Published in final edited form as:

Am J Prev Med. 2020 October ; 59(4): 538–547. doi:10.1016/j.amepre.2020.03.027.

Use of Cigarettes and E-Cigarettes/Vaping Among Transgender People: Results From the 2015 U.S. Transgender Survey

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Abstract

Introduction: This study examines the demographic characteristics, transgender-specific factors, and discrimination experiences associated with current cigarette smoking, e-cigarette use/vaping, and dual use in a large sample of transgender people.

Methods: This was a secondary analysis of the 2015 U.S. Transgender Survey (N=27,715). Conducted in 2019, logistic regression models were used to estimate the AORs and 95% CIs of current smoking, e-cigarette use/vaping, and dual use among transgender people.

Results: Overall, 23.6% of respondents used cigarettes, 9.3% used e-cigarettes/vaping products, and 5.2% reported dual use within the past 30 days. Visually non-conforming individuals had greater odds (cigarettes: AOR=1.49, 95% CI=1.35, 1.65; e-cigarettes/vaping: AOR=1.43, 95% CI=1.25, 1.65; dual use: AOR=1.81, 95% CI=1.52, 2.15) compared with visually conforming individuals. Transgender people who had disclosed their transgender identity to their social networks had greater odds of cigarette smoking (AOR=1.30, 95% CI=1.17, 1.45), e-cigarette use/vaping (AOR=1.30, 95% CI=1.12, 1.52), and dual use (AOR=1.95, 95% CI=1.61, 2.35) compared with individuals who were “out” to none or some people within their networks. Experiencing discrimination (i.e., unequal treatment, verbal harassment, or physical assault) significantly increased the odds for cigarette smoking, e-cigarette use/vaping, and dual use. Transgender people who experienced all three types of discrimination had two times greater odds of current cigarette

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

smoking (AOR=2.06, 95% CI=1.79, 2.37) and dual use (AOR=2.17, 95% CI=1.73, 2.74) than those who had not experienced discrimination.

Conclusions: Discrimination, visual non-conformity, and being “out” as transgender increased the odds of cigarette smoking, e-cigarette use/vaping, and dual use. This study informs disease prevention efforts for transgender populations with increased risks for these health behaviors.

INTRODUCTION

Tobacco use is the leading cause of preventable and premature death in the U.S. and smoking combustible cigarettes is associated with more than 480,000 deaths per year.^{1,2} Tobacco use is more prevalent among certain populations, such as people with lower educational attainment and SES, some racial/ethnic minority groups, individuals with mental illness or substance use disorders, and sexual and gender minorities.^{1,3–5} The surge of e-cigarettes/vaping in the past decade has led to concerns about the increased prevalence of their use among youth and young adult populations; it is believed these products may be a gateway to smoking combustible cigarettes.⁶ There is also growing evidence of their health risks.⁷

Transgender populations are among the most marginalized and understudied groups in the U.S. As an umbrella term, “transgender” refers to individuals whose gender identity differs from their assigned sex at birth or whose gender expression varies from conventional conceptualizations associated with their sex at birth.⁸ Approximately 0.6% of adults (or 1.4 million) in the U.S. identify as transgender.⁹ Research on the smoking behavior among transgender populations has produced mixed results. Some studies using national probability samples have found that gender minority status was not associated with increased likelihood of current smoking or e-cigarette use.^{10–12} However, other studies also suggest that transgender individuals were more likely to be current smokers than cisgender people^{13–15} and that transgender men and boys had increased odds of current smoking compared with cisgender men and boys.^{16,17} Studies of sexual and gender minorities have also documented the elevated rates of cigarette smoking among transgender people compared to their cisgender counterparts.^{18–20} Examining the differences among transgender populations may reveal subgroups with distinct health risk profiles.

Building upon Meyer’s^{21,22} Minority Stress Model, Hendricks and Testa²³ proposed the Gender Minority Stress Model, which explains how the experience of stigma and discrimination creates psychological distress among transgender people. This excess tension with the social environment can influence physical and mental health.^{21–24} For example, transgender people who experienced structural discrimination were more likely to report smoking.²⁵ In addition to increasing exposure to smoking and the associated health risks, discrimination creates barriers to healthcare access among transgender populations,^{26–34} thereby magnifying their health disparities.²⁵ The considerable heterogeneity in transgender populations provides an opportunity to explore characteristics that may be associated with smoking risk. Transgender-specific correlates, such as visual conformity and disclosure of trans identity, have not been assessed in large population-based surveys. Informed by the Gender Minority Stress Model,²³ this study examines the demographic, transgender-specific,

and discrimination correlates of current cigarette smoking, e-cigarettes use/vaping, and dual use in a U.S. sample of transgender people.

METHODS

Study Sample

This study used data from the 2015 U.S. Transgender Survey (USTS), an online survey conducted by the National Center for Transgender Equality that examined the experiences of transgender adults living in the U.S. This survey is the largest of transgender people to date (N=27,715).²⁶ Respondents were recruited through non-probability sampling methods and eligible participants met the following criteria: age ≥ 18 years; currently residing in a U.S. state or territory, or an American military base; at any stage in the gender transition process; and self-identified as transgender, trans, genderqueer, non-binary, or another identity on the transgender spectrum. More information about the survey methodology is available in the 2015 USTS survey report.²⁶ All USTS study procedures received human subjects review and IRB approval; the current study received University of Windsor's Research Ethics Board approval.

Measures

Cigarette smoking and e-cigarette use/vaping were assessed by asking respondents whether they had ever used cigarettes (*yes/no*) or e-cigarettes/vaping products (*yes/no*) and when they had last used. Current use of combustible cigarettes was defined as smoking within the past 30 days. Current use of e-cigarettes/vaping was defined as using e-cigarettes/vaping within the past 30 days. Current dual use was defined as using both combustible cigarettes and e-cigarettes/vaping within the past 30 days.

Sociodemographic and mental health variables included gender identity/expression (cross-dresser, transgender woman, transgender man, non-binary/genderqueer), age (18–24, 25–44, 45–64, ≥ 65 years), race/ethnicity (non-Hispanic white, Hispanic/Latinx, black/African American, biracial/multiracial, others), educational attainment (less than high school, high school graduate, some college, bachelor's degree or higher), living in poverty (*yes/no*); sexual orientation (asexual, bisexual, gay/lesbian/same gender loving, heterosexual, pansexual, queer, and sexual orientation not listed), and disability (*yes/no*). Poverty was coded based on the U.S. Census Bureau's guidelines in 2015 and included age of householders, size, and income.³⁵ Disabilities are known to be more prevalent in trans populations^{11,16} and were assessed by asking respondents if they experienced any difficulties with hearing, seeing, concentrating/remembering/decision making, walking/climbing stairs, dressing/bathing, and completing errands. A summary measure was computed to identify respondents who reported having any one or more of the individual disabilities.

Serious psychological distress was assessed using the Kessler Psychological Distress Scale.^{36,37} Respondents were asked how often in the past 30 days they felt: so sad that nothing could cheer them up, nervous, restless or fidgety, hopeless, that everything was an effort, or worthless. Response options ranged from: *none of the time* to *all of the time*. Scores were

recoded to those meeting the threshold for psychological distress (score ≥ 13) versus not (score <13).³⁵ The dichotomous serious psychological distress indicator had a κ of 0.64.³⁸

Transgender-specific factors included visual conformity and disclosure of transgender identity. Visual conformity was assessed by the following item: People can tell I am trans even if I don't tell them. Responses were subsequently recoded to tertiles (*rarely, never* = visual conformers; *sometimes* = somewhat visual conforming; and *always, most of the time* = visual non-conformers). Respondents were asked: How many people in each group below currently know you are trans? The response set consisted of five categories (all know that I am trans, most know that I am trans, some know that I am trans, none know that I am trans, and I currently have no people like this in my life) for eight categories of people (immediate family you grew up with; extended family; lesbian, gay, bisexual, or trans friends; straight, non-trans friends; current boss/manager/supervisor; current coworkers; current classmates; and current healthcare providers). Disclosure of transgender identity was a summary measure computed to reflect categorical degrees of outness, ranging from disclosure to no one to disclosure to everyone ($\alpha=0.81$). Discrimination was assessed by asking respondents about any discrimination experiences they had in the past year as characterized by: being denied equal treatment or service, receiving verbal harassment, or being physically attacked. These discrimination experiences did not have to be related to gender identity/expression. The discrimination experience(s) measure was computed by summing the respondents' affirmative responses, resulting in a variable with four categories: none, one type, two types, and three types.

Statistical Analysis

Survey weights accounting for educational attainment, race/ethnicity, and age provided with the original data set were applied.³⁹ This enabled the sample to be more representative of the population from which it was drawn. Univariate frequency distributions with weighted percentages were used to describe the study sample. Bivariate analyses consisted of Pearson's chi-square tests to examine the associations between the covariates and the three outcomes (cigarettes, e-cigarettes/vaping, and dual use) with statistical significance set at $p<0.05$. Multivariable logistic regression analyses were conducted to estimate the adjusted odds and 95% CIs of current use of combustible cigarettes, e-cigarettes/vaping, and dual use among transgender respondents. Adjusted models included gender identity, age, race/ethnicity, educational attainment, living in poverty, sexual orientation, visual conformity, and disclosure of transgender identity. Supplemental analyses were conducted to examine the: (1) associations of each type of discrimination with current use of cigarettes, e-cigarettes/vaping, and dual use and (2) associations of discrimination experiences with frequency of current cigarette smoking. Missing data were handled using listwise deletion. All analyses were conducted in 2019 using SPSS, version 26.

RESULTS

Table 1 depicts the sample characteristics. Overall, 52.2% identified as transgender women, 21.8% as transgender men, 19.1% as non-binary/genderqueer, and 6.9% as cross-dressers. The majority (65.9%) were non-Hispanic white. Most (58.2%) attended some college and

almost one third (29.8%) lived in poverty. There was diversity in sexual orientation among the respondents, with 7.6% identifying as asexual and 23.9% as heterosexual. Approximately one third had a disability (36.0%) and experienced serious psychological distress (29.8%). About half (52.7%) considered themselves to be visually conforming and only 14% had disclosed their trans identity to all of the people in their social support network. Almost half (46.6%) experienced some form of discrimination in the past year. Almost one quarter (23.6%) reported smoking combustible cigarettes, 9.3% used e-cigarettes or vaping products, and 5.2% reported dual use within the past 30 days (Table 2). Among current e-cigarette users, almost one tenth (9.3%) never smoked combustible cigarettes, whereas 15.5% smoked >30 days but <12 months ago, and 20.3% smoked >12 months ago (results not shown).

As shown in Table 3, bivariate analyses were examined and statistically significant associations were found between the sociodemographic characteristics, transgender-specific factors, and discrimination experiences and all three outcome measures. These are provided for descriptive purposes but the focus will be on the adjusted results.

Table 4 displays the results of the multivariable logistic regression models predicting current use of cigarettes (Model 1), e-cigarettes/vaping (Model 2), and dual use (Model 3). Transgender men had increased odds of using cigarettes, e-cigarettes/vaping, and dual use compared with transgender women. Cross-dressers exhibited increased odds of current smoking, but had decreased odds of using e-cigarettes/vaping or dual use. Asexual identity was generally associated with lower odds of cigarette smoking, e-cigarette use/vaping, and dual use compared with all other sexual orientation subgroups. Heterosexual individuals had more than two times greater odds for cigarette smoking and dual use relative to asexual individuals. Pansexual individuals had more than two times greater odds for e-cigarette use/vaping than asexual individuals. Recognizability as a transgender person increased the odds for all three outcomes, with visually non-conforming individuals experiencing greatest vulnerability (cigarettes: AOR=1.49, 95% CI=1.35, 1.65; e-cigarettes/vaping: AOR=1.43, 95% CI=1.25, 1.65; dual use: AOR=1.81, 95% CI=1.52, 2.15) compared with those who were visually conforming or somewhat conforming. Similarly, those who had disclosed their transgender identity to everyone in their network had greater odds for cigarette smoking (AOR=1.30, 95% CI=1.17, 1.45), e-cigarette use/vaping (AOR=1.30, 95% CI=1.12, 1.52), and dual use (AOR=1.95, 95% CI=1.61, 2.35) compared with individuals who were out to none or some people in their network. In additional analyses (results not shown), the summary disclosure measure was disaggregated and the same general pattern was found within specific subgroups (i.e., family, friends, and all others).

Finally, reporting one or more types of discrimination significantly increased the odds for cigarette smoking, e-cigarette use/vaping, and dual use. Moreover, the odds of being a current smoker increased incrementally with each additional type of discrimination respondents experienced. Those who experienced all three types of discrimination had more than two times greater odds of being current smokers (AOR=2.06, 95% CI=1.79, 2.37) and dual users (AOR=2.17, 95% CI=1.73, 2.74) than those who had not experienced discrimination.

DISCUSSION

This study examined the correlates of current cigarette smoking, e-cigarette use/vaping, and dual use among transgender people in the U.S. The findings from this study provide empirical support for the Gender Minority Stress Model²³ by demonstrating that discrimination is significantly associated with cigarette smoking, e-cigarette use/vaping, and dual use. Almost half of the study sample experienced some type of discrimination and those who experienced multiple forms of discrimination had increased odds for reporting current use of cigarettes, e-cigarettes/vaping, and dual use compared with those who did not. The three types of discrimination were also examined individually and results showed that each of the three types of discrimination were significantly associated with e-cigarette use/vaping and dual use. Additionally, experiencing past-year physical assault had the highest odds of cigarette smoking, e-cigarette use/vaping, and dual use (Appendix Table 1).

Transgender individuals face unique stressors related to their gender identity/expression. Not being able to “pass” as one’s affirmed gender identity or disclosure about one’s trans identity can increase the potential for experiencing discrimination.⁴⁰ Those who were somewhat visually conforming or non-conforming and those who had disclosed to everyone in their network had increased odds of using cigarettes and e-cigarette/vaping. This underscores the stress which non-conforming individuals and those who disclose their gender identity may experience within a cisgenderist, transphobic society—and how these facets of their transgender experience may increase the odds for cigarette and e-cigarette/vaping use.

The consequences of nicotine and tobacco product use—and combustible cigarette smoking specifically—have been widely documented.^{1,2,41–43} By contributing to an increased odds of smoking behavior, discrimination can result in increased morbidity and mortality among transgender individuals.²⁵ Additional analyses revealed that experiencing multiple forms of discrimination was associated with infrequent, occasional, and frequent/daily cigarette smoking (Appendix Table 2). Furthermore, discrimination can have a compounding effect. There is a growing body of evidence that suggests that transgender people experience interpersonal and structural barriers to healthcare access.^{26–34} Transgender individuals who require treatment for smoking cessation or physical illness resulting from cigarette use may be unable to receive necessary care because of these barriers. Thus, the physical health consequences of cigarette smoking coupled with the barriers to healthcare access can magnify the health disparities among transgender people.²⁵

A novel contribution of this study was the inclusion of cross-dressers as a subgroup. Previous studies on cigarette/e-cigarette use among transgender populations have not examined this subgroup.^{10–14,16,17,25} There is lack of consensus about the inclusion of cross-dressers under the transgender umbrella, as these individuals may not experience gender dissonance and cross dressing is regarded as a form of gender expression rather than indicative of gender identity.^{44,45} They were included in this study to acknowledge the diverse identities within the gender spectrum. Interestingly, 83.0% of cross-dressers in this sample considered themselves to be transgender, compared with trans women (94.9%), trans men (94.8%), and non-binary/genderqueer individuals (76.2%). The cross-dressers had

increased odds for cigarette smoking, but had lower odds for e-cigarette use/vaping or dual use. Further research should explore the experiences of minority stress among cross-dressers and whether their smoking behaviors may be a coping response to minority stress.

The large sample size revealed the heterogeneity that exists among transgender populations. This study found differences among the gender identity subgroups in their odds for using cigarettes, e-cigarettes/vaping, and dual use. The finding that transgender men exhibited increased odds of engaging in these behaviors compared with transgender women is consistent with previous research^{16,17} and underscores the need for further research to understand the differences among transgender subgroups. There is also diversity in sexual orientation among transgender people. Similar to studies which examined the correlation of sexual orientation to cigarette use among cisgender and transgender samples,^{10,12} this study examining only transgender respondents also supports the finding that sexual orientation is significantly associated with current cigarette smoking. Additionally, the inclusion of asexual identity as a separate category and the novel use of this identity as the referent category for sexual orientation brings visibility to an identity that is poorly understood. Although there remains a lack of consensus about the definition of asexuality, it may be defined as a lack of sexual attraction.^{46,47} Historically, this sexual identity has been pathologized by researchers and clinicians.^{46–48} Growing support for people who identify as asexual is available, as evidenced by the Asexual Visibility and Education Network, which offers informational resources about asexuality. Though they represent a minority within this study sample, asexual individuals had lower odds of engaging in cigarette or e-cigarette/vaping use compared with all non-asexual identities. Further research about the experience of asexual transgender individuals would be beneficial to explore how sexual orientation intersects with gender identity in the experience of minority stress.

Limitations

This study was unable to account for the frequency or severity with which individuals may have experienced a specific type of discrimination. The cross-sectional design of the USTS did not allow an examination of the timing of the discrimination experience and tobacco/nicotine use. Also, the USTS did not allow respondents to provide any context related to their e-cigarette use/vaping. It is possible that some individuals may have engaged in e-cigarette use/vaping as a smoking-cessation method. Other important characteristics such as tobacco use disorder, frequency of e-cigarette use/vaping, or age of initiation were not examined as these items were not included in the survey. The generalizability of these findings may be limited based on the use of a non-probability sample. The sole use of an online platform for data collection may have prevented disadvantaged individuals from responding to the survey owing to their lack of Internet access.⁴⁹ The self-selection method for survey participation can also produce bias⁵⁰; little is known about the individuals who chose not to participate in the survey. Lastly, the e-cigarette product and regulatory landscapes have undergone dramatic changes since this study's data were collected in 2015. For example, new devices deliver higher concentrations of nicotine.⁵¹ There has also been a significant increase of e-cigarette use/vaping among youth.⁵² These changes may have a larger impact on high-risk populations and deserves greater attention in future research.

The inclusion of questions assessing gender identity in national surveys has been important in bringing attention to the needs and experiences of transgender communities. The extent of disparities found among transgender respondents using probability based samples often do not mirror those from non-probability based samples. Thus, both probability and non-probability samples should be used to understand the disparities experienced by transgender people.⁵³ The external validity of the present study is supported by the observation that the prevalence of current cigarette smoking (23.6%) and e-cigarette use (9.3%) in the USTS sample is similar to the prevalence found in probability-based samples of U.S. transgender respondents.^{11,12}

CONCLUSIONS

This study advances the understanding of cigarette smoking, e-cigarette use/vaping, and dual use among transgender people in the U.S. The results show that experiencing discrimination, being visually non-conforming, and being “out” as a transgender person significantly increase the odds of cigarette smoking, e-cigarette use/vaping, and dual use. These findings reinforce the need to promote non-discrimination policies and can be used to inform primary disease prevention efforts for transgender populations who may be at higher risk for these health behaviors.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

ACKNOWLEDGMENTS

We express our gratitude to the National Center for Transgender Equality for generously sharing the data from the 2015 U.S. Transgender Survey with us.

The content of the manuscript is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute, National Institute on Drug Abuse, NIH, or the U.S. Government. The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication.

The development of this article was supported in part by research grants from the National Cancer Institute (R01CA203809, R01CA212517) and National Institute on Drug Abuse (R01DA043696). This study was approved by the Research Ethics Board at the University of Windsor in Windsor, Ontario, Canada (REB #18-193).

LK conceptualized and designed the study, conducted the analyses, and drafted the original manuscript. RJE-P assisted with the conceptualization of the study, critically reviewed, and edited the manuscript. PV and CJB critically reviewed and edited the manuscript. SEMcC assisted with the conceptualization of the study and interpretation of results, critically reviewed the manuscript, and provided supervision for the study. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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Table 1.**Characteristics of Transgender Participants (N=27,715)**

Categories	Unweighted <i>n</i> (Weighted %)
Gender identity/expression	
Trans women	9,238 (52.2)
Trans men	7,950 (21.8)
Non-binary/genderqueer	9,769 (19.1)
Cross-dresser	758 (6.9)
Age, years	
18–24	11,840 (11.9)
25–44	10,987 (38.7)
45–64	4,085 (34.4)
65	803 (14.9)
Race/Ethnicity	
Non-Hispanic white	22,873 (65.9)
Hispanic/Latino/a	1,473 (14.9)
Black/African American	796 (13.1)
Biracial/Multiracial	1,468 (2.0)
Others	1,105 (4.2)
Educational attainment	
Less than high school	906 (13.9)
High school graduate	3,467 (27.8)
Some college	12,819 (30.8)
Bachelor's degree or higher	10,523 (27.4)
Lives in poverty	8,625 (29.8)
Sexual orientation	
Asexual	2,984 (7.6)
Bisexual	4,129 (17.9)
Gay/Lesbian/SGL	4,617 (19.6)
Heterosexual	3,363 (23.9)
Pansexual	5,056 (13.4)
Queer	5,706 (11.4)
Sexual orientation not listed	1,860 (6.2)
Disability	10,913 (36.0)
Serious psychological distress	10,604 (29.8)
Visual conformity	
Conformers	15,332 (52.7)
Somewhat conforming	9,139 (34.0)
Non-conformers	3,178 (13.3)
Disclosure of trans identity	
None	427 (1.9)
Some	11,558 (37.3)

Categories	Unweighted <i>n</i> (Weighted %)
Most	12,908 (46.9)
All	1,956 (14.0)
Discrimination: unequal treatment	4,143 (15.8)
Discrimination: verbal harassment	15,358 (42.5)
Discrimination: physical assault	3,668 (11.2)
Discrimination experience(s)	
None	11,491 (53.4)
One type	10,315 (28.8)
Two types	4,511 (12.9)
Three types	1,254 (5.0)
Any unequal treatment, harassment, assault	16,080 (46.6)

Notes: Missing data ranged from 0.3% (visual conformity) to 7.0% (disclosure of trans identity) on individual items.

SGL, same gender loving.

Table 2.

Current Use of Combustible Cigarettes (Frequency), E-cigarettes, and Vaping Products Among Transgender Participants (N=27,715)

Categories	Unweighted <i>n</i> (Weighted %)
Combustible cigarettes	
Current use	5,618 (23.6)
Infrequent (1–2 days)	1,100 (3.5)
Occasional (3–19 days)	1,551 (4.6)
Frequent/Daily (20–30 days)	2,950 (15.0)
Daily	2,222 (12.7)
E-cigarettes/Vaping products	
Current use	2,870 (9.3)
Dual use of cigarettes and e-cigarettes/vaping products	
Current use	1,474 (5.2)

Notes: Missing data ranged from 0.1 (e-cigarettes/vaping products) to 1.4 (dual use).

Table 3.

Bivariate Analysis of Covariates With Current Use of Cigarettes, E-cigarettes, and Vaping Products

Categories	Combustible cigarettes	E-cigarettes or vaping	Dual use
	Unweighted <i>n</i> (Weighted %)	Unweighted <i>n</i> (Weighted %)	Unweighted <i>n</i> (Weighted %)
Gender identity/expression			
Trans women	1,838 (23.8)	915 (8.8)	470 (5.2)
Trans men	1,852 (28.2)	987 (12.5)	502 (6.5)
Non-binary/Genderqueer	1,795 (19.2)	920 (9.1)	481 (5.0)
Cross-dresser	133 (19.6)	48 (3.6)	21 (1.3)
Age, years			
18–24	2,258 (20.4)	1,361 (12.4)	678 (6.1)
25–44	2,552 (28.4)	1,210 (12.2)	640 (6.8)
45–64	738 (24.3)	277 (7.9)	148 (4.8)
65	70 (11.9)	22 (2.6)	8 (1.0)
Race/Ethnicity			
Non-Hispanic white	4,482 (21.8)	2,317 (9.3)	1,177 (4.8)
Hispanic/Latino/a	345 (27.8)	168 (10.8)	87 (6.9)
Black/African American	203 (25.9)	86 (7.1)	49 (4.7)
Biracial/Multiracial	359 (28.7)	175 (13.2)	96 (9.1)
Others	229 (26.8)	124 (9.8)	65 (4.9)
Educational attainment			
Less than high school	191 (31.8)	131 (11.3)	60 (6.9)
High school graduate	784 (28.5)	407 (10.1)	215 (6.0)
Some college	2,850 (23.3)	1,598 (10.7)	805 (5.6)
Bachelor's degree or higher	1,793 (14.9)	734 (5.9)	394 (3.0)
Lives in poverty (no)	3,306 (20.6)	1,697 (8.6)	843 (4.4)
Yes	2,112 (30.9)	1,054 (11.3)	583 (7.2)
Sexual orientation			
Asexual	298 (16.1)	157 (5.3)	61 (2.6)
Bisexual	839 (24.9)	413 (9.2)	202 (4.9)
Gay/Lesbian/SGL	836 (20.5)	410 (7.2)	210 (3.8)
Heterosexual	782 (28.2)	333 (8.2)	186 (5.7)
Pansexual	1,114 (24.4)	772 (15.9)	392 (7.8)
Queer	1,454 (26.1)	597 (11.9)	335 (6.6)
Sexual orientation not listed	295 (14.4)	188 (6.3)	88 (3.2)
Disability (no)	3,085 (21.9)	1,469 (7.8)	754 (4.5)
Yes	2,434 (27.0)	1,347 (12.0)	695 (6.5)
Psychological distress (no)	2,976 (21.3)	1,449 (7.8)	737 (4.5)
Yes	2,537 (29.5)	1,372 (13.2)	713 (7.0)
Visual conformity			
Conformers	2,762 (21.0)	1,470 (7.9)	710 (3.9)
Somewhat conforming	2,022 (24.5)	1,019 (10.5)	547 (6.0)

	Combustible cigarettes	E-cigarettes or vaping	Dual use
Categories	Unweighted <i>n</i> (Weighted %)	Unweighted <i>n</i> (Weighted %)	Unweighted <i>n</i> (Weighted %)
Non-conformers	827 (31.9)	377 (12.0)	215 (8.1)
Disclosure of trans identity			
None to some	1,989 (20.1)	1,117 (8.0)	535 (3.9)
Most	2,936 (24.1)	1,464 (10.3)	766 (5.3)
All	519 (31.1)	223 (12.2)	138 (9.8)
Discrimination experience(s)			
None	1,721 (19.6)	934 (6.6)	409 (3.3)
One type	2,154 (23.6)	1,095 (10.4)	561 (5.4)
Two types	1,234 (33.2)	600 (16.1)	349 (10.3)
Three types	475 (40.6)	224 (14.9)	143 (10.7)

Notes: All results were significant in bivariate analyses ($p < 0.001$).

SGL, same gender loving.

Table 4.

Logistic Regression Models of Current Use of Cigarettes, E-cigarettes/Vaping, and Dual Use Among Transgender Adults

	Model 1: Cigarettes	Model 2: E-cigarettes/Vaping	Model 3: Dual use
Categories	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Gender identity/expression			
Trans women	1.00	1.00	1.00
Trans men	1.34^{***} (1.23, 1.46)	1.24^{***} (1.11, 1.39)	1.18[*] (1.01, 1.38)
Non-binary/Genderqueer	0.94 (0.85, 1.05)	0.86 (0.74, 1.00)	1.01 (0.83, 1.23)
Cross-dresser	1.26^{**} (1.09, 1.47)	0.55^{***} (0.41, 0.76)	0.60[*] (0.38, 0.93)
Age, years			
18–24	1.00	1.00	1.00
25–44	1.45^{***} (1.30, 1.62)	1.01 (0.88, 1.16)	1.03 (0.86, 1.25)
45–64	1.38^{***} (1.22, 1.57)	0.71^{***} (0.60, 0.83)	0.85 (0.68, 1.05)
65	0.74^{**} (0.62, 0.88)	0.25^{***} (0.18, 0.33)	0.09^{***} (0.05, 0.18)
Race/Ethnicity			
Non-Hispanic white	1.00	1.00	1.00
Hispanic/Latino/a	1.09 (0.99, 1.20)	1.05 (0.93, 1.19)	1.16 (0.99, 1.37)
Black/African American	0.89[*] (0.80, 0.98)	0.63^{***} (0.54, 0.74)	0.73^{**} (0.60, 0.88)
Biracial/Multiracial	1.18 (0.95, 1.46)	1.15 (0.87, 1.53)	1.62^{**} (1.17, 2.25)
Others	1.05 (0.90, 1.24)	0.98 (0.78, 1.22)	0.92 (0.68, 1.24)
Educational attainment			
Less than high school	1.00	1.00	1.00
High school graduate	0.86^{**} (0.77, 0.95)	0.82^{**} (0.71, 0.94)	0.82[*] (0.68, 0.98)
Some college	0.72^{***} (0.65, 0.79)	0.85[*] (0.74, 0.98)	0.82[*] (0.68, 0.98)
Bachelor's degree or higher	0.45^{***} (0.40, 0.51)	0.50^{***} (0.43, 0.59)	0.48^{***} (0.39, 0.60)
Lives in poverty	1.35^{***} (1.25, 1.45)	0.88[*] (0.80, 0.98)	1.07 (0.94, 1.22)
Sexual orientation			
Asexual	1.00	1.00	1.00
Bisexual	1.75^{***} (1.49, 2.05)	1.74^{***} (1.38, 2.21)	1.66^{**} (1.20, 2.30)
Gay/Lesbian/SGL	1.39^{***} (1.19, 1.63)	1.40^{**} (1.10, 1.77)	1.27 (0.92, 1.76)
Heterosexual	2.07^{***} (1.77, 2.42)	1.89^{***} (1.49, 2.39)	2.30^{***} (1.67, 3.15)
Pansexual	1.47^{***} (1.25, 1.73)	2.52^{***} (2.01, 3.16)	2.08^{***} (1.52, 2.84)
Queer	1.94^{***} (1.64, 2.29)	1.94^{***} (1.53, 2.47)	2.03^{***} (1.46, 2.81)
Sexual orientation not listed	1.06 (0.86, 1.30)	1.03 (0.75, 1.40)	1.04 (0.68, 1.59)
Disability	1.01 (0.93, 1.08)	1.28^{***} (1.15, 1.41)	1.10 (0.96, 1.25)
Psychological distress	1.20^{***} (1.12, 1.30)	1.14 [*] (1.02, 1.26)	1.01 (0.88, 1.16)
Visual conformity			

	Model 1: Cigarettes	Model 2: E-cigarettes/Vaping	Model 3: Dual use
Categories	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Conformers	1.00	1.00	1.00
Somewhat conforming	1.10 * (1.02, 1.18)	1.34 *** (1.21, 1.49)	1.43 *** (1.24, 1.64)
Non-conformers	1.49 *** (1.35, 1.65)	1.43 *** (1.25, 1.65)	1.81 *** (1.52, 2.15)
Disclosure of trans identity			
None to some	1.00	1.00	1.00
Most	1.02 (0.95, 1.11)	1.03 (0.92, 1.15)	1.00 (0.86, 1.16)
All	1.30 *** (1.17, 1.45)	1.30 ** (1.12, 1.52)	1.95 *** (1.61, 2.35)
Discrimination experience(s)			
None	1.00	1.00	1.00
One type	1.18 *** (1.09, 1.28)	1.27 *** (1.13, 1.42)	1.36 *** (1.16, 1.59)
Two types	1.78 *** (1.61, 1.97)	1.76 *** (1.55, 2.01)	2.34 *** (1.97, 2.76)
Three types	2.06 *** (1.79, 2.37)	1.57 *** (1.29, 1.89)	2.17 *** (1.73, 2.74)

Notes: An OR of 1.00 is the baseline. Boldface indicates statistical significance (* $p<0.05$; ** $p<0.01$; *** $p<0.001$). Data obtained from a weighted sample.

SGL, same gender loving.