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Publication Date

2014

Peer reviewed



Published in final edited form as:

Prev Med. 2016 February ; 83: 16–21. doi:10.1016/j.ypmed.2015.11.024.

Multiple tobacco product use among young adult bar patrons in New Mexico

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Abstract

Introduction—Use of non-cigarette tobacco products is common, and e-cigarette use is increasing among young adults. We aimed to identify use of other tobacco products among young adult bar patrons in the context of a bar-based intervention to decrease cigarette smoking.

Methods—2291 cross-sectional surveys were collected from young adults in bars in Albuquerque, New Mexico using time–location sampling between 2011 and 2013 (N = 1142 in 2011, N = 1149 in 2012–2013), 2 and 3 years into an intervention to reduce cigarette use, and analyzed in 2014–2015. Participants reported current (i.e. past 30-day) use of cigarettes, snus, dip, cigarillos, hookah, and e-cigarettes, demographics, and tobacco-related attitudes. Multiple imputation was used to account for planned missing data. Logistic regression determined correlates of multiple tobacco product use.

Results—Cigarette smoking in the population decreased during the intervention from 43% to 37%. Over 60% of current cigarette smokers reported poly-use, most frequently with e-cigarettes (46%) and hookah (44%), followed by cigarillos (24%), dip (15%), and snus (14%) in 2012–2013. Among cigarette smokers, current e-cigarette use increased, while use of other products decreased during the intervention. Odds of poly-use (versus smoking cigarettes only) were greater among males and those reporting past 30-day binge drinking, and lower in those who strongly believed secondhand smoke exposure is harmful.

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Conflict of interest statement

The authors declare that there are no conflicts of interest.

Transparency document

The <http://dx.doi.org/10.1016/j.ypmed.2015.11.024> associated with this article can be found, in the online version.

Conclusions—Among young adult bar patrons in Albuquerque, New Mexico, most cigarette smokers reported currently using at least one other tobacco product. Public health interventions should address use of all tobacco products, use of which may rise despite decreased cigarette use.

Keywords

Electronic cigarettes; Tobacco use; Tobacco products; Young adult

Introduction

Use of non-cigarette tobacco products (e.g. hookah, cigarillos, and smokeless tobacco) is common (Barnett et al., 2013; Latimer et al., 2014; McMillen et al., 2012; Rath et al., 2012; Richardson et al., 2013) and electronic cigarette (e-cigarette) use (Choi and Forster, 2013; Pearson et al., 2012; Sutfin et al., 2013) is increasing among young adults. Contributing factors include decreased perceived harm (Choi and Forster, 2014; Grekin and Ayna, 2012), appeal of novel products, ability to use in smoke-free environments, targeted advertising (Grana and Ling, 2014), and flavored tobacco products (Villanti et al., 2013).

Most adult cigarette smokers started before age 26 (U.S. Department of Health and Human Services, 2012, 2014). Young adult smoking prevalence remains higher than most age groups, and trends toward decreased smoking have transitioned to stable cigarette initiation rates among this age group (U.S. Department of Health and Human Services, 2012, 2014). Dual- or poly-tobacco product use (i.e. use of cigarettes with one or more other tobacco products) can result from cigarette smokers taking up other tobacco products, or uptake of cigarette smoking by existing users of other tobacco products (Hamari et al., 2013; Latimer et al., 2014; Rath et al., 2012). The proliferation of smoke-free policies and decreasing social acceptability of cigarette smoking, may lead to greater interest in non-cigarette tobacco products due to fewer restrictions on their use, lower taxes or prices, and different perceptions of their risks or benefits (O'Connor, 2012). This is particularly important in young adults, many of whom are developing long-term tobacco use patterns (Ling and Glantz, 2002; Rigotti et al., 2000). In a United States military cohort, smokeless tobacco use resulted in harm escalation, with over 85% going on to dual use rather than switching from cigarettes to smokeless tobacco (Klesges et al., 2010). In adults, dual users of smokeless tobacco products and cigarettes intend to quit smoking less often than those using only cigarettes (McClave-Regan and Berkowitz, 2011) and, among those who attempt to quit, dual users tend to succeed less often (Tomar et al., 2010).

Tobacco advertisements and promotional efforts are linked to initiation and continuation of tobacco use (U.S. Department of Health and Services, 2012), and they are common in bars and nightclubs (Katz and Lavack, 2002; Sepe et al., 2002). Recently, promotional activities for alternative tobacco products and e-cigarettes have increased, including messages promoting use in bars and nightclubs (Grana and Ling, 2014). Young adults who attend bars and clubs are at higher risk of future smoking than those who do not (Gilpin et al., 2005), more frequent bar/nightclub attendance has been associated with current smoking (Dietz et al., 2013), and young adults attending bars, even those in states with smokefree bar laws, have high rates of secondhand smoke exposure (Kalkhoran et al., 2013). Many states that

have comprehensive smokefree laws, such as New Mexico, do not include e-cigarettes (Marynak et al., 2014).

Prior studies have shown high rates of concurrent tobacco product use in college student cigarette smokers (Latimer et al., 2014) and online samples of young adults (Rath et al., 2012; Soneji et al., 2014), but little is known about use of multiple tobacco products among bar patrons. The objectives of this study were to (1) identify what additional tobacco products young adult bar patrons use with cigarettes, and (2) describe multiple product users.

Methods

Cross-sectional surveys were collected from young adult (aged 18 to 26) patrons of bars and nightclubs in Albuquerque, New Mexico over two periods: March–December 2011 and December 2012–December 2013. Data were collected as part of the evaluation of an intervention to reduce cigarette use among young adult bar patrons, which was implemented in 2009 and targeted the “Partier” peer crowd (Fallin et al., 2015). Participants were enrolled using time–location sampling, a technique previously used to access hard-to-reach populations (Magnani et al., 2005; Muhib et al., 2001; Raymond et al., 2010). Briefly, participants were recruited at randomly selected venues, dates, and times determined to be popular among the target population in interviews with key informants such as bartenders and party promoters. Trained study personnel visited the randomly-selected sites and invited all individuals whose self-reported age was between 18 and 26, who did not appear intoxicated, and were willing and able to provide oral informed consent to complete a paper-and-pencil questionnaire. Participants received a \$5 incentive to complete the questionnaire. The study protocol was approved by the Committee for Human Research (the IRB) at the University of California San Francisco.

Inclusion criteria

Participant self-reported ages were validated using date of birth, and only those between 18 and 26 by birthdate were used in analyses. Only participants currently residing in New Mexico were included in the study; participants who reported currently attending college outside of New Mexico were excluded so that the population would be more representative of that of Albuquerque, New Mexico. A total of 2530 participants completed surveys: 1 did not provide a date of birth, 56 were outside of the age range based on date of birth, 182 lived or went to college outside of Albuquerque/New Mexico. Data from the remaining 2291 participants were used in analyses. Overall response rate was 73%.

Measures

Tobacco product and alcohol use patterns—Participants were asked on how many of the previous 30 days they had used each of the following products: cigarettes, snus, dip, Black & Mild or cigarillos, hookah, and e-cigarettes. Those who reported using a product on at least one day during the past 30 days were defined as current users of that product. Multiple tobacco product users (poly-users) were defined as individuals who used cigarettes with at least one other tobacco product, while those who used cigarettes and no other

tobacco products during the past 30 days were defined as “cigarette-only users”. Participants who used at least one other tobacco product in the past 30 days, but not cigarettes, were defined as non-cigarette tobacco product users. The remaining participants, who endorsed no cigarette or other tobacco product use in the past 30 days, were classified as nonusers.

Current smokers (i.e. those who reported any cigarette use in the past 30 days) were divided into nondaily (smoked on 1–29 of the past 30 days) and daily smokers (smoked on 30 of the past 30 days) (Savoy et al., 2014).

Past year quit attempts were assessed by asking participants whether they had stopped smoking tobacco for one day or longer in the past 12 months because they were trying to quit.

Participants who reported binge drinking (drank at least 5 alcoholic shots or drinks within a few hours) on at least one of the past 30 days were classified as current binge drinkers.

Tobacco-related attitudes—Receptivity to tobacco advertising was assessed by asking, as in prior studies (Gilpin et al., 2007), “Do you think you would use a tobacco promotional item? (ex. wear a t-shirt, use a mug, etc.)” with “yes” being receptive to tobacco advertising.

Support for action against the tobacco industry was assessed with agreement with three statements used in prior studies (Ling et al., 2007, 2009) (“I want to be involved with efforts to get rid of cigarette smoking”, “I would like to see the cigarette companies go out of business”, and “Taking a stand against smoking is important to me”), measured on a 5-point Likert scale from “not at all” to “a great deal”, similar to prior research. Consistent with the prior research, the mean score of the three items was calculated and dichotomized, with a score in the top quartile coded as “strong anti-industry attitude”.

Strongly believing that secondhand smoke (SHS) exposure is dangerous was assessed by two questions (“I believe that second-hand tobacco smoke is dangerous to a non-smoker’s health” and “Inhaling smoke from someone else’s cigarettes harms the health of babies and children”), measured on a 5-point Likert scale from “not at all” to “a great deal”. As in prior studies (Kalkhoran et al., 2013; Ling et al., 2009), those who answered with a mean score of 5 were classified as having strong beliefs that SHS is dangerous.

Demographics—Demographics included age (calculated from date of birth and used as a continuous variable in analyses), self-identified race/ethnicity (Caucasian, Hispanic, and Other [African-American, Asian, Pacific Islander/Hawaiian, American Indian/Native Alaskan]), sex (male or female), sexual orientation (straight or LGB [those self-reporting being lesbian, gay, bisexual, or other]), level of education (“high school only or college dropout”, “in college”, and “college graduate”).

Statistical analysis

Imputation of planned missing data—To decrease participant response burden, which is particularly important in the bar/nightclub setting where this study was conducted, the questionnaire used a 3-form planned missing data design (Graham et al., 2006). Specifically,

participants completed one of three randomly selected versions of the questionnaire; each version contained a core set of questions that appear on all forms, combined with other questions that appear on only 2 of the 3 forms, with the plan to subsequently impute the missing values. This made use of a longer questionnaire feasible in this setting. By design, approximately one-third of participants were not asked about use of a tobacco promotional item, believing that SHS is dangerous, or use of hookah, snus, cigarillo, or e-cigarettes in 2012–2013 with the plan to impute missing values. Under the missing completely at random (MCAR) assumption, multiple imputation via chained equations (MICE) was used to generate 50 imputed data sets that were used in analyses (White et al., 2011).

Given that the vast majority of missing data in the study are MCAR, the parameter estimates remain unbiased when analyzed following use of multiple imputation (Graham et al., 1996). For any remaining item-by-item missingness within each planned missing data strata, the amount of item missingness was very low (<6% in all cases), so any resulting bias from such missing data was assumed to be very low.

Analyses of multiple tobacco product use—Descriptive analyses were performed and differences in product use between study years were evaluated using univariate logistic regression. Multivariate logistic regression models examined associations of demographic factors, binge drinking, and tobacco-related behaviors and attitudes with (1) poly-use compared to cigarette-only use and (2) other tobacco product use among nonsmokers compared to no tobacco product use among nonsmokers. Analyses were performed with STATA version 13 (StataCorp, College Station, TX, USA) in 2014–2015.

Results

Smoking and poly-use prevalence

Between 2011 and 2013, 2291 surveys were collected (N = 1142 in 2011–2012, N = 1149 in 2012–2013); all surveys took place during the intervention to reduce cigarette smoking. The percentage of study participants reporting cigarette smoking decreased from 43% to 37% ($p < 0.01$), but other tobacco product use was unchanged: 38% in 2011–2012 and 39% in 2012–2013 ($p = 0.58$). Among current smokers, poly-use was 67% in 2011–2012 and 65% in 2012–2013 ($p = 0.63$); there was no significant difference in poly-use between daily and nondaily smokers. The percentage of nonsmokers reporting use of other tobacco products was 16% in 2011–2012 and 24% in 2012–2013 ($p < 0.01$).

Among all current smokers, current use of e-cigarettes increased from 28% in 2011–2012 to 46% in 2012–2013 ($p < 0.001$), while use of the other tobacco products decreased (Fig. 1). Cigarette smokers most frequently reported using e-cigarettes (46%) and hookah (44%), followed by cigarillos (24%), dip (15%), and snus (14%) in 2013.

Correlates of other tobacco product use

Compared with cigarette-only users, more poly-users were male, younger, had engaged in binge drinking in the past 30 days, and were receptive to tobacco advertising; fewer strongly believed that SHS is harmful. Other characteristics of poly-users, cigarette-only users, non-cigarette product users, and nonusers of tobacco products are shown in Table 1.

Thirty-one percent of respondents currently using one or more other tobacco products were not current smokers. Among these nonsmokers, the most common product used was hookah, followed by e-cigarettes, cigarillo, dip, and snus (Table 1).

In multivariate logistic regression models, controlling for age, sex, race/ethnicity, education, and sexual orientation, significant correlates of using other tobacco products, both among smokers and nonsmokers, were male sex and past-30 day binge drinking (Table 2). Among non-smokers, there were increased odds of using other tobacco products in 2012–2013 compared to 2011–2012. Strongly believing that SHS is harmful was associated with decreased odds of using other tobacco products in smokers (Table 2).

Among all study participants, the two other tobacco products with the highest prevalence of current use were hookah (27%) and e-cigarettes (18%). Further analysis of current e-cigarette users and current hookah users was performed to determine whether attitudes about SHS and the tobacco industry were associated with use of these products. Controlling for age, sex, race/ethnicity, sexual orientation, level of education, and smoking status, strongly believing that SHS is harmful was associated with decreased odds of both current e-cigarette use compared to no past 30-day use of e-cigarettes (OR 0.66, 95% CI [0.45–0.95]) and current hookah use compared to no past-30 day use of hookah (0.58, [0.43–0.78]). Nonsmokers had decreased odds of both current e-cigarette use (0.08, [0.05–0.12]) and current hookah use (0.22, [0.15–0.31]), and there were decreased odds of current hookah use among those of other race/ethnicity (0.46, [0.28–0.73]). Male sex was associated with higher odds of both current e-cigarette use (1.56, [1.16–2.10]) and current hookah use (1.53, [1.16–2.03]). There were higher odds of e-cigarette use (2.87, [2.17–3.79]), but not hookah use, in 2012–2013 compared to 2011–2012. There was no significant association between odds of e-cigarette or hookah use and having a strong anti-tobacco industry attitude (data not shown in tables).

Discussion

Poly-tobacco use among young adult bar patrons in Albuquerque, New Mexico was common from 2011 to 2013, with approximately 65% of smokers endorsing poly-use. High school students who smoke have similarly high rates of poly-use (Arrazola et al., 2014) and lifetime poly-use among young adult cigarette smokers is estimated at over 70% (Bombard et al., 2009). Data from the National Survey on Drug Use and Health (NSDUH) from 2012 found that 38% of young adults aged 18–25 used at least one tobacco product and 10.1% used more than one product (U.S. Department of Health and Human Services, 2014). The high percentage of poly-users in this study suggests that young adult bar patrons may be at higher risk of using multiple products.

The high rates of poly-use suggest that efforts to educate young adults to decrease cigarette use should address other tobacco products, and that interventions targeting young adults should capture the bar-going population. Comprehensive tobacco-free policies may decrease use of other tobacco products to circumvent smoke-free policies.

These data were collected as part of an independent evaluation of an intervention to reduce cigarette smoking among young adult bar patrons. The intervention's messaging focused almost entirely on cigarettes. As prevalence of cigarette smoking decreased during the study, e-cigarette use increased significantly and poly-use remained high, and the anti-smoking intervention may have influenced these patterns of use, which might differ from general population trends. Given the cross-sectional nature of the data, it is not clear whether individuals were switching from use of cigarettes to e-cigarettes and other products, or whether use patterns were independent of each other. Similar rapid increases in e-cigarette use have been seen in U.S. middle and high school students, among whom e-cigarette use doubled between 2011 and 2012 (Centers for Disease Control and Prevention, 2013).

Over 40% of current smokers users reported current e-cigarette use in 2012–2013. These rates are much higher than in typical population-based studies (King et al., 2012, 2013). While long-term studies on the efficacy of e-cigarettes for smoking cessation and on their health effects are lacking, many young adults perceive e-cigarettes as a potential cessation aid and less harmful than conventional cigarettes (Choi and Forster, 2013). This notion is also frequently put forward in e-cigarette advertising (Grana and Ling, 2014), and young adults increasingly report exposure to e-cigarette television advertisements (Duke et al., 2014). While it cannot be determined whether poly-users started with use of e-cigarettes or conventional cigarettes in this cross-sectional study, at least some adolescents and young adults initiate e-cigarette use prior to ever trying conventional cigarettes (Centers for Disease Control and Prevention, 2013; Goniewicz and Zielinska-Danch, 2012), and many nonsmokers in this study reported e-cigarette use. Furthermore, ever use of e-cigarettes has been associated with openness to cigarette smoking in young adult never smokers (Coleman et al., 2015). A study of college students found that those who tried cigarettes or smokeless tobacco first were more likely to be poly-users (Meier et al., 2015). If e-cigarette use proceeds to nicotine dependence and subsequent experimentation with cigarettes, a pattern of dual- or poly-use may emerge and continue into adulthood. The same can be said if initiation of other tobacco product use by current cigarette smokers leads to harm escalation through dual-use, such as has been seen with smokeless tobacco (Klesges et al., 2010). Young adults should be educated and counseled about the risk of nicotine addiction and the limited but emerging scientific data on health effects and regulation of e-cigarettes.

While hookah use among poly-users decreased, the percentage of smokers reporting hookah use remained over 40%. High rates of hookah use have been seen in college students (Heinz et al., 2013; Sutfin et al., 2011), many of whom perceive it as less harmful than cigarettes (Heinz et al., 2013; Smith et al., 2007). Current hookah use has been associated with multiple tobacco product use in adolescents, and hookah bar attendance has been associated with current hookah use (Sterling and Mermelstein, 2011). Approximately 15% of nonsmokers in this study reported current hookah use in the final year of study (3–10% reported use of each of the other products). Questionnaires limited to cigarette use will thus underestimate tobacco use and nicotine addiction. Similarly, tobacco cessation efforts aimed at young adults need to address other tobacco products.

Strong anti-tobacco industry attitudes are negatively associated with smoking (Ling et al., 2007, 2009), but the relationship with other tobacco products is complex. Unlike a previous

study showing a positive association between anti-tobacco industry attitudes and hookah use in college students (Lee et al., 2014a), the odds of current hookah use were not increased in those with strong anti-tobacco industry attitudes in this study. This may be due to differences in the study population, an effect of the intervention messaging, or differences in whether hookah is perceived as a tobacco industry product. Strong anti-industry attitudes were not significantly associated with e-cigarette use in this population, suggesting that participants may view e-cigarettes as different from tobacco products, or their manufacturers as separate from the tobacco industry (Grana et al., 2014). Education about the association between hookah or e-cigarettes and the tobacco industry may be needed for effective denormalization strategies that discourage smoking (Farrelly et al., 2002; Malone et al., 2012) to be relevant to other tobacco products.

Poly-use has been associated with male sex and younger age in adults (Bombard et al., 2007; Lee et al., 2014b) and college students (Butler et al., 2015). Poly-use was also associated with binge drinking, and smoking is associated with frequent binge drinking (Jiang and Ling, 2013). Bars are important venues for interventions addressing both smoking and other tobacco products.

Public health officials, policymakers, and clinicians should address young adult tobacco use, including other tobacco products, since many individuals use multiple products and may substitute one for the other. Nondaily smokers have comparable rates of poly-use to daily smokers and should not be overlooked. Poly-use may increase nicotine dependence and may also affect factors such as nicotine replacement therapy dosing in smokers interested in cessation.

Limitations include data collection using cross-sectional surveys, so product use was not evaluated longitudinally in the same participants. This data is from one U.S. city, and the ability to generalize to other locations or age groups is unknown. These data were collected as part of an evaluation of an intervention to reduce cigarette use, which may have affected cigarette and other tobacco product use rates. Current use of tobacco products included any past 30-day use and therefore included a range of use patterns. However, the measure of current use in this study is more conservative than “lifetime” or “ever use” which is reported elsewhere (King et al., 2013; Pearson et al., 2012; Sutfin et al., 2013) which are even more likely to include experimentation. The exclusion of highly intoxicated individuals from this study may have resulted in lower reported rates of tobacco use. Trends observed could be due in part to population growth or shifting demographics, though collection of data within a relatively narrow timeframe should limit the impact of such secular trends. While missing data has the potential to introduce bias into the study results, the fact that the vast majority of missing data in this study was missing completely at random makes this source of bias unlikely. Finally, since data were collected via self-report, the results are subject to reporting bias.

Poly-tobacco product use is frequent among young adult bar patrons in Albuquerque, New Mexico, where a high percentage of cigarette smokers reported currently using at least one other tobacco product. Use of e-cigarettes increased significantly, exceeding use of hookah, snus, dip, and cigarillos among poly-users in 2013. Interventions and policies addressing

tobacco use in bars and other venues frequented by high-risk populations should address use of other tobacco products in addition to cigarettes.

Acknowledgments

This work was supported by NIH NRSA T32HP19025 (Kalkhoran), and the National Cancer Institute (U01-154240). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. The study sponsors 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 thank the New Mexico Department of Health Tobacco Use Prevention and Control Program for funding young adult tobacco intervention efforts related to this study.

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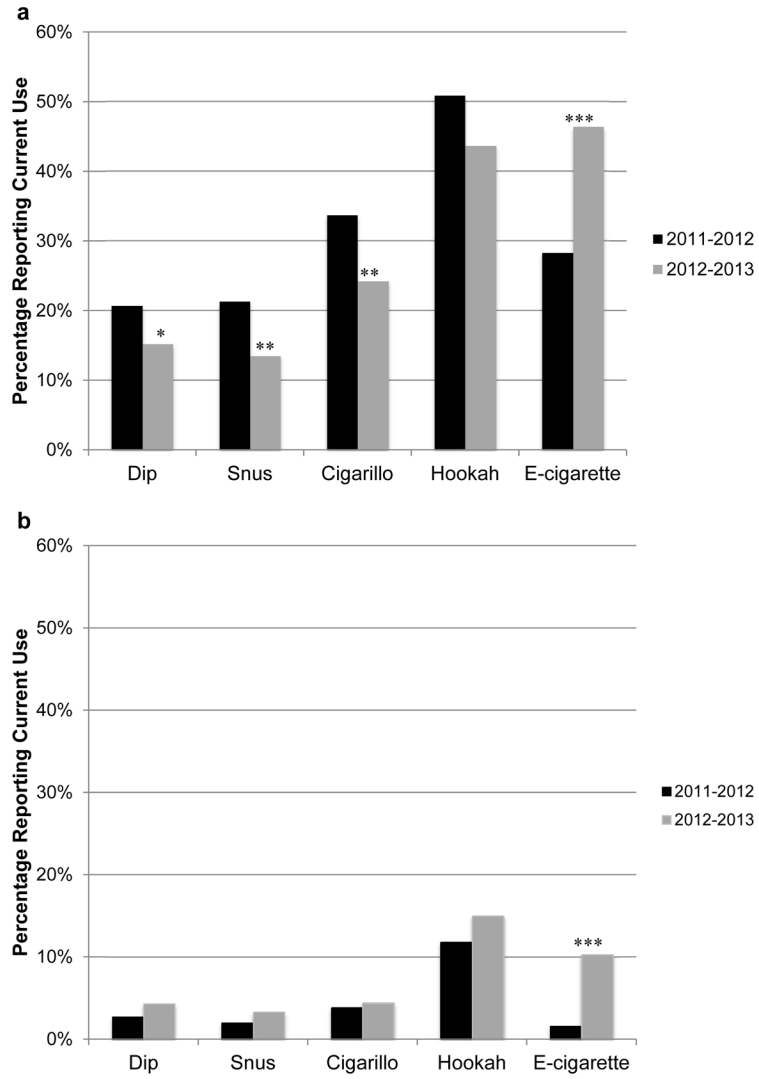


Fig. 1. Percentage of (a) current smokers and (b) current nonsmokers reporting current use (past 30-day use) of each product. Data collected from young adult bar patrons in Al-buquerque, New Mexico from 2011–2013. For the difference in product use, * $p < 0.05$, ** $p < 0.01$, *** $p < .001$.

Table 1Characteristics of study population (N = 2291)^a by current product use patterns^{b,c}.

	Poly-users, n% (N = 484)	Cigarette-only users, n% (N = 237)	Non-cigarette tobacco users, n% (N = 206)	Nonusers of tobacco, n% (N = 833)
Age				
18–20	125 (25.8)	30 (12.7)	54 (26.2)	146 (17.5)
21–23	231 (47.7)	114 (48.1)	95 (46.1)	412 (49.5)
24–26	128 (26.5)	93 (39.2)	57 (27.7)	275 (33.0)
Education				
High school only/college dropout	137 (28.3)	69 (29.1)	51 (24.8)	143 (17.2)
In college	272 (56.2)	120 (50.6)	121 (58.7)	489 (58.7)
College graduate	74 (15.3)	47 (19.8)	34 (16.5)	198 (23.8)
Missing	1 (0.2)	1 (0.4)	–	3 (0.4)
Race/ethnicity				
Caucasian	139 (28.7)	57 (24.1)	60 (29.1)	178 (21.4)
Hispanic	282 (58.3)	139 (58.7)	118 (57.3)	524 (62.9)
Other	62 (12.8)	41 (17.3)	28 (13.6)	129 (15.5)
Missing	1 (0.2)	–	–	2 (0.2)
Male sex	305 (63.0)	105 (44.3)	125 (60.7)	307 (36.9)
Missing	1 (0.2)	1 (0.4)	–	3 (0.4)
LGB sexual orientation	105 (21.7)	59 (24.9)	35 (17.0)	106 (12.7)
Missing	1 (0.2)	–	–	3 (0.4)
Current daily smoker ^b	132 (27.3)	64 (27.0)	–	–
Past year quit attempt	205 (42.4)	100 (42.2)	12 (5.8)	28 (3.4)
Missing	7 (1.5)	3 (1.3)	5 (2.4)	11 (1.3)
Strong anti-tobacco industry attitude ^d	59 (12.2)	29 (12.2)	44 (21.4)	286 (34.3)
Missing	15 (3.1)	2 (0.8)	1 (0.5)	17 (2.0)
Strongly believe that SHS is harmful ^d	87 (18.0)	72 (30.4)	53 (25.7)	369 (44.3)
Missing	18 (3.7)	1 (0.4)	12 (5.8)	5 (0.6)
Binge drinking at least once in the past 30 days	391 (80.8)	165 (69.6)	145 (70.4)	410 (49.2)
Missing	15 (3.1)	1 (0.4)	2 (1.0)	9 (1.1)
Receptive to tobacco advertising	159 (32.9)	60 (25.3)	35 (17.0)	104 (12.5)
Missing	69 (14.3)	42 (17.7)	45 (21.8)	175 (21.0)
Current OTP use ^{b,e}				
Hookah ^d	340 (70.3)	–	135 (65.5)	–
E-cigarette ^d	239 (49.4)	–	51 (24.8)	–
Cigarillo ^d	208 (43.0)	–	41 (19.9)	–
Dip	145 (30.0)	–	45 (21.8)	–
Snus ^d	124 (25.6)	–	26 (12.6)	–

Data collected from young adult bar patrons in Albuquerque, New Mexico from 2011–2013.

OTP, other tobacco product; SHS, secondhand smoke.

^aThis table describes the study population prior to multiple imputation; all analysis were done on the data after imputation.

^bCurrent use defined as any product use within the past 30 days.

^cPoly-users are individuals who used cigarettes with at least one other tobacco product in the past 30 days; cigarette-only users used cigarettes and no other tobacco products during the past 30 days; non-cigarette tobacco users used at least one other tobacco product in the past 30 days, but not cigarettes; nonusers of tobacco endorsed no cigarette or other tobacco product use in the past 30 days.

^dA 3-form planned missing data design was used for these questions on the 2012–2013 questionnaire.

^ePrevalence of missing data for OTP use among the study population was 21.6% for hookah, 22.0% for e-cigarette, 22.2% for cigarillo, 7.8% for dip, and 23.0% for snus, due to planned missing design as described in methods.

Table 2Correlates of being a current user of other tobacco products (N = 2291)^{a,b}.

	Poly-user (vs cigarette-only user) aOR (95% CI)	Non-cigarette tobacco user (vs nonuser of tobacco) aOR (95% CI)
Younger age	1.01 (0.97–1.05)	1.00 (0.96–1.03)
Education		
High school only/college dropout	1.14 (0.72–1.80)	1.27 (0.81–2.00)
In college	1.31 (0.84–2.03)	1.34 (0.89–2.01)
College graduate	Ref	Ref
Race/ethnicity		
Caucasian	Ref	Ref
Hispanic	0.80 (0.56–1.15)	0.86 (0.63–1.18)
Other	0.60 (0.36–0.99)*	0.77 (0.49–1.21)
Male sex	1.89 (1.37–2.60)***	1.56 (1.16–2.10)**
LGB sexual orientation	1.14 (0.76–1.71)	1.06 (0.73–1.55)
Years 2012–2013	0.88 (0.63–1.22)	1.62 (1.20–2.17)**
Nondaily smoker	0.99 (0.68–1.42)	–
Strong anti-tobacco industry attitude	1.32 (0.80–2.16)	1.15 (0.78–1.67)
Past year quit attempt	1.13 (0.82–1.56)	–
Binge drinking at least once in the past 30 days	1.97 (1.35–2.90)**	1.19 (0.85–1.66)
Receptive to tobacco advertising	1.20 (0.84–1.73)	0.70 (0.48–1.03)
Strongly believes that SHS is harmful	0.60 (0.40–0.89)*	0.77 (0.53–1.13)

Boldface indicates statistical significance (*p < 0.05, **p < 0.01, ***p < .001).

Data collected from young adult bar patrons in Albuquerque, New Mexico from 2011–2013.

^aCurrent use defined as any product use within the past 30 days.

^bPoly-users are individuals who used cigarettes with at least one other tobacco product in the past 30 days; cigarette-only users used cigarettes and no other tobacco products during the past 30 days; non-cigarette product users used at least one other tobacco product in the past 30 days, but not cigarettes; nonusers of tobacco endorsed no cigarette or other tobacco product use in the past 30 days.