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Tobacco Use among Recovery Home Residents: Vapers Less Confident to Quit

Meme Wang-Schweig, PhD, Leonard A. Jason, PhD, Ed Stevens, PhD, Jessica Chaparro, BA

Meme Wang-Schweig, Research Assistant Professor, Division of Community Health Sciences, University of Illinois at Chicago School of Public Health, Chicago, IL. Leonard Jason, Director, Center for Community Research, DePaul University, Chicago, IL. Ed Stevens, Senior Project Director, Center for Community Research, Chicago, IL. Jessica Chaparro, Research Assistant, Center for Community Research, Chicago, IL.

Abstract

Objectives: In this study, we provide estimates of the prevalence of tobacco use among residents in Oxford House (OH) recovery homes. We explore predictors for smoking cessation on future intentions to quit tobacco use, such as self-efficacy, motivation to quit, and level of nicotine dependence. We focus on examining smoking-related differences between 2 groups of tobacco users: (1) residents who only vape, and (2) residents who only smoke or who smoke and vape (ie, dual users).

Methods: Data come from a research project examining the social networks of residents in OH homes at Wave 5 (N = 270) when questions were asked about tobacco use and cessation. We conducted multiple logistic regression analysis to assess the predictors on intentions to quit tobacco in the next 6 months.

Results: Among residents, 60.4% report that they either smoke cigarettes, vape, or use both products. The odds of quitting are 92.5% lower for residents who only use e-cigarettes than for those who only smoke cigarettes or who smoke cigarettes and vape. Motivation to quit was associated with more than double the odds for self-efficacy on intentions to quit with odds ratios of 3.23 (95% CI: 1.81, 5.78; p = .00) and 1.47 (95% CI: 1.05, 2.07; p = .03) respectively.

Conclusion: The high prevalence of smoking and vaping in this population makes it an important target for interventions.

Keywords

smoking; dual users; electronic cigarettes; vaping; sober living homes; substance use disorders; smoking cessation

Correspondence Dr Wang-Schweig; lwang33@uic.edu.

Human Subjects Statement

The Institutional Review Board at DePaul University approved this study (LJ072314PSY).

Conflict of Interest Statement

The authors of this article declare that they have no conflicts of interest.

Tobacco use is a major public health concern, generating \$170 billion in healthcare costs annually.¹ It is particularly prevalent among the approximately 20.2 million people with substance use disorders (SUDs).² Smoking prevalence ranges from 65% to 87% among those diagnosed with SUDs.³ An estimated 50% of those who die in recovery from substance abuse do so because of smoking-related causes.^{4,5} Moreover, the mortality rate among smokers in treatment for drug abuse is about 4 times the rate of nonsmokers.⁶ No published studies to date have examined tobacco use among persons in recovery from SUDs in sober living (“recovery”) homes. We conducted this study to estimate the prevalence of tobacco use, including vaping or using electronic cigarettes, and explore the predictors for smoking cessation among recovery home residents.

Sober living homes are currently the largest recovery-specific, community-based residential option for SUD post-treatment support; there are thousands of such homes in the United States (US).^{7,8} Typically, recovery home residents can stay for as long as they want, but have to abstain from alcohol or substance use and pay a modest rent to the homeowner. They are especially important for individuals who cycle through substance use treatment programs, often failing to maintain sobriety because of their tenuous financial and social linkages to the mainstream community.^{9,10} Unfortunately, residents of recovery homes frequently experience past criminal involvement, prior homelessness, and psychiatric comorbidity.¹⁰ Therefore, the population represents a socio-demographic at-risk group with multiple comorbidities associated with a high prevalence of smoking tobacco, and a concomitant resistance to the prevalence declines seen for the general population.¹¹

A commonly held belief among those with SUDs is that smoking cessation will increase their vulnerability in relapsing with drugs.¹² As a result, recovery home residents may have lower levels of motivation toward quitting, a strong predictor of quit attempts.¹³ However, one study found that interest in quitting among those with SUDs was as high as 80%,¹⁴ higher than that of adult smokers 18 years and older in the US general population, or about 68.0% in 2015.¹⁵ A second barrier toward reduced rates of smoking among this group may be lower perceived self-efficacy in quitting tobacco use, consistently a predictor for smoking cessation,¹⁶ even among those with SUDs.¹⁷ Finally, a third barrier may be the level of nicotine dependence, with lower levels predictive of maintaining abstinence (between one and 6 months).^{13,18} Limited understanding exists on all 3 predictors of smoking cessation: motivation, self-efficacy, and level of nicotine dependence among residents in recovery homes.

First, to gain an understanding of the extent of the problem of smoking in this highly vulnerable population, in this study, we provide a description of tobacco use behaviors including vaping, for a sample of residents in recovery homes. Vaping often is permitted within the recovery homes whereas cigarette smoking is not (C. Longan, oral communication, October 2018). Second, we explore predictors for smoking cessation such as self-efficacy, motivation to quit, and level of nicotine dependence with a focus on examining these and other smoking-related differences (eg, reasons to quit, quit methods used, and intentions to quit) between residents who only vape and those who only smoke cigarettes or are dual users (ie, cigarette smokers who also vape). Finally, we test a model to

predict future intentions to quit tobacco use, including vaping, to inform future studies on smoking cessation among this population.

METHODS

Data for this study come from a larger research project examining the social networks of current and former residents in 42 Oxford House (OH) recovery homes in 3 states (North Carolina, Texas, and Oregon) on maintaining abstinence from drugs and other psychological and health outcomes. More specifically, the research aims of the larger study are: (1) to identify structural and behavior-based drive functions describing the endogenous evolution of friendship, trust, and mentoring relationships within recovery houses; (2) link formation of these relationships to more proximal indicators of successful recovery; and (3) determine exogenous house and person-level conditions affecting successful house social integration.

There are over 2000 OHs in the US, making them the largest network of self-run recovery homes.¹⁹ This larger study involved a longitudinal design over 7 waves from 2015 to 2018, during which consented individuals underwent an initial baseline assessment at Wave 1, and were assessed every 4 months over a 28-month period.²⁰ The focus of this study is at Wave 5, the only wave when participants were asked additional questions related to their tobacco use and cessation efforts. Participants comprised of both current and former residents, with the latter referring to residents who had formerly lived in one of the 42 OH homes during the period between Wave 1 and Wave 5 of the study.

Procedures

To recruit participating OH recovery homes, a national strategy was implemented through outreach to presidents at the national and state levels. Recovery homes were selected to be comparable across different regions. The houses were then recruited individually by research staff calling the presidents of the OHs, informing them of the study, and requesting their participation. If a house president agreed, research staff emailed him or her a verbal script to be used in presenting the information about the study to their house members.

An anonymous ballot would then be held to assess member interest. Once a house president indicated that all or all but one of their members would like to participate, residents were individually contacted by telephone to obtain verbal consent and contact information prior to the baseline interviews.

Each wave of assessment was conducted by phone, in-person interview, or by written surveys sent to, completed, and returned by each individual participant. The method of assessment was selected by the participant during the consent process and subsequently when contacted for follow-up. Individuals living in or entering the participating recovery home during Wave 5 were enrolled in the study after providing informed consent. After obtaining consent, interviewers contacted participants to administer the survey measures. Participating residents were told that they had the right to decline participation at any time without penalty.

When assessment occurred via phone calls, participants were assured of their confidentiality of their survey responses and encouraged to select a private room or area to complete the interview. Likewise, participants who elected to complete paper questionnaires received written instructions and a reminder phone call to complete the survey in private, and enclose and seal their confidential responses in provided return envelopes. Because this study included questions on the social networks of residents within the recovery homes, confidentiality was an important consideration in the handling of completed surveys. For paper questionnaires received by mail, a systematic process was set up to maintain care, control, and custody of the data from survey completion through deidentification at the time of data entry (in REDCap).

Measures

Current tobacco use.—Current nicotine use (or use at the time of the survey) was assessed to determine which types of products participants used from among cigarettes, cigarette-like filtered cigars, vaping devices/e-cigarettes, smokeless (chew, dip, snuff), and large cigars/cigarillos. For each tobacco product type, respondents were asked to indicate if they were currently using with no interest in quitting, if they were currently using and trying to quit, if they have used but have now quit, or if they have never used. For the purposes of this study, we considered only those residents who currently used cigarettes and/or vaping devices.

Nicotine dependence.—We assessed level of nicotine dependence using 2 items. The first item asked: “How much do you spend on tobacco or vaping supplies each week in dollars?” Respondents were asked not to include the initial cost of their devices if they vaped. The second item from the Fagerström Test for Nicotine Dependence²¹ asked: “How soon after you wake up do you use your first tobacco product (including vaping)?” Response choices for this item were “after 60 minutes,” “31–60 minutes,” “6–30 minutes,” and “within 5 minutes.”

Self-efficacy to quit.—Self-efficacy to quit tobacco was measured by a single item²² that asked: “On a scale from 0 to 10, where 0 is not at all confident and 10 is extremely confident, how confident are you that you can quit using tobacco (including vaping) products now?” Use of a single item to assess this construct has been supported by past research demonstrating that its predictive validity is comparable to multi-item measures.²³

Motivation to quit.—This was assessed by a single item asking how interested the respondent was in quitting tobacco use, including vaping, on a scale from 0 = “not at all interested” to 10 = “extremely interested.” This item is similar to a single-item measure that was found to have predictive validity on quit outcomes with a higher motivation predicting a greater likelihood to quit smoking.²⁴

Reasons to quit.—Reasons that motivated participants to cease tobacco use in the past was assessed with the following question: “If you have tried to quit using all tobacco products (including vaping) in the past, what motivated you to try? Please select all that

apply.” Response choices included “I wanted to improve my health,” “It was too costly,” and “My friends or family wanted me to.”

Modes for smoking cessation.—Modes for quitting smoking were assessed by the types of methods and support participants have tried. Respondents were asked to check all the quit methods that they attempted including cold-turkey (simply stopped), e-cigarettes/vaping, nicotine replacement (patch, gum, nasal spray), Chantix (varenicline), Wellbutrin (bupropion) or other medication, peer support or buddy system, and have not tried to quit.

Intent to quit.—To assess intention to quit tobacco, respondents were asked whether they were seriously considering stopping tobacco use (including vaping) within the next 6 months. Binary response choices of yes or no were provided.

Data Analysis

First, descriptive analyses were conducted to provide demographic and tobacco-related characteristics on all recovery home residents who use tobacco. Next, we used t-tests and chi-square analyses to examine differences between those who only vape or use e-cigarettes compared to smokers and dual users on self-efficacy and motivation to quit, level of nicotine dependence, reasons to quit, methods used in previous attempts to quit, and intention to quit in the next 6 months. Additionally, analyses were run using ANCOVA to compare vapers versus smokers and dual users on the 3 predictors for smoking cessation while controlling for sex (the only sociodemographic variable significantly different between the 2 groups, as Table 1 indicates). Lastly, we conducted multiple logistic regression analysis to assess whether the predictors for smoking cessation were associated with future intentions to quit tobacco (next 6 months) among recovery home residents. Therefore, the predictors entered into the model included self-efficacy to quit, motivation to quit, and level of nicotine dependence, as well as current tobacco use. Given the exploratory nature of this study, we selected the best-fitting model using the backward stepwise method while controlling for socio-demographic variables such as, age, sex, race/ethnicity, marital status, educational level, and employment status.

Finally, for purposes of comparing the 2 groups of tobacco users, for the item that asked how soon after waking up do respondents use tobacco, response choices were collapsed into 3 groups – “within 5 minutes,” “6–30 minutes,” and “more than 31 minutes.”

RESULTS

Wave 5 Participants

Among all current and former recovery home residents in Wave 5 (N = 291), 92.8% or 270 residents participated in the survey. Among the participants, the majority self-reported as non-Hispanic Whites (~ 80%). Hispanics made up the second largest group at 9.3%, followed by non-Hispanic Blacks (9.0%). The mean age was 38.7 years (range = 19–51). About 53.9% were men, and 46.1% women. Most of the residents (72.3%) reported working full-time or 35 hours a week or more. Around 14% worked part-time, 4% were students, and 6% were unemployed. The largest percentage of participants had obtained some college

(38.4%), followed by those who achieved a GED (22.8%) or a high school diploma (21.3%). Most of the residents (63.2%) reported having never been married. Mean length of residency in the recovery homes was around 12.4 months. We found no statistically significant differences between non-users and users of tobacco on these demographic characteristics.

Description of Only Tobacco Users among Participants in Wave 5

Among residents, 60.4% of all participants in Wave 5 reported that they either smoked cigarettes, vaped, or used both types of products. Nearly 31% used cigarettes in the past but have now quit, and nearly 20% have quit vaping. Only a small percentage of respondents reported having never smoked cigarettes (8.5%). A larger percentage never used e-cigarettes (44.1%). Among those who currently used a tobacco product (or used at the time of the survey), 67.5% reported only smoking cigarettes, and 17.2% reported only using e-cigarettes. Around 15% were dual users of both products. The mean amount of dollars spent weekly on tobacco or vaping supplies among all smokers, not including the initial cost of their vaping devices, was about \$35.

Demographic and Tobacco-related Differences between Vapers versus Smokers and Dual Users

Men were more likely to only vape than women. A little more than half the group of smokers and dual users were women, whereas only 21.4% of the vapers were (Table 1). Although the level of nicotine dependence was not significantly different between the 2 groups of tobacco users (Table 2), the mean score reported by vapers on their confidence to quit tobacco use was significantly lower than among the smokers and dual users ($M = 1.96$ vs 3.62), $t(154) = -2.34$, $p = .03$, 95% CI $[-3.17, -.23]$. When adjusted for sex, the difference remained statistically significant with a lower score on self-efficacy among vapers (Table 2). Motivation to quit tobacco was also significantly lower for those who only vaped, compared to the other group ($M = 2.64$ vs 4.14), $t(154) = -1.97$, $p = .05$, 95% CI $[-3.31, .01]$. However, once adjusted for sex, this significant difference no longer remained.

Among the different reasons to quit, the proportions of vapers and all other tobacco users who reported attempting to quit for each motive were similar. However, the methods for smoking cessation differed with respect to quitting by using e-cigarettes, $\chi^2(1, N = 163) = 19.41$, $p < .001$, with a much higher percentage of vapers (57.%) employing this method. Moreover, a lower percentage of vapers report that they have not tried to quit in the past, $\chi^2(1, N = 163) = 4.80$, $p = .03$. Finally, users of only e-cigarettes were less likely to have intentions to quit tobacco use in the next 6 months compared to all other tobacco users, $\chi^2(1, N = 152) = 4.64$, $p = .03$.

Future Intentions to Quit Tobacco Use

Results from the best-fitting model demonstrated that vapers were less likely to have intentions for quitting tobacco use in the next 6 months compared to smokers and dual users (Table 3). The odds of quitting were 92.5% lower for residents who only used e-cigarettes than for those who only smoked cigarettes or who smoked cigarettes and vaped. Additionally, among the predictors for smoking cessation that were entered into the model, only self-efficacy and motivation to quit remained. Whereas both predictors significantly

increased the likelihood of having intentions to quit tobacco use in the future, motivation to quit was associated with more than twice the odds for self-efficacy with odds ratios of 3.23 (95% CI: 1.81, 5.78; $p < .001$) and 1.47 (95% CI: 1.05, 2.07; $p = .03$) respectively. The Hosmer and Lemeshow Goodness-of-Fit Test reveal that this model was an excellent fit for the data with $p = .99$ ($\chi^2 = 1.54$, $df = 8$).

DISCUSSION

Our results provide estimates of the prevalence of tobacco use among residents with SUDs in a sample of 42 OH recovery homes in 3 states. We found high rates of tobacco use. Not surprisingly, the rate of cigarette smoking in this study (50%) was much higher than the general adult population in the US at 14.0% in 2017.²⁵ The proportion of e-cigarette use in this sample (both vapers and dual users) of 19.6% was much higher as well compared to the broader population of adults with a current prevalence of 4.5%.²⁶ The rates for smoking cigarettes and vaping reported here are comparable to other studies that have examined rates for cigarette use among populations with SUDs.^{3,27,28} For example, in a nationally random sample of treatment programs for substance abuse, researchers found that the prevalence of cigarette smoking among persons enrolled was 77.9% in 2015. Moreover, 17.7% used e-cigarettes; and 24.4% used multiple products.²⁸ A higher proportion of those who vaped in this sample were men, which is similar to results from data gathered at the national level,²⁶ as well as from a sample of adults in substance abuse treatment.²⁹

Among the predictors for smoking cessation, only confidence in quitting tobacco was significantly different between the 2 groups of tobacco users. Those who only vape reported lower self-efficacy than smokers and dual users; it is unclear why. In general, limited research is available on the confidence to quit tobacco among those who use e-cigarettes, and even less so among those with SUDs. Motivation to quit among those who only vape in this sample was also significantly lower than the other group of tobacco users, which is contrary to past studies of the broader population.²⁶ However, this significant difference disappears after controlling for sex, indicating that being male or female may explain this disparity. Perhaps, the familiar rule among recovery homes to allow indoor vaping but not smoking lowers residents' motivations to quit, and those who are dual users alternately can smoke or vape depending on the circumstances.³⁰ The ban on smoking has been cited as a reason for using e-cigarettes among those with SUDs in treatment.⁴¹

With regard to the third predictor, the levels of nicotine dependence did not differ between vapers versus smokers and dual users. Both groups reported notable amounts of money spent weekly on tobacco given the limited financial resources available to residents in recovery homes in general.⁴³ Among residents in this sample, the average monthly income was \$1238.42. Therefore, our findings reveal that residents may be spending between 9.5% to 11.9% of their monthly incomes on tobacco. However, the average retail cost, including all taxes, for tobacco may vary from state to state so these findings should be interpreted with caution. In Texas, the average retail cost was \$6.20 for a pack of cigarettes in 2017 when Wave 5 was conducted; in Oregon and North Carolina, the costs were \$5.65 and \$4.74 respectively.³¹ Nevertheless, our results are important by demonstrating that individuals of lower socioeconomic status may be disproportionately impacted by tobacco use, which past

research also supports;³² therefore, the economic burden posed by tobacco use may be a way to promote cessation in this group.

Further comparisons between the 2 groups of tobacco users demonstrated that e-cigarette users were more likely than those who smoke cigarettes and those who smoke and vape to have attempted to quit in the past, similar to the findings from a population-based study of tobacco users in the US.³³ This may be due to reasons for using e-cigarettes in the first place, including to quit or cut down on smoking,⁴¹ or commonly held perceptions among e-cigarette users that vaping is not as harmful as smoking.^{34,35} Whereas the reasons for quitting all tobacco use did not significantly differ between vapers versus smokers and dual users, other research suggests that the utilization of e-cigarettes as a method for quitting may not be only health-related. Rather, it may be for reasons more immediate and undesirable that comes from smoking cigarettes, such as the smell of smoke that lingers on hair and clothes.³⁶

Finally, from the regression analysis, the 2 predictors for smoking cessation on intentions to quit in the next 6 months, which remained in the best-fitting model, were self-efficacy and motivation to quit. Motivation to quit was a stronger predictor than self-efficacy among recovery home residents, perhaps indicating that holding beliefs that one has the ability to quit may not translate into actually having a plan to stop. The results also show that these predictors, consistently important for smoking cessation in the general population,³⁷ applies to a vulnerable group of sober living residents in recovery from SUDs. This has important implications for treatment. For example, current cessation interventions developed for adults in treatment and recovery from SUDs, such as those that incorporate pharmacotherapy³⁸ along with strategies to encourage motivation such as motivational interviewing,³⁹ may prove effective among residents in the recovery home setting. At the same time, future studies should explore in-depth what motivates residents in recovery from SUDs to quit tobacco use, as well as their perceived barriers to cessation, such as maintaining sobriety from drugs.¹² Future research also could explore organizational barriers and facilitators to delivering smoking cessation interventions unique to the context and conditions of recovery homes, similar to research among SUD treatment settings.^{40–42}

Our results also reveal that vapers are less likely to intend to quit tobacco use in the future. Researchers have suggested that among individuals with SUDs who have experienced few gains from current smoking cessation efforts,^{43,44} e-cigarettes may be particularly salient as a possible strategy to quit or reduce smoking.⁴⁵ Although evidence exists on the possible benefits of using e-cigarettes, the health effects are generally unclear due to limited research on the safety of vaping, and the wide variation in their contents from the lack of regulations.⁴⁶ Moreover, whereas cigarette smokers may use e-cigarettes as a method for quitting, many are unable to quit smoking entirely and become dual users who alternate between smoking and vaping.⁴⁷ Dual users may stay abstinent from cigarettes only for the short term,⁴⁸ and be heavier smokers of cigarettes.^{49,50}

Due to the preliminary nature of this study in which the focus was only on Wave 5, a limitation is the relatively small sample size of recovery home residents who use tobacco, especially among those who use only e-cigarettes. However, the findings point to the need

for more research on residents who only vape. Vapers report both lower self-efficacy to quit and intentions to quit tobacco use in the future. A second limitation is the inability to determine whether vapers were former smokers of cigarettes and had quit through e-cigarettes or some other method, which may help explain these findings. However, our data show that about 85.7% (N = 24) of residents who only vape formerly smoked cigarettes and quit, and vapers were significantly more likely to have used e-cigarettes to quit. Moreover, smoking cigarettes often leads to future vaping, and not the other way around.⁵¹

Third, our data were derived from a convenience sample of OH homes. Therefore, participants in the study may not be representative of the general population of residents in recovery homes. Fourth, the data were gathered by self-report, which can be subject to social desirability bias due to the topic of tobacco-related behaviors, resulting in the possibility of underreporting. To minimize bias, questionnaires were completed in private and confidential settings, and residents were assured of the confidentiality of their responses. Finally, an additional limitation is the cross-sectional design that does not allow for the measurement of changes over time in the recovery homes on the predictors for smoking cessation, reasons to quit, use of quit methods, and intentions to quit.

Despite these limitations, this study clearly demonstrates that a critical need exists to understand how to reduce tobacco use in recovery homes in a vulnerable population suffering from considerable smoking-related health disparities. Moreover, smoking while in recovery can adversely affect drug-related abstinence in populations with SUDs. For example, Weinberger et al⁵² demonstrated that continued smoking for smokers and smoking initiation among nonsmokers were associated with a greater likelihood of SUD relapse 3 years later. In contrast, smoking cessation can be beneficial for abstinence. Prochaska et al⁵³ found that among those in treatment for SUDs, smoking cessation in the first 6 months of recovery is associated with a 25% increase in the probability of successful abstinence from drugs. Tsoh et al⁵⁴ found that quitting smoking during the first year in substance abuse treatment predicted past-year alcohol abstinence 9 years later.

There remains a great deal unknown concerning the problem of tobacco use in this group. Despite smoke-free policies in the recovery homes, tobacco use in general, and in particular, cigarette smoking, remains high. Future studies should explore the availability of and access to smoking cessation resources and programs to residents; additional research should examine in greater depth the reasons for vaping versus dual use. Moreover, more research is needed on the 3 predictors of smoking cessation that have been the focus here, as well as other predictors that may be unique to recovery home residents.

Although researchers have recommended implementing smoking cessation programs and smoke-free policies within drug addiction treatment,^{55,56} the sober living homes have largely been ignored. Future development of policies and/or interventions may need to focus on cigarette smoking, but also take into consideration dual use, especially given the widespread ban of cigarettes within the recovery homes. Whether vaping should be considered as a strategy to reduce and/or quit smoking remains undecided. However, the environmental context, as well as the social support model⁵⁷ upon which these houses are founded also should be examined for their relationships to tobacco-related attitudes and

behaviors. The emphasis on peer relationships for drug recovery may induce residents who never smoked to begin using tobacco upon entering a recovery home, and disincentivize current smokers from quitting if the prevalence of smoking in a home is high.

The high prevalence of smoking and vaping among this population makes it an important and high value target for efforts that could increase quit attempts, reduce smoking prevalence, improve health outcomes, lower healthcare costs, and support sobriety. Given that smoking cessation potentially benefits SUD abstinence, and continued tobacco use may undermine recovery from drugs, the benefits from addressing this problem may well extend beyond recovery home residents to society as a whole.

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Table 1
Demographic Characteristics among Cigarette Users and Dual Users Versus Vapers Only

Characteristic	Smokers & Dual Users (N = 135)		Vapers Only (N = 28)		Significance
	M (SD)	% (N)	M (SD)	% (N)	
Age	39.3 (11.0)		37.7 (7.4)		
		% (N)		% (N)	
Sex					**
Male	46.7 (63)		78.6 (22)		
Female	53.3 (72)		21.4 (6)		
Race/ethnicity					
White (non-Hispanic)	82.1 (110)		64.3 (18)		
Black (non-Hispanic)	10.4 (14)		14.3 (4)		
Hispanic	6.0 (8)		17.9 (5)		
Other	1.5 (2)		3.6 (1)		
Marital status					
Married	3.7 (5)		14.3 (4)		
Divorced, separated, or widowed	34.3 (46)		21.4 (6)		
Never married	61.9 (83)		64.3 (18)		
Educational achievement					
High school diploma or GED	53.1 (69)		28.6 (8)		
Some college or training/technical degree	33.1 (43)		50.0 (14)		
College degree or above	13.8 (18)		21.4 (6)		
Employment status					
Full-time	66.7 (90)		78.6 (22)		
Part-time	17.0 (23)		10.7 (3)		
Unemployed	7.4 (10)		7.1 (2)		
Other (student, service, retired/disabled)	8.9 (12)		3.6 (1)		

p < .01

Table 2
Smoking-related Characteristics among Cigarette Users and Dual Users versus Vapers Only

Smoking-related Variable	Smokers & Dual Users (N = 135)		Vapers Only (N = 28)		Significance
	M (SE)	% (N)	M (SE)	% (N)	
Self-efficacy to quit^a	3.60 (0.31)		2.05 (0.71)		p = .05
Motivation to quit^a	4.14 (0.35)		2.68 (0.79)		
Level of nicotine dependence	36.78 (1.69)		29.38 (3.80)		
		% (N)		% (N)	
How soon after waking up do you use tobacco					
Within 5 minutes		49.6 (62)		46.2 (12)	
6 – 30 minutes		30.4 (38)		30.8 (8)	
More than 31 minutes		20.0 (25)		23.1 (6)	
Reasons to quit					
Own health		37.8 (51)		53.6 (15)	
Cost		19.3 (26)		14.3 (4)	
Friends and family		11.9 (16)		14.3 (4)	
Have not tried to quit		39.3 (53)		25.0 (7)	
Quit methods used					
Cold-turkey, simply stopped		33.3 (45)		39.3 (11)	
E-cigarettes/vaping		17.8 (24)		57.1 (16)	**
Nicotine replacement		25.9 (35)		28.6 (8)	
Chantix, Wellbutrin, or other medication		7.4 (10)		7.1 (2)	
Peer support/buddy system		11.9 (16)		14.3 (4)	
Have not tried to quit		43.7 (59)		21.4 (6)	*
Intention to quit					
Next 6 months		37.3 (47)		15.4 (4)	*

* p < .05,

** p < .001

Note.

#; Variable adjusted for sex using ANCOVA analysis

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Table 3
Multiple Logistic Regression Model on Intentions to Quit Tobacco Use in the Next 6 Months Adjusted for Sociodemographic Variables

Predictor	β	S.E.	Adjusted OR	95% CI	p-value
Tobacco User (0 = smokers and dual users, 1 = vapers)	-2.59	1.55	.075	[.004, 1.57]	.10
Self-efficacy	.385	.173	1.47	[1.05, 2.07]	.03
Motivation to Quit	1.1.7	.296	3.23	[1.81, 5.78]	.00
Constant	-7.98	3.64			

Note.

OR = Odds Ratio; CI = Confidence Interval

Controls are age, sex, marital status, educational level, and employment status.