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Trends in Tobacco Use among Young Adults Presenting for Military Service in the United States Air Force Between 2013-2018

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Abstract

Background.—The US military has historically higher tobacco use compared to civilians, and tobacco use increases following enlistment. While the military is vulnerable to tobacco use, current surveillance of tobacco among this high-risk population is lacking.

Methods.—Recently enlisted Airmen (N= 43,597) between 2013 and 2018 were asked about tobacco use prior to enlistment across nine products: (1) cigarettes/ roll your own tobacco, (2) smokeless tobacco/ snus, (3) cigars, cigarillos/little cigars, (4) hookah/ pipe, and (5) e-cigarettes.

Results.—Hookah/pipe use, cigarettes/roll your own, smokeless tobacco/snus, and cigars/little cigars/cigarillos use decreased significantly between 2013 to 2018, which the prevalence of e-cigarette use increased (p 's<0.0001). The relationships between the time and each tobacco product(s) use outcomes were influenced differently by different age, race, education and marital status.

Conclusion.—While e-cigarette use has increased in the civilian sector, the use of e-cigarettes among new recruits increased much more drastically (i.e., prevalence 15.3% in 2018). Further, demographic characteristics influenced tobacco trends; specifically, recruits of racial minorities increased their use of e-cigarettes over the past five years faster than Whites. Of concern is what impact this dramatic increase in e-cigarette use will have on overall health and later initiation of combustible tobacco products in the military.

Keywords

military; tobacco prevalence; non-cigarette tobacco use; young adults

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Introduction

The prevalence of current cigarette use in the U.S. has declined to 13.7%, the lowest recorded use since 1965 (U.S. Department of Health and Human Services, 2014; Creamer et al., 2019). Conversely, the prevalence of current e-cigarettes has dramatically increased to 8.1 million users or 3.2% of U.S. adults (Creamer et al., 2019; Wang et al., 2018). Notably, for young adults (aged 18 to 24 years), the prevalence of current e-cigarettes is higher than other adult age groups (Creamer et al., 2019; U.S. Department of Health and Human Services, 2016), and increased from 5.2% in 2017 to 7.6% in 2018 (Creamer et al., 2019; Wang et al., 2018). The rising popularity of e-cigarettes among young adults is concerning because using these products is associated with increased risk for later initiation of other tobacco products (Bold et al., 2018; Hammond et al., 2017; Soneji, 2018). Further, using e-cigarettes has been associated with lung injury, which can result in hospitalization or death (Center for Disease Control, 2020).

Historically, U.S. military personnel report current tobacco use across products up to twice as high as the general population (Agaku et al., 2014; King et al., 2015; Little et al., 2015; Little et al., 2016). A long history of exposure to targeted tobacco advertising and promotions on military bases has likely contributed to tobacco disparities in this population (Smith & Malone, 2009a; Smith & Malone, 2009b). In fact, the enlistment year is a particularly vulnerable time for tobacco use, with 7.9% to 12.4% of never tobacco users initiating tobacco products during military training (Little et al., 2019a; Little et al., 2019b). Active duty personnel in the first year of service, a population with about 50% under the age of 21, have reported an increasingly higher prevalence of e-cigarette initiation over time (consistent with rising popularity of these products in civilian young adults) (Creamer et al., 2019; Department of Health and Human Services, 2016; Little et al., 2016; Meadows et al., 2018). For example, between 2013 and 2014, a study of young adults presenting for military service found that the prevalence of most tobacco products was stable except for e-cigarettes which significantly increased from 3% to 10.5% (Little et al., 2016). A 2015 report among U.S. military personnel found that 12.4% were using e-cigarettes (Meadows et al., 2018). However, these estimates were based on a small sample of respondents (8.6% response rate) and therefore might not represent the true prevalence of e-cigarette use in this population (Meadows et al., 2018). Further, less is known about how demographic characteristics of military personnel influence tobacco use trends. Thus, despite young adults presenting for military service being at high-risk for tobacco initiation, particularly for e-cigarettes, the literature lacks a comprehensive understanding of tobacco use in this population in recent years.

The aim of the current study was to extend the previous study by Little and colleagues (2016) by evaluating trends of tobacco use across products in a large sample of U.S. Air Force trainees from 2013 to 2018. Given that 250,000 personnel leave U.S. military annually (Office of the Chairman of the Joint Chiefs of Staff, 2014), investigating tobacco use in this population has important implications for tobacco cessation and prevention efforts in both the military and civilian sector. Further, evaluating tobacco use in a population of Air Force trainees provides a unique opportunity to investigate a sample of non-college young adults, with a large representation of racial and ethnic minorities. Therefore, the current study

secondarily aimed to explore how demographic characteristics (age, gender, race, marital status, education) influenced tobacco use trends across different products.

Methods

Participants & procedure

Participants were Air Force trainees who were recruited during the first week of Technical Training from one of five military bases in San Antonio, TX (Lackland AFB and Fort Sam Houston), Biloxi, MS (Keesler AFB), San Angelo, TX (Goodfellow AFB) and Wichita Falls, TX (Sheppard AFB) between March 2013 and December 2018. Among the 54,212 trainees approached, 43,597 (80.4%) consented to participate. Airmen were informed that the current study aimed to assess tobacco use and no uniformed Air Force leaders were allowed in the room to ensure voluntary participation. The study was approved by the Institutional Review Board at the 59th Medical Wing in San Antonio, Texas.

Measures

Participants provided information on *age*, *gender* (female, male), *marital status* (single/separated/divorced, married/living with partner), *ethnicity* (non-Hispanic, Hispanic), *race* (White, Black or African American, Asian, more than one race, other), *education* (high school graduate/GED, some college, Bachelor's degree or more). The frequency of tobacco use assessed: (1) cigarettes and roll your own tobacco, (2) smokeless tobacco and snus, (3) cigars, cigarillos and little cigars, (4) hookah and pipe, and (5) e-cigarettes. We treat e-cigarettes as "tobacco products" following the FDA's definition (Food and Drug Administration, 2016). Because Airmen were surveyed during a period of forced abstinence (Airmen are not allowed to use tobacco during their initial training phases), Airmen were asked to report their tobacco use prior to enlistment. For each tobacco product, Airmen were asked, "Prior to basic military training (BMT), please indicate how often you used the following products." Response categories ranged from "Never," "Quit prior to BMT," "Less than monthly," "Monthly," "Weekly," to "Daily." Current use of a tobacco product was defined as at least monthly use of the product, as this is a common definition of current tobacco use in young adults (Little et al., 2016; Little et al., 2015).

Statistical analysis

Descriptive statistics of demographics were computed overall and by each tobacco product. Differences in demographic variables by each tobacco product were estimated using Chi-Square/Fischer Exact tests for categorical variables and Wilcoxon rank sum tests for continuous variables. To account for potential correlations between Airmen within each squadrons, a generalized linear mixed-effects model was used to assess a relationship between the time (in years) and each tobacco product(s) use outcomes. The model was also adjusted for the stratification where strata were different training bases and Airmen's demographic information such as age (21 and older versus under 21), gender, race (white versus non-white), education (high school graduate or GED versus some college or higher), and marital status (single or separated or divorced versus married or living as married). To assess if the time was linearly related to the log odds of each tobacco product(s) use outcomes, a linear spline function was used to allow additional nonlinear terms in the time.

The likelihood ratio tests indicated that there was no sufficient evidence to support that the linearity assumption of the time related to the log odds of each tobacco product(s) use was violated. We further examined if the relationship between the time and each tobacco product(s) use outcomes was influenced differently by each demographic variable. For ease of interpretation, we used the mixed-effects model to study the interaction effects in each tobacco product(s) use outcomes between the time and one demographic variable (i.e. age <21 vs. ≥21) at a time. The model was also adjusted for the stratification and the other demographic variables. An effect size (adjusted odds ratio) was estimated to quantify the strength of the relationship. To control type I error rate due to multiple outcomes testing, Bonferroni multiple outcomes adjustment was used by simply multiplying p-value by number of tobacco products. The significance level was specified at 0.05. All analyses were performed in SASv9.4 (Cary, NC, USA).

Results

Demographics by tobacco product use are presented in Table 1. Females, non-Hispanics, White Airmen, less educated and single Airmen were all more likely to report regular use of tobacco (p 's < 0.05). All tobacco products use seemed to decline in prevalence as time increased (2013–2018), with the exception of e-cigarettes which almost tripled from 5.5% in 2013 to 15.3% in 2018 (see Figure 1). The largest decrease occurred with hookah/pipe (8.3% decline from 10.8% in 2013 to 2.6% in 2018).

Relationships between time and each tobacco product(s) use.

From the generalized linear mixed-effects models after adjusting for demographics, there were significant relationships between time and each tobacco product use outcome (Bonferroni corrected $p < 0.0001$, respectively, see Table 2). Specifically, time was negatively related to the log odds of hookah/pipe use ($\beta = -0.31$, $p < 0.0001$, effect size [ES]=0.74), to the log odds of cigarettes/roll your own use ($\beta = -0.13$, $p < 0.0001$, ES=.87), to the log odds of smokeless tobacco/snus use ($\beta = -0.13$, $p < 0.0001$, ES=0.89), and to the log odds of cigars/little cigars/cigarillos use ($\beta = -0.11$, $p < 0.0001$, ES=0.90), indicating a significant decrease in use of those products as time increased. Conversely, time was positively related to the log odds of e-cigarettes use ($\beta = 0.23$, $p < 0.0001$, ES=1.26), indicating a significant increase in e-cigarette use as time increased.

Relationships between time and each tobacco product(s) use by demographic variables.

There were significant interaction effects between time and age (p 's < 0.05), such that as time increased, Airmen ages 21 years or older decreased their use faster than Airmen younger than 21 for cigarettes/roll your own, smokeless tobacco/snus, hookah/pipe, and cigars/little cigars/cigarillos (see Table 3). Conversely, as time increased, Airmen ages 21 years or older increased their use of e-cigarettes faster than Airmen under 21 years of age.

Between time and race (White vs. racial minorities) there were significant interactions for hookah/pipe, cigars/little cigars/cigarillos and e-cigarettes use (p 's < 0.05, respectively). Such that as time increased, racial minorities decreased their use of hookah/pipe and cigars/little cigars/cigarillos faster than White Airmen, but increased their use of e-cigarettes faster than

White Airmen. Between time and education there were significant interaction effects for cigarettes/roll your own, hookah/pipe, and cigars/little cigars/cigarillos use (p 's<0.05). As time increased, Airmen who had a high school degree/GED decreased their use of cigarettes/roll your own, hookah/pipe, and cigars/little cigars/cigarillos use slower than Airmen who had at least some college education. Finally, there was a significant interaction effect between time and marital status in e-cigarettes use (p <0.0001), such that as time increased, married Airmen or Airmen living as married increased their use of e-cigarettes faster than single, separated or divorced Airmen. There were no significant interaction effects between time and gender among any of tobacco products (p 's>0.05).

Discussion

While the prevalence of most tobacco products among new recruits in the Air Force over the past five years have decreased, the prevalence of e-cigarettes has almost tripled. These findings mirror the trends observed in the civilian sector, however use of e-cigarettes observed among new trainees (15.3% in 2018) is substantially higher than the 3.2% of U.S. adults that report current e-cigarette use and the 7.6% of young adults (Creamer et al., 2019). Despite the declining prevalence of other products among recruits, this sample still used the majority of tobacco products at much higher levels in 2018 compared to the civilian population, with the exception of cigarettes that were 7.8% lower than U.S. adults (5.9% versus 13.7%) (Creamer et al., 2019). However, when compared specifically to civilian young adults, current prevalence in our sample, albeit lower, is more comparable (5.9% compared to 7.8%) (Creamer et al., 2019). When comparing other products, in 2018, 5.8% of our sample used cigars/cigarillos (versus 4.1% of U.S. young adults), 4.8% used smokeless tobacco/snus (versus 2.4% of U.S. adults), and 2.6% used hookah (versus 1.0% of U.S. adults) (Creamer et al., 2019). Given the low prevalence of smokeless tobacco/snus and pipe/hookah among U.S. young adults in the civilian sector, the prevalence of use of these products are unavailable specifically for this subgroup of the U.S. population in order to make more direct comparisons (Creamer et al., 2019). Still, these tobacco disparities are less surprising given that tobacco use has historically been higher among the U.S. military compared to civilians (Agaku et al., 2014; King et al., 2015; Little et al., 2016; Little et al., 2015). Yet, it is surprising that current cigarette use is lower than civilian young adults and warrants further study. Perhaps, with the substantial increase in popularity of e-cigarettes among young adult military recruits, the prevalence of cigarettes is decreasing faster in this population than in civilians.

Overall, the notable increase in e-cigarette use among new recruits entering the Air Force overtime is most likely a result of the emergence of newer products, including more discrete "pod-mod" devices (e.g., JUUL) during this period (Huang et al., 2019). In fact, since 2017, JUUL now leads the market for e-cigarettes sales (Huang et al., 2019), which underscores the need for continued and detailed prevalence estimates across all product types. Although e-cigarettes offer a less harmful alternative product compared to combustible tobacco, the drastic increase in prevalence of this product is not without concern. For youth, there is extensive literature indicating that the use of e-cigarettes is associated with later initiation of combustible tobacco products (Bold et al., 2018; Hammond et al., 2017; Soneji, 2018). In fact, in a previous study among Air Force trainees, e-cigarette use was associated with

an increased use of all other products, as well as dual and poly tobacco use (Little et al., 2015). Further, e-cigarettes still have negative cardiovascular effects including elevating heart rate and diastolic blood pressure (Yan & D’Ruiz, 2015) and these products deliver nicotine at comparable, or even higher, levels than cigarettes (Marsot & Simon, 2016; Rapp et al., 2020). Therefore, these products have the potential to introduce nicotine addiction to otherwise tobacco naïve young adults. Thus, the use of this product has negative health and monetary implications for the U.S. military, which already spends \$2.1 billion annually on tobacco-related morbidity (Dall et al., 2007).

Previously unexplored, there were several interactions between time and demographic characteristics. Interestingly, over the five years of the study the use of most tobacco products decreased at a faster rate among older recruits (21 years and older) entering the Air Force overtime compared to those 20 years of age and younger, with the exception of e-cigarettes which increased at a faster rate. The same pattern occurred for racial minorities entering the Air Force, for which the use of hookah/pipe and cigars/little cigars/cigarillos decreased at a faster rate compared to Whites. Yet, recruits of racial minority backgrounds increased their use of e-cigarettes faster than Whites. These findings highlight the potential for new tobacco products, like e-cigarettes, to exacerbate historic disparities for individuals of military status and racial minority backgrounds. It will be important for future research on military tobacco use to examine products separately and longitudinally among specific subgroups, to better understand tobacco disparities in this population, and potential causes. Future research should examine use in a large longitudinal cohort study to determine if recruits are substituting their tobacco use for reduced harm products, or whether current users of burned tobacco products are quitting while non-users are initiating e-cigarettes.

Another troubling finding was that over time, the population of Airmen entering the Air Force with a high school degree/GED had a slower decrease of cigarettes/roll your own, hookah/pipe, and cigars/little cigars/cigarillos compared to Airmen who had at least some college education. Previous studies have documented tobacco use disparities related to education and found that individuals with a high school education smoke cigarettes on average twice as long as those with at least a bachelor’s degree (Siahpush et al., 2009). These results highlight the need for continued tobacco prevention and cessation education for high school students. Finally, overtime, married recruits entering the Air Force reported a faster increase in e-cigarette use, but not a faster decrease in other tobacco products. This finding is unexpected, especially given that in the general U.S. adult population, married individuals are less likely to use e-cigarettes (2.6%) compared to those who are single (5.5%) (Creamer et al., 2019). Although motivation for e-cigarette use in the current sample is unknown, a recent study found no difference in marital status in the likelihood of using e-cigarettes for tobacco cessation (Chido-Amajuoyi et al., 2020) Thus, this result warrants further investigation to understand the nature behind this increasing use. Another surprising finding was seen between gender and tobacco product use. Although gender was not associated with tobacco product use over time, female recruits had a significantly higher prevalence of using any tobacco product (24.3%) than males (23.2%), and specifically using e-cigarettes (12.5% compared to 7.7%, respectively). This gender difference is surprising, given that tobacco use (across all products) has been found to be higher in males than females in both military (Meadows et al., 2018) and civilian adults (Creamer et al., 2019).

Current findings suggest that young adult women presenting for military service in recent years have a higher prevalence of tobacco use, particularly of e-cigarettes, than has been previously found, and warrants further study.

Given this drastic prevalence increase of e-cigarettes, targeted tobacco prevention and cessation efforts aimed at addressing contemporary patterns of use are crucial. There have recently been substantial strides in U.S. tobacco control, given that in December 2019 the FDA raised the legal tobacco age to 21 years and no longer allows military exemptions (U.S. Food & Drug Administration, 2020b). Thus, accessing e-cigarettes will become more challenging for military recruits under 21 years (which is typically half of all new recruits) (Little et al., 2016) and will likely decrease overall prevalence. However, despite FDA efforts to regulate online sales to minors (U.S. Food & Drug Administration, 2020a), young adults are heavily exposed to e-cigarette advertisements (Collins et al., 2019) and continue to access these products online (Nguyen et al., 2020). Further, e-cigarette advertisements commonly target military populations of all ages with discounts and testimonials (Fahey et al., 2020a).

Recent policies have also aimed to decrease tobacco use in military populations, specifically a Department of Defense (DoD) policy (Carter, 2016) requires the pricing of all tobacco products on base match the prevailing local prices (including applicable taxes). Additionally, Army and Air Force Exchange Centers have recently banned the sale of e-cigarettes on military bases (Army Public Health Center, 2019). However, a recent investigation (Fahey et al., 2020b) indicates that military trainees are more likely to buy e-cigarettes off base, suggesting that these policy efforts may not be as effective in curbing e-cigarette use among military personnel. Thus, despite these civilian and military tobacco control efforts, there are limitations in their ability to combat this drastic increase in e-cigarette use. Policies among vulnerable populations (e.g., military personnel, individuals under 21 years of age) will continuously need to adapt to how individuals use and access newer products.

It should be noted that these findings report tobacco use among new recruits entering the Air Force. Therefore, these findings may not generalize to the rest of the military. Additionally, because these Airmen were surveyed about their tobacco use prior to enlistment (they were surveyed during a period of enforced abstinence), future efforts should explore changes in their tobacco use behavior following acculturation into the military.

Conclusions

With the growing prevalence of e-cigarettes among this young adult vulnerable population and the various health concerns about the use of this product (e.g., associated lung injury, increased risk of later combustible product initiation, nicotine delivery to tobacco naïve youth), our findings suggest that further action to reduce e-cigarette use among military personnel may be needed. Further, previously unexplored, demographic characteristics influenced military tobacco trends across products. Notably, recruits of racial minorities increased their use of e-cigarettes over the past five years faster than White recruits. Given the changing tobacco landscape (Creamer et al., 2019; Wang et al., 2018), continued examination of tobacco use among military personnel, such as this current report, can help inform policy and cessation efforts aimed to reduce this tobacco disparity.

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Figure 1.
Individual tobacco product use over time.

Table 1:

Summary statistics of demographic information by each tobacco product use

	Cigarettes	Smokeless tobacco	Snus	Cigars/ premium	Cigarillos	Pipe	Roll your own cigarettes	Hookah	E-cigarettes	Any tobacco product user
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Gender										
Female	1979 (8.12%)	1611 (6.62%)*	304 (1.26%)	811 (3.34%)*	1487 (6.11%)	181 (0.75%)*	151 (0.62%)	970 (3.99%)	3050 (12.53%)	5939 (24.27%)
Male	1854 (9.22%)	1293 (6.44%)	307 (1.54%)	727 (3.62%)	1370 (6.81%)	180 (0.90%)	161 (0.80%)	1441 (7.17%)	1542 (7.67%)	4667 (23.18%)
Age	20.7 (19.20,22)	20.1 (19.19,21)	20.0 (18.19,20)	20.0 (18.19,21)	19.7 (18.19,20)	20.1 (19.19,21)	20.5 (19.20,21)	20.0 (19.19,21)	19.7 (18.19,20)	20.2 (19.19,21)
Ethnicity										
Non-Hispanic	3281 (9.12%)	2661 (7.41%)	540 (1.52%)	1376 (3.83%)	2469 (6.87%)	329 (0.92%)	270 (0.75%)	1872 (5.21%)	3853 (10.72%)	9022 (25.00%)
Hispanic	507 (6.40%)	203 (2.57%)	65 (0.83%)	148 (1.87%)	352 (4.44%)	31 (0.39%)	35 (0.44%)	509 (6.44%)	689 (8.71%)	1449 (18.25%)
Race										
White	3033 (10.23%)	2638 (8.91%)	520 (1.77%)	1329 (4.50%)	1969 (6.65%)	318 (1.08%)	256 (0.87%)	1566 (5.30%)	3543 (11.96%)	8082 (27.19%)
Black/African American	248 (3.43%)	56 (0.78%)	13 (0.18%)	72 (1.00%)	528 (7.29%)	16 (0.22%)	14 (0.19%)	351 (4.86%)	316 (4.37%)	1024 (14.12%)
Asian	127 (6.85%)	22 (1.19%)	9 (0.49%)	15 (0.81%)	33 (1.78%)	6 (0.32%)	7 (0.38%)	81 (4.38%)	154 (8.31%)	270 (14.55%)
More than one race	269 (7.06%)	118 (3.10%)	38 (1.01%)	87 (2.29%)	233 (6.11%)	12 (0.32%)	24 (0.63%)	260 (6.83%)	401 (10.55%)	827 (21.63%)
Other	173 (8.10%)	80 (3.75%)	33 (1.56%)	41 (1.93%)	109 (5.11%)	12 (0.56%)	12 (0.56%)	160 (7.50%)	199 (9.33%)	447 (20.92%)
Education										
High school/GED	2186 (8.92%)	1742 (7.12%)	390 (1.61%)	880 (3.60%)	1833 (7.49%)	214 (0.88%)*	177 (0.73%)*	1343 (5.50%)	3005 (12.27%)	6230 (25.35%)
Some college	1500 (9.00%)	1035 (6.22%)	193 (1.17%)	580 (3.49%)	936 (5.62%)	135 (0.81%)	123 (0.74%)	979 (5.88%)	1489 (8.94%)	3945 (23.60%)
Bachelor's degree or more	128 (4.18%)	107 (3.50%)	23 (0.76%)	68 (2.23%)	77 (2.52%)	14 (0.46%)	13 (0.43%)	79 (2.59%)	71 (2.32%)	373 (12.17%)
Marital Status										
Single/ Separated / Divorced	3408 (8.61%)*	2645 (6.69%)	556 (1.42%)*	1422 (3.60%)	2660 (6.72%)	326 (0.83%)*	287 (0.73%)*	2263 (5.73%)	4212 (10.64%)	9642 (24.28%)
Married/ living with partner	438 (8.74%)	265 (5.29%)	54 (1.09%)	120 (2.40%)	210 (4.20%)	37 (0.74%)	25 (0.50%)	149 (2.98%)	395 (7.90%)	995 (19.80%)

* Not statistically significant different in each tobacco product use, otherwise significant different

Note: Chi-square test/Fisher Exact test was used to assess differences for categorical variables and Wilcoxon rank sum test was used for a continuous variable.

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Table 2:

Adjusted relationships between the years and the individual tobacco product use

	Cigarettes/Roll your own cigarettes		Smokeless tobacco/Snus		Hookah/Pipe		Cigars/Cigarillos		E-cigarettes	
	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size
Years	−0.134 (0.022) < 0.0001	0.87	−0.134 (0.022) < 0.0001	0.89	−0.307 (0.021) < 0.0001	0.74	−0.106 (0.022) < 0.0001	0.90	0.228 (0.023) < 0.0001	1.26

Note: The generalized linear mixed-effects regression model was also adjusted for age, gender, race, education, and marital status

Table 3:

Adjusted relationships between the years and the individual tobacco product use by each of demographic characteristics

	Cigarettes/Roll your own cigarettes		Smokeless tobacco/Snus		Hookah/Pipe		Cigars/Cigarillos		E-cigarettes	
	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size	Beta (SE) P-value	Effect Size
Years (Age ≥ 21)	-0.128 (0.022) < 0.0001	0.88	-0.104 (0.034) 0.004	0.90	-0.277 (0.022) < 0.0001	0.76	-0.084 (0.023) 0.001	0.92	0.219 (0.022) < 0.0001	1.25
Years (Age < 21)	-0.101 (0.010) 0.007	0.90	-0.076 (0.022) 0.003	0.93	-0.198 (0.009) < 0.0001	0.82	-0.037 (0.013) < 0.0001	0.96	0.202 (0.008) 0.035	1.22
Years (White)	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	-0.296 (0.022) < 0.0001	0.74	-0.093 (0.023) 0.0003	0.91	0.204 (0.023) < 0.0001	1.23
Years (Non-White)	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	-0.330 (0.012) 0.008	0.72	-0.122 (0.012) 0.031	0.88	0.250 (0.013) 0.001	1.28
Years (High school graduated/GED)	-0.132 (0.022) < 0.0001	0.88	<i>a</i>	<i>a</i>	-0.300 (0.022) < 0.0001	0.74	-0.100 (0.023) < 0.0001	0.91	<i>a</i>	<i>a</i>
Years (Some college or more)	-0.147 (0.007) < 0.0001	0.86	<i>a</i>	<i>a</i>	-0.356 (0.011) < 0.0001	0.70	-0.128 (0.011) 0.019	0.88	<i>a</i>	<i>a</i>
Years (Married/Living as married)	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	0.189 (0.025) < 0.0001	1.21
Years (Single/Seperated/Divorced)	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	0.141 (0.011) < 0.0001	1.15
<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>
<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>

^aNo significant interaction effects were detected.

^bMeasure of effect size is an adjusted odds ratio

Each generalized linear mixed-effects regression model included the years and the demographic information of the interest (i.e. Race) and as well as the interaction between these two, and the model was also adjusted for the remaining demographic information (i.e. age, gender, education, and marital status).