education.

Multivariate logistic regression results are presented in Table 4. Current smokers who intended to quit in the next 30 days had higher odds of ever use, current use, and current use conditional on ever use than others; the odds of current use were more than two times greater for current smokers with intention to quit than for those without intention. Young adults had higher odds of ever and current use; the odds were less than half for older age groups. Men had 37% higher odds of e-cigarette awareness than women, but their rates of use did not differ. Whites were more likely to be aware of e-cigarettes than non-whites, and more likely to use e-cigarettes than blacks. Interestingly, those reporting the lowest education levels had the lowest odds of awareness yet highest odds of current use. Odds of current use were >70% higher among respondents with annual household income >\$75,000 compared with those at the lowest income level, everything else being constant. After controlling for smoking status, quitting behavior, and demographic/socioeconomic factors, there was no significant difference between LGBT and heterosexual respondents. Odds of ever use were 20% lower among individuals living in states with comprehensive smoking bans; however, the results were only significant at the margin. Cigarette price was not significantly associated with e-cigarette awareness and use, controlling for other factors.

Results from Appendix Table 1 are similar to those in Table 4. Current smokers who had made a quit attempt in the past 3 months had higher odds of ever use, current use, and current use conditional on ever use than other groups, with odds of current use two times greater for current smokers who had made a quit attempt than among those who had not.

Discussion

This study is one of the first to report how combustible cigarette smoking status and tobacco control policies correlate with awareness and current use of e-cigarettes across demographic groups and sexual minorities. This research identifies important variations in e-cigarette awareness and use with respect to age, gender, education, income, and LGBT status. The authors found a high level of awareness (86.4%) of e-cigarettes among U.S. adults in 2013. By comparison, previous studies reported e-cigarette awareness rates in the U.S. as 40.9% in 2010,⁸ 58% in 2011, and 67.2% in 2012.⁶ Rate of ever use of e-cigarettes was 14.8% in the current sample, compared with rates of 3.3% in 2010, 6.2% in 2011, and 8.1% in 2012 in previous studies.^{3,4,6} The present analyses showed the overall rate of current e-cigarette use was 5.1%, compared with current e-cigarette use rates at 1.3% in 2010 and 2.9% in 2011.^{6,29} This unabated increase in awareness, ever use, and current use of e-cigarettes is likely a result of marked increases in e-cigarette marketing and promotion expenditures across channels.^{12,38–40} The authors' estimates of e-cigarette awareness and use in 2013 were higher than those reported by King et al.² in 2015. The authors' estimates capture use of various vaping products; additionally, sample selection and high non-response rates in King and colleagues may explain this difference.

Awareness of e-cigarettes was lower among never smokers, former smokers, women, older adults, minorities, and those with less than high school education. Consistent with earlier studies,^{2,6,9,16,41} this study found higher ever use and current use among current cigarette smokers, young adults aged 18–24 years (with an age gradient), and those in low SES (low level of education or income). African Americans were found less likely to ever use and currently use e-cigarettes. This finding is perhaps due partly to differential Internet access and exposure to online e-cigarette marketing across racial and ethnic groups^{42,43}; other factors such as access to e-cigarettes,⁴⁴ their price, and population beliefs about the products also may play a role. When holding income constant, the present analyses revealed that those with low levels of education (less than high school diploma) were more likely to be current e-cigarette users. When holding education constant, those with higher income (\$50,000) were found more likely to use e-cigarettes.

The analyses revealed that the LGBT subpopulation had higher rates of both ever and current e-cigarette use. However, after controlling for smoking status and quitting behaviors, the coefficient for LGBT respondents became statistically insignificant. Because current cigarette smokers are more likely to use e-cigarettes, higher rates of e-cigarette ever use and use among LGBT individuals were primarily driven by high cigarette smoking rates among sexual minorities.^{17–21} Nonetheless, future efforts to address the high rates of tobacco use among sexual minorities, including both combustible and electronic cigarettes, are warranted.

Cigarette smoking status—particularly in tandem with intentions and attempts to quit—is an important correlate of current e-cigarette use. Current smokers had higher levels of awareness and were more likely to have ever used and to currently use e-cigarettes than former and never smokers. Among current smokers, those with intention to quit and who had made quit attempts were more likely to have ever used and to currently use e-cigarettes.

Consistent with the literature,^{6,9,15,16,34} this finding suggests that smokers who intend to quit combustible cigarettes may perceive e-cigarettes as a cessation method, highlighting the potential role of e-cigarettes in reducing combustible cigarette consumption. This also underscores the need for ongoing surveillance and monitoring of how e-cigarettes are used as cessation tools, including dual use of e-cigarettes with combustible tobacco and its health implications.

The authors also found evidence that individuals living in states with comprehensive smoke-free laws were less likely to ever use e-cigarettes than those living in states with weak or no laws. A recent study⁴⁴ found retailers in states with comprehensive smoke-free policies were less likely to sell e-cigarettes than those in states with weaker smoke-free laws, which may in part explain the inverse relationship between e-cigarette ever use and smoke-free laws. As the U.S. Food and Drug Administration considers e-cigarette regulation, major public health organizations have called for the inclusion of e-cigarettes in smoke-free air laws and restrictions on marketing and flavors.^{45,46} These results offer evidence that comprehensive smoke-free air policies may deter ever use of e-cigarettes, thus implementing stronger smoke-free air policies that include e-cigarettes at state- and local-level may have the potential to reduce initiation, uptake, and experimentation with e-cigarettes.

No statistically significant or consistent relationships between cigarette price and e-cigarette awareness, ever use, or current use were discovered, consistent with other findings.⁴⁷ This may reflect the complex dynamics between tobacco control policies and e-cigarette sales. Higher cigarette prices may offer incentives for cigarette smokers to try e-cigarettes. However, e-cigarette manufacturers may target markets where more cigarette smokers reside.

Limitations

This study is limited by its cross-sectional design, which does not allow examination of changes in patterns of e-cigarette use over time. Additionally, the sample in this study represented only U.S. adults; the findings cannot be generalized to youth (less likely to use e-cigarettes for smoking cessation). Future studies should explore dual and poly use of e-cigarettes with combustible cigarettes and other tobacco products. Finally, the study did not assess the correlation between e-cigarette use and the types of e-cigarettes (e.g., tanks, mods), which limits the ability to draw conclusions about the differential efficacy of product types for smoking cessation. More research is needed to analyze potential differences.

Conclusions

This paper comprehensively examines patterns and correlates of current e-cigarette use among U.S. adults, identifying important variations among priority populations. Implications of this research highlight the need for policymakers to consider variations in e-cigarette use by smoking status, quitting behaviors, socioeconomic characteristics, and tobacco control environments to avoid unintentionally creating or exacerbating health disparities. This study underlines the need for research examining longitudinal patterns and correlates of e-cigarette use.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This research was supported by a grant from NIH, National Cancer Institute (5U01 CA 154254). The NIH had no role in study design; collection, analysis, and interpretation of data; writing the report; or the decision to submit the report for publication. The authors would like to thank Hy Tran and Melissa Buenger for their excellent research assistance.

References

1. CDC. Notes from the field: electronic cigarette use among middle and high school students - United States, 2011-2012. *MMWR Morb Mortal Wkly Rep.* 2013; 62(35):729-730. [PubMed: 24005229]
2. King BA, Alam S, Promoff G, Arrazola R, Dube SR. Awareness and ever use of electronic cigarettes among U.S. adults, 2010-2011. *Nicotine Tob Res.* 2013; 15(9):1623-1627. <http://dx.doi.org/10.1093/ntr/ntt013>. [PubMed: 23449421]
3. Regan AK, Promoff G, Dube SR, Arrazola R. Electronic nicotine delivery systems: Adult use and awareness of the "e-cigarette" in the USA. *Tob Control.* 2013; 22(1):19-23. <http://dx.doi.org/10.1136/tobaccocontrol-2011-050044>. [PubMed: 22034071]
4. Pearson JL, Richardson A, Niaura RS, Vallone DM, Abrams DB. E-cigarette awareness, use, and harm perceptions in US adults. *Am J Public Health.* 2012; 102(9):1758-1766. <http://dx.doi.org/10.2105/AJPH.2011.300526>. [PubMed: 22813087]
5. Agaku IT, King BA, Husten CG, et al. Tobacco product use among adults — United States, 2012–2013. *Morb Mortal Wkly Rep.* 2014; 63(25):542-547.
6. King BA, Patel R, Nguyen KH, Dube SR. Trends in awareness and use of electronic cigarettes among U.S. adults, 2010–2013. *Nicotine Tob Res.* 2015; 17(2):219-227. <http://dx.doi.org/10.1093/ntr/ntu191>. [PubMed: 25239961]
7. Coleman BN, Apelberg BJ, Ambrose BK, et al. Association between electronic cigarette use and openness to cigarette smoking among U.S. young adults. *Nicotine Tob Res.* 2015; 17(2):212-218. <http://dx.doi.org/10.1093/ntr/ntu211>. [PubMed: 25378683]
8. Ramo DE, Young-Wolff KC, Prochaska JJ. Prevalence and correlates of electronic-cigarette use in young adults: Findings from three studies over five years. *Addict Behav.* 2015; 41:142-147. <http://dx.doi.org/10.1016/j.addbeh.2014.10.019>. [PubMed: 25452058]
9. McMillen, RC.; Gottlieb, MA.; Shaefer, RMW.; Winickoff, JP.; Klein, JD. Trends in electronic cigarette use among U.S. adults: Use is increasing in both smokers and nonsmokers.. *Nicotine Tob Res.* 2014. Epub ahead of print. <http://dx.doi.org/10.1093/ntr/ntu213>
10. Bruell A. E-cigarette brands spend more on advertising and keep careful watch on health claims. *Advert Age.* Jan.2012 :29.
11. Noel JK, Rees VW, Connolly GN. Electronic cigarettes: a new "tobacco" industry? *Tob Control.* 2010; 20(1):81-81. <http://dx.doi.org/10.1136/tc.2010.038562>. [PubMed: 20930060]
12. Kornfield R, Huang J, Vera L, Emery SL. Rapidly increasing promotional expenditures for e-cigarettes. *Tob Control.* 2015; 24:110-111. <http://dx.doi.org/10.1136/tobaccocontrol-2014-051580>. [PubMed: 24789603]
13. Herzog, B.; Gerberi, J.; Scott, A. Tobacco Talk: Vapors/tanks Driving next Wave of E-Vapor Growth. Wells Fargo Securities; 2014.
14. Grana R, Benowitz N, Glantz SA. E-Cigarettes: A scientific review. *Circulation.* 2014; 129(19):1972-1986. <http://dx.doi.org/10.1161/CIRCULATIONAHA.114.007667>. [PubMed: 24821826]
15. Carroll Chapman SL, Wu L-T. E-cigarette prevalence and correlates of use among adolescents versus adults: A review and comparison. *J Psychiatr Res.* 2014; 54:43-54. <http://dx.doi.org/10.1016/j.jpsychires.2014.03.005>. [PubMed: 24680203]

16. Giovenco DP, Lewis MJ, Delnevo CD. Factors associated with e-cigarette use: A national population survey of current and former smokers. *Am J Prev Med*. 2014; 47(4):476–480. <http://dx.doi.org/10.1016/j.amepre.2014.04.009>. [PubMed: 24880986]
17. Blosnich J, Lee JGL, Horn K. A systematic review of the aetiology of tobacco disparities for sexual minorities. *Tob Control*. 2013; 22(2):66–73. <http://dx.doi.org/10.1136/tobaccocontrol-2011-050181>. [PubMed: 22170335]
18. Lee JGL, Griffin GK, Melvin CL. Tobacco use among sexual minorities in the USA, 1987 to May 2007: a systematic review. *Tob Control*. 2009; 18(4):275–282. <http://dx.doi.org/10.1136/tc.2008.028241>. [PubMed: 19208668]
19. U.S. DHHS.. Ending the Tobacco Epidemic: A Tobacco Control Strategic Action Plan for the U.S. Department of Health and Human Services. DHHS; 2010. p. 67 www.hhs.gov
20. Blosnich J, Jarrett T, Horn K. Disparities in smoking and acute respiratory illnesses among sexual minority young adults. *Lung*. 2010; 188(5):401–407. <http://dx.doi.org/10.1007/s00408-010-9244-5>. [PubMed: 20496074]
21. Blosnich JR, Farmer GW, Lee JGL, Silenzio VMB, Bowen DJ. Health inequalities among sexual minority adults: Evidence from ten U.S. States, 2010. *Am J Prev Med*. 2014; 46(4):337–349. <http://dx.doi.org/10.1016/j.amepre.2013.11.010>. [PubMed: 24650836]
22. Williams M, Villarreal A, Bozhilov K, Lin S, Talbot P. Metal and silicate particles including nanoparticles are present in electronic cigarette cartomizer fluid and aerosol. *PLoS ONE*. 2013; 8(3):e57987. <http://dx.doi.org/10.1371/journal.pone.0057987>. [PubMed: 23526962]
23. Schober W, Szendrei K, Matzen W, et al. Use of electronic cigarettes (e-cigarettes) impairs indoor air quality and increases FeNO levels of e-cigarette consumers. *Int J Hyg Environ Health*. 2014; 217(6):628–637. <http://dx.doi.org/10.1016/j.ijheh.2013.11.003>. [PubMed: 24373737]
24. Ballbè M, Martínez-Sánchez JM, Sureda X, et al. Cigarettes vs. e-cigarettes: Passive exposure at home measured by means of airborne marker and biomarkers. *Environ Res*. 2014; 135:76–80. <http://dx.doi.org/10.1016/j.envres.2014.09.005>. [PubMed: 25262078]
25. Carmona, R. [May 15, 2015] Letter to the New York City Council. Dec. 2013 <https://docs.google.com/file/d/0B7kLclUGbuA6bXNadJl0SjhXRG8/edit?pli=1>.
26. [May 15, 2015] Can Electronic Cigarettes Help You Quit Smoking?. Vaporerver. <http://vaporerver.com/electronic-cigarette-info/can-electronic-cigarettes-help-you-quit-smoking/>.
27. McRobbie, H.; Bullen, C.; Hartmann-Boyce, J.; Hajek, P. Electronic Cigarettes for Smoking Cessation and Reduction. John Wiley & Sons, Ltd; Hoboken, NJ: 2014. <http://dx.doi.org/10.1002/14651858.cd010216.pub2>
28. Grana, RP.; Benowitz, NM.; Glantz, SAP. Background Paper on E-Cigarettes (Electronic Nicotine Delivery Systems). Center for Tobacco Control Research and Education, UC San Francisco; San Francisco, California: 2013. p. 109 <http://escholarship.org/uc/item/13p2b72n>. [July 17, 2014]
29. Adkison SE, O'Connor RJ, Bansal-Travers M, et al. Electronic nicotine delivery systems: International tobacco control four-country survey. *Am J Prev Med*. 2013; 44(3):207–215. <http://dx.doi.org/10.1016/j.amepre.2012.10.018>. [PubMed: 23415116]
30. Vickerman KA, Carpenter KM, Altman T, Nash CM, Zbikowski SM. Use of electronic cigarettes among state tobacco cessation quitline callers. *Nicotine Tob Res*. 2013; 15(10):1787–1791. <http://dx.doi.org/10.1093/ntr/ntt061>. [PubMed: 23658395]
31. Popova L, Ling PM. Alternative tobacco product use and smoking cessation: a national study. *Am J Public Health*. 2013; 103(5):923–930. <http://dx.doi.org/10.2105/AJPH.2012.301070>. [PubMed: 23488521]
32. Grana RA, Popova L, Ling PM. A longitudinal analysis of electronic cigarette use and smoking cessation. *JAMA Intern Med*. 2014; 174(5):812–813. <http://dx.doi.org/10.1001/jamainternmed.2014.187>. [PubMed: 24664434]
33. 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 Tob Res*. 2015; 17(2):127–133. <http://dx.doi.org/10.1093/ntr/ntu200>. [PubMed: 25301815]
34. Rutten, L.J.F.; Blake, K.D.; Agunwamba, A.A., et al. Use of e-cigarettes among current smokers: Associations among reasons for use, quit intentions, and current tobacco use.. *Nicotine Tob Res*. 2015. Epub ahead of print. <http://dx.doi.org/10.1093/ntr/ntv003>

35. The GfK Group. [September 18, 2014] GfK KnowledgePanel.. GfK N Am. www.gfk.com/us/Solutions/consumer-panels/Pages/GfKKnowledgePanel.aspx.
36. Huang J, Chaloupka FJ. The economic impact of state cigarette taxes and smoke-free air policies on convenience stores. *Tob Control*. 2013; 22(2):91–96. <http://dx.doi.org/10.1136/tobaccocontrol-2011-050185>. [PubMed: 22045805]
37. Tauras JA, Huang J, Chaloupka FJ. Differential impact of tobacco control policies on youth sub-populations. *Int J Environ Res Public Health*. 2013; 10(9):4306–4322. <http://dx.doi.org/10.3390/ijerph10094306>. [PubMed: 24036487]
38. Kim AE, Arnold KY, Makarenko O. E-cigarette advertising expenditures in the U.S., 2011–2012. *Am J Prev Med*. 2014; 46(4):409–412. <http://dx.doi.org/10.1016/j.amepre.2013.11.003>. [PubMed: 24650844]
39. Duke JC, Lee YO, Kim AE, et al. Exposure to electronic cigarette television advertisements among youth and young adults. *Pediatrics*. 2014; 134(1):e29–e36. <http://dx.doi.org/10.1542/peds.2014-0269>. [PubMed: 24918224]
40. Legacy Foundation for Health. Vaporized: E-Cigarettes, Advertising, and Youth. Legacy Foundation for Health; Washington, DC: 2014. p. 24 http://legacyforhealth.org/content/download/4542/63436/version/1/file/LEGVaporized-E-cig_Report-May2014.pdf
41. Choi K, Forster J. Characteristics associated with awareness, perceptions, and use of electronic nicotine delivery systems among young U.S. midwestern adults. *Am J Public Health*. 2013; 103(3):556–561. <http://dx.doi.org/10.2105/AJPH.2012.300947>. [PubMed: 23327246]
42. Emery SL, Vera L, Huang J, Szczypka G. Wanna know about vaping? Patterns of message exposure, seeking and sharing information about E-cigarettes across media platforms. *Tob Control*. 2014; 23(Suppl 1):iii17–iii25. <http://dx.doi.org/10.1136/tobaccocontrol-2014-051648>. [PubMed: 24935893]
43. Smith, A. African Americans and Technology Use: A Demographic Portrait. Pew Research Center; Washington, DC: 2014. www.pewinternet.org/2014/01/06/african-americans-and-technology-use/. [February 18, 2014]
44. Rose SW, Barker DC, D'Angelo H, et al. The availability of electronic cigarettes in U.S. retail outlets, 2012: Results of two national studies. *Tob Control*. 2014; 23(Suppl 3):iii10–iii16. <http://dx.doi.org/10.1136/tobaccocontrol-2013-051461>. [PubMed: 24935892]
45. Bhatnagar A, Whitsel LP, Ribisl KM, et al. Electronic cigarettes: A policy statement from the American Heart Association. *Circulation*. 2014; 130(16):1418–1436. <http://dx.doi.org/10.1161/CIR.000000000000107>. [PubMed: 25156991]
46. American Lung Association. State of Tobacco Control 2014. American Lung Association; Washington, DC: 2014.
47. Huang J, Tauras JA, Chaloupka F. The impact of prices and tobacco control policies on the demand for electronic nicotine delivery systems. *Tob Control*. 2014; 24(Suppl 3):iii41–iii47. <http://dx.doi.org/10.1136/tobaccocontrol-2013-051515>. [PubMed: 24935898]

Table 1**Descriptive Statistics**

Variable	N	%(Proportion)	(95% CI)
Sample size	17,522		
E-cigarette outcome measures			
Awareness (ever heard or seen)	15,571	86.4	(85.6 - 87.3)
Ever use	3,910	14.8	(14.0 - 15.5)
Current use (any use in the past 30 days)	1,605	5.1	(4.7 - 5.5)
Current use among ever users	1,605	34.5	(32.2 - 36.9)
Cigarette smoking			
Never smoker	6,742	51.8	(50.6 - 52.9)
Former smoker	4,157	27.5	(26.4 - 28.5)
Current smoker	6,607	20.8	(20.0 - 21.5)
Intention to quit cigarette smoking (in the next 30 days) (N=6,607)			
Yes	897	11.9	(10.8 - 13.1)
Attempt to quit cigarette smoking (in the past 3 months) (N=6,607)			
Yes	2,255	32.4	(30.6 - 34.1)
Age (years)			
18-24	1,269	9.7	(8.9 - 10.5)
25-44	4,957	34.4	(33.3 - 35.6)
45-64	7,347	38.3	(37.2 - 39.4)
65+	3,949	17.5	(16.7 - 18.4)
Gender			
Male	7,819	48.0	(46.8 - 49.2)
Female	9,703	52.0	(50.8 - 53.2)
Race/Ethnicity			
Non-Hispanic white	13,931	68.1	(67.0 - 69.3)
Non-Hispanic black	1,317	11.5	(10.7 - 12.4)
Hispanic	1,246	13.5	(12.6 - 14.4)
Non-Hispanic other	1,028	6.9	(6.2 - 7.5)
Education			
Less than high school graduate	697	6.8	(6.1 - 7.5)
High school graduate	3,901	36.1	(34.9 - 37.3)
Some college	6,342	31.1	(30.1 - 32.2)
Bachelor degree	4,092	15.7	(15.0 - 16.5)
Any post college	2,490	10.2	(9.6 - 10.8)
Household income (\$)			
<20,000	2,716	14.1	(13.3 - 15.0)
20,000-34,999	2,923	14.9	(14.1 - 15.8)
35,000-49,999	2,816	13.3	(12.5 - 14.0)
50,000-74,999	3,613	19.6	(18.7 - 20.6)
75,000-124,999	3,781	27.4	(26.4 - 28.5)

Variable	N	%(Proportion)	(95% CI)
125,000+	1,673	10.6	(9.9 - 11.3)
Sexual orientation			
Heterosexual	16,280	93.2	(92.6 - 93.8)
Lesbian, gay, bisexual, and transgender	1,124	4.8	(4.3 - 5.3)
Refused	286	2.0	(1.6 - 2.3)
Tobacco control policy			
Smoke-free air laws			
States do not have comprehensive smoking bans	4,156	26.9	(26.0 - 27.8)
States with comprehensive smoking bans at restaurants, bars, or private workplaces (but not in all three venues)	5,110	30.9	(30.0 - 31.8)
States with comprehensive bans at restaurants, bars, and private workplaces (in all three venues)	8,241	42.2	(41.2 - 43.1)
Cigarette price quartiles (\$)			
\$0-<\$5.6371	3,774	23.7	(22.8 - 24.5)
\$5.6371-<\$6.022	4,068	22.4	(21.5 - 23.2)
\$6.022-<\$6.7838	4,654	26.1	(25.2 - 26.9)
>\$6.7838	5,026	27.9	(27.1 - 28.8)

Table 2**E-Cigarette Awareness and Use by Cigarette Smoking and Quitting Behavior**

	% of awareness (95% CI)	% of ever use (95% CI)	% of current use (95% CI)	% of current use among ever users (95% CI)
By cigarette use				
Never smoked	80.9 (79.5 - 82.4)	3.0 (2.4 - 3.6)	0.5 (0.3 - 0.8)	17.7 (9.4 - 25.9)
Former smoker	90.3 (89.0 - 91.7)	10.1 (8.7 - 11.5)	1.8 (1.2 - 2.3)	17.5 (12.5 - 22.5)
Current smoker	95.0 (94.1 - 96.0)	50.3 (48.4 - 52.2)	20.9 (19.4 - 22.4)	41.5 (38.9 - 44.1)
Intention to quit in next 30 days (among current cigarette smokers)				
Yes	94.4 (92.3 - 96.5)	54.9 (49.9 - 59.9)	34.7 (30.2 - 39.2)	63.2 (56.6 - 69.7)
No	95.1 (94.0 - 96.1)	49.7 (47.6 - 51.8)	18.9 (17.4 - 20.5)	38.1 (35.3 - 40.9)
Attempts to quit in past 3 months (among current cigarette smokers)				
Yes	94.7 (93.1 - 96.3)	56.5 (53.3 - 59.7)	30.2 (27.3 - 33.1)	53.5 (49.3 - 57.7)
No	95.2 (94.0 - 96.4)	47.3 (44.9 - 49.8)	16.3 (14.7 - 18.0)	34.5 (31.3 - 37.7)

Notes: E-cigarette awareness: defined as those who have ever seen/heard e-cigarettes. Ever use e-cigarettes: defined as those who have ever used cigarettes. Current use e-cigarettes: defined as those who had any use of e-cigarettes in the past 30 days prior to the survey. Current use e-cigarettes among ever users: respondents who currently use e-cigarettes among those who have ever used e-cigarettes.

Table 3

E-Cigarette Use and Awareness by Demographic Characteristics

	Awareness (%)	Ever use (%)	Current use (%)	Current use among ever users (%)	Current cigarette smoker (%)
By age					
18-24	83.9 (80.5 - 87.3)	22.6 (19.6 - 25.7)	8.7 (6.9 - 10.5)	38.5 (32.0 - 45.1)	21.9 (19.2 - 24.6)
25-44	88.1 (86.6 - 89.6)	17.7 (16.2 - 19.1)	6.3 (5.6 - 7.1)	35.8 (32.0 - 39.6)	22.9 (21.5 - 24.4)
45-64	87.5 (86.2 - 88.8)	14.3 (13.2 - 15.4)	4.5 (4.0 - 5.1)	31.8 (28.2 - 35.4)	22.8 (21.6 - 24.1)
65+	82.3 (80.4 - 84.2)	5.8 (4.8 - 6.8)	1.9 (1.4 - 2.4)	33.1 (25.3 - 40.9)	11.3 (10.0 - 12.5)
By gender					
Male	89.0 (87.8 - 90.1)	15.1 (14.0 - 16.2)	5.6 (5.0 - 6.3)	37.4 (33.8 - 41.0)	21.1 (19.9 - 22.3)
Female	84.1 (82.9 - 85.4)	14.5 (13.5 - 15.5)	4.6 (4.1 - 5.1)	31.8 (28.8 - 34.8)	20.4 (19.4 - 21.4)
By race/ethnicity					
Non-Hispanic white	89.4 (88.6 - 90.3)	15.3 (14.5 - 16.2)	5.1 (4.7 - 5.6)	33.5 (30.8 - 36.1)	20.9 (20.0 - 21.8)
Non-Hispanic black	80.6 (77.4 - 83.8)	11.9 (9.7 - 14.1)	4.1 (3.0 - 5.1)	34.1 (26.0 - 42.2)	22.7 (19.9 - 25.5)
Hispanic	80.0 (77.0 - 83.1)	14.4 (12.0 - 16.8)	5.3 (4.0 - 6.5)	36.5 (28.7 - 44.4)	19.2 (16.7 - 21.7)
Non-Hispanic Other	79.0 (74.9 - 83.2)	14.9 (12.0 - 17.7)	6.3 (4.7 - 7.8)	42.1 (32.8 - 51.4)	19.0 (16.1 - 21.9)
By education					
<High school Grad	78.2 (73.6 - 82.7)	19.8 (16.3 - 23.4)	8.5 (6.2 - 10.8)	42.9 (33.6 - 52.2)	30.2 (26.1 - 34.4)
High school Grad	85.6 (84.0 - 87.2)	16.2 (14.8 - 17.6)	5.0 (4.3 - 5.7)	30.8 (26.8 - 34.8)	24.6 (23.0 - 26.2)
Some college	88.4 (87.0 - 89.8)	17.4 (16.2 - 18.7)	6.2 (5.5 - 7.0)	35.8 (32.4 - 39.3)	22.7 (21.4 - 24.0)
College grad	87.9 (86.3 - 89.6)	9.4 (8.1 - 10.6)	3.4 (2.9 - 4.0)	36.6 (30.7 - 42.5)	12.5 (11.3 - 13.6)
Any post College	86.5 (84.2 - 88.7)	6.5 (5.1 - 7.8)	2.3 (1.7 - 2.8)	34.9 (26.1 - 43.8)	7.7 (6.5 - 8.8)
By income					
<20,000	84.1 (81.6 - 86.6)	21.2 (18.9 - 23.4)	6.4 (5.2 - 7.5)	30.2 (25.4 - 34.9)	33.4 (30.8 - 36.0)
20,000-34,999	85.8 (83.6 - 88.0)	16.9 (15.0 - 18.9)	5.6 (4.6 - 6.6)	33.2 (27.8 - 38.5)	25.8 (23.6 - 28.0)
35,000-49,999	84.5 (82.0 - 86.9)	15.6 (13.7 - 17.6)	5.0 (4.1 - 5.9)	31.8 (26.4 - 37.1)	22.3 (20.2 - 24.4)
50,000-74,999	87.6 (85.7 - 89.4)	14.5 (12.9 - 16.1)	5.3 (4.4 - 6.1)	36.3 (31.1 - 41.5)	20.2 (18.4 - 21.9)
75,000-124,999	87.2 (85.5 - 88.9)	11.8 (10.4 - 13.2)	4.6 (3.9 - 5.4)	39.4 (33.6 - 45.2)	14.6 (13.2 - 15.9)
125,000+	88.9 (86.6 - 91.2)	10.3 (8.2 - 12.3)	3.7 (2.5 - 4.9)	35.8 (26.2 - 45.5)	11.9 (10.0 - 13.9)
By sexual orientation					
Heterosexual	86.6 (85.7 - 87.5)	14.3 (13.6 - 15.1)	4.9 (4.5 - 5.3)	34.3 (31.8 - 36.7)	20.3 (19.5 - 21.1)

	Awareness (%)	Ever use (%)	Current use (%)	Current use among ever users (%)	Current cigarette smoker (%)
LGBT	89.9 (86.6 - 93.1)	25.1 (21.0 - 29.3)	9.4 (7.3 - 11.6)	37.5 (29.6 - 45.4)	32.4 (28.1 - 36.8)
Refused	70.0 (61.3 - 78.6)	9.1 (5.2 - 13.0)	3.0 (1.3 - 4.6)	32.4 (15.2 - 49.6)	12.2 (8.2 - 16.2)

Notes: E-cigarette awareness: defined as those who have ever seen/heard e-cigarettes. Ever use e-cigarettes: defined as those who have ever used cigarettes. Current use e-cigarettes: defined as those who had any use of e-cigarettes in the past 30 days prior to the survey. Current use e-cigarettes among ever users: respondents who currently use e-cigarettes among those who have ever used e-cigarettes.

Table 4
Logistic Models Assessing E-Cigarette Awareness and Use, Quitting Intention, and Tobacco Control Policy

VARIABLES	Aware		Ever use		Current use		Current use conditioned on ever	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Cigarette Usage								
Current smoker w/o intention to quit	1		1		1		1	
Never smoker	0.21 (0.16 - 0.27)	<0.0001	0.03 (0.02 - 0.04)	<0.0001	0.02 (0.01 - 0.03)	<0.0001	0.27 (0.16 - 0.48)	<0.0001
Former smoker	0.51 (0.39 - 0.68)	<0.0001	0.14 (0.12 - 0.17)	<0.0001	0.09 (0.06 - 0.13)	<0.0001	0.34 (0.23 - 0.49)	<0.0001
Current smoker w/ intention to quit	0.92 (0.57 - 1.49)	0.7395	1.22 (0.97 - 1.53)	0.0859	2.26 (1.81 - 2.84)	<0.0001	2.68 (1.97 - 3.64)	<0.0001
Age								
18-24	1		1		1		1	
25-44	1.12 (0.82 - 1.54)	0.4762	0.50 (0.37 - 0.68)	<0.0001	0.61 (0.44 - 0.83)	0.0018	0.84 (0.60 - 1.17)	0.2917
45-64	0.88 (0.65 - 1.20)	0.4201	0.31 (0.23 - 0.42)	<0.0001	0.41 (0.30 - 0.55)	<0.0001	0.70 (0.51 - 0.98)	0.0377
65+	0.57 (0.41 - 0.78)	0.0006	0.14 (0.10 - 0.20)	<0.0001	0.26 (0.18 - 0.39)	<0.0001	0.80 (0.51 - 1.27)	0.3526
Gender								
Female	1		1		1		1	
Male	1.37 (1.17 - 1.61)	<0.0001	0.95 (0.82 - 1.11)	0.5417	1.16 (0.96 - 1.39)	0.1220	1.25 (1.01 - 1.56)	0.0394
Race								
Non-Hispanic white	1		1		1		1	
Non-Hispanic black	0.51 (0.40 - 0.66)	<0.0001	0.62 (0.48 - 0.81)	0.0005	0.74 (0.53 - 1.02)	0.0634	1.04 (0.68 - 1.59)	0.8464
Hispanic	0.48 (0.38 - 0.60)	<0.0001	0.82 (0.62 - 1.08)	0.1598	0.93 (0.67 - 1.30)	0.6773	1.20 (0.83 - 1.75)	0.3382
Non-Hispanic other	0.41 (0.31 - 0.55)	<0.0001	1.01 (0.74 - 1.39)	0.9406	1.24 (0.89 - 1.73)	0.2063	1.47 (0.97 - 2.21)	0.0665
Education								
Less than high school graduate	1		1		1		1	
High school graduate	1.54 (1.12 - 2.13)	0.0085	0.95 (0.68 - 1.32)	0.7561	0.61 (0.42 - 0.90)	0.0113	0.52 (0.33 - 0.81)	0.0035
Some college	1.97 (1.42 - 2.75)	<0.0001	1.11 (0.81 - 1.53)	0.5221	0.79 (0.55 - 1.15)	0.2194	0.60 (0.39 - 0.93)	0.0206
Bachelor degree	2.10 (1.48 - 2.98)	<0.0001	0.81 (0.57 - 1.17)	0.2602	0.61 (0.40 - 0.93)	0.0213	0.57 (0.35 - 0.94)	0.0273
Any post college	1.97 (1.35 - 2.86)	0.0004	0.72 (0.47 - 1.10)	0.1291	0.55 (0.34 - 0.90)	0.0168	0.59 (0.33 - 1.06)	0.0760
Income (\$)								
<20,000	1		1		1		1	
20,000-34,999	1.19 (0.90 - 1.58)	0.2282	1.02 (0.78 - 1.31)	0.9078	1.21 (0.90 - 1.65)	0.2119	1.25 (0.88 - 1.76)	0.2104

VARIABLES	Aware		Ever use		Current use		Current use conditioned on ever	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
35,000-49,999	0.97 (0.73 - 1.29)	0.8506	1.05 (0.81 - 1.37)	0.6989	1.17 (0.86 - 1.58)	0.3151	1.08 (0.76 - 1.53)	0.6751
50,000-74,999	1.20 (0.91 - 1.59)	0.1950	1.02 (0.80 - 1.29)	0.9005	1.44 (1.07 - 1.93)	0.0163	1.31 (0.93 - 1.84)	0.1197
75,000-124,999	1.18 (0.89 - 1.55)	0.2467	1.03 (0.80 - 1.34)	0.8077	1.74 (1.26 - 2.40)	0.0007	1.76 (1.22 - 2.53)	0.0026
125,000+	1.37 (0.98 - 1.92)	0.0652	1.07 (0.75 - 1.51)	0.7219	1.67 (1.06 - 2.63)	0.0259	1.56 (0.92 - 2.63)	0.0996
Sexual orientation								
Heterosexual	1		1		1		1	
Refused	0.45 (0.28 - 0.72)	0.0009	0.90 (0.47 - 1.72)	0.7488	0.84 (0.44 - 1.62)	0.6026	0.95 (0.47 - 1.93)	0.8965
LGBT	1.17 (0.80 - 1.70)	0.4172	1.36 (0.99 - 1.85)	0.0549	1.27 (0.94 - 1.70)	0.1160	1.16 (0.82 - 1.63)	0.3928
Smoke-free air laws								
States do not have comprehensive smoking bans	1		1		1		1	
States with comprehensive smoking bans at restaurants, bars, or private workplaces (but not in all three venues)	0.99 (0.79 - 1.24)	0.9175	1.03 (0.83 - 1.28)	0.8093	1.07 (0.82 - 1.40)	0.5946	1.07 (0.78 - 1.48)	0.6665
States with comprehensive bans at restaurants, bars, and private workplaces (in all three venues)	0.96 (0.74 - 1.25)	0.7746	0.80 (0.63 - 1.02)	0.0712	0.85 (0.62 - 1.17)	0.3143	1.01 (0.70 - 1.45)	0.9785
Cigarette price quartiles (\$)								
0-<5.6371	1		1		1		1	
5.6371-<6.022	0.87 (0.67 - 1.12)	0.2805	1.11 (0.86 - 1.43)	0.4394	1.02 (0.74 - 1.42)	0.8938	0.92 (0.63 - 1.34)	0.6609
6.022-<6.7838	0.79 (0.62 - 1.01)	0.0560	0.88 (0.70 - 1.11)	0.2757	0.93 (0.70 - 1.23)	0.5978	0.94 (0.67 - 1.32)	0.7241
>6.7838	0.86 (0.64 - 1.16)	0.3266	0.93 (0.70 - 1.23)	0.6053	0.93 (0.65 - 1.34)	0.6945	0.91 (0.59 - 1.39)	0.6636
No. of yes	15,523		3,888		1,593		1,593	
N	17,426		17,423		17,423		3,896	

Notes: E-cigarette awareness: defined as those who have ever seen/heard e-cigarettes. Ever use e-cigarettes: defined as those who have ever used cigarettes. Current use e-cigarettes: defined as those who had any use of e-cigarettes in the past 30 days prior to the survey. Current use e-cigarettes among ever users: respondents who currently use e-cigarettes among those who have ever used e-cigarettes. Boldface indicates statistical significance ($p < 0.05$)