

# Letters

## RESEARCH LETTER

### Intention to Quit Vaping Among United States Adolescents

In 2019, 25.2% of high school students in the US reported current use (ie, past 30 days) and 11.7% reported daily use of electronic nicotine products (ie, e-cigarettes, vaping).<sup>5</sup> Adolescents who vape are at risk for nicotine addiction, toxicant exposure, and transitioning to cigarettes.<sup>1,2</sup> The development, evaluation, and dissemination of evidence-based vaping cessation

interventions for adolescents could be critical to curbing the vaping epidemic; however, vaping cessation interventions are not widely disseminated, and existing programs have received little empirical investigation. It is necessary to assess interest in quitting and quit attempts in this population to drive funding and guide treatment development. Further, understanding interest in quitting among groups that experience tobacco-related health disparities, including sociodemographic minorities and individuals with mental health symptoms, could guide development of treatment programs for specific subgroups. This study

Table. Intentions to Quit and Past-Year Quit Attempts Among Adolescent Vapers

Characteristic	Prevalence in sample <sup>a</sup>	Seriously thinking about quitting <sup>b</sup>	P value	Past-year quit attempt <sup>c</sup>	P value
Overall	498 <sup>d</sup>	215 (44.52)	NA	127 (24.90)	NA
Sex					
Male	284 (56.63)	130 (46.15)	.34	80 (27.84)	.08
Female	214 (43.37)	85 (42.28)		47 (21.08)	
Age, y					
12-14	80 (14.96)	36 (47.14)	.72	25 (33.81)	.02
15-17	418 (85.04)	179 (44.10)		102 (23.36)	
Race/ethnicity					
Non-Hispanic White	326 (72.21)	130 (41.32)	.06	75 (22.31)	.03
Other <sup>e</sup>	161 (26.00)	80 (52.86)		49 (32.07)	
Household income, \$					
<50 000	195 (35.72)	86 (45.05)	.80	61 (30.77)	.07
≥50 000	282 (59.82)	118 (43.18)		64 (22.57)	
Past 30-d combustible cigarette use					
Yes	152 (29.99)	63 (39.33)	.18	40 (24.79)	.97
No	346 (70.01)	152 (46.80)		87 (24.96)	
Vaping frequency, d in past 30 d					
<4	252 (50.77)	116 (47.42)	.46	70 (25.45)	.87
≥4	227 (45.48)	95 (43.02)		53 (24.77)	
Past-year depression symptoms <sup>f</sup>					
Yes	286 (56.89)	133 (46.81)	.31	79 (25.37)	.88
No	208 (42.48)	82 (41.74)		48 (24.64)	
Past-year anxiety symptoms <sup>g</sup>					
Yes	297 (61.15)	129 (44.18)	.84	78 (24.38)	.81
No	200 (38.69)	85 (44.81)		48 (25.44)	

Abbreviation: NA, not applicable.

<sup>a</sup> Reported as unweighted No. (weighted %). Percentages may not sum to 100 owing to missing data.

<sup>b</sup> Collapsed across 4 response options, which indicated different time frames for quitting including within the next 30 days, within the next 6 months, within the year, and not within the year. Reported as unweighted No. (weighted % who said yes compared with those who said no excluding do not know/missing/refused).

<sup>c</sup> Reported as unweighted No. (weighted % who said yes compared with those who said no excluding do not know/missing/refused).

<sup>d</sup> The total analytic sample size was 498 adolescents between age 12 to 17 years who reported having vaped more than once in their lives and at least once in the past 30 days.

<sup>e</sup> The other category included Black, Asian, and other races including multiracial.

<sup>f</sup> Assessed using the question "When was the last time you had significant problems with feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future?" For this analysis, "past month" and "2 to 12 months ago" response options were combined, and "over a year ago" and "never" response options were combined.

<sup>g</sup> Assessed using the question "When was the last time you had significant problems with feeling very anxious, nervous, tense, scared, panicked, or like something bad was going to happen?" For this analysis, "past month" and "2 to 12 months ago" response options were combined in the yes category, and "over a year ago" and "never" response options were combined in the no category.

estimated interest in quitting and past e-cigarette quit attempts among US adolescents who vape. To our knowledge, this is the first such report.

**Methods** | Data were collected as part of wave 4 of the Population Assessment on Tobacco and Health (PATH) study, a nationally representative, longitudinal survey conducted in the United States. The PATH study protocol was approved by the Westat institutional review board. Parents of participating youth and youth provided written permission and assent, respectively. We focus on the most recent wave of data collection (December 2016 to January 2018), given the recent proliferation of high-nicotine delivery devices.<sup>3</sup> The sample included adolescents aged 12 to 17 years who had vaped more than once in their lifetime and at least once in the past 30 days (ie, current vapers), weighted to be representative of all US adolescents who vape. Details on interview procedures, questionnaires, sampling, and weighting are available elsewhere.<sup>4</sup>

We report outcome data for 2 questions: (1) are you seriously thinking about quitting electronic nicotine products? (response options: yes, within the next 30 days; yes, within the next 6 months; yes, within the next year; yes, but not within the next year; no; do not know) and (2) have you tried to completely stop using electronic nicotine products within the past 12 months? (response options: yes; no; do not know). Weighted Ns were used, and analyses accounted for the complex sampling structure of PATH. Results were reported overall as well as by select demographic, tobacco use, and mental health variables (eg, depression symptoms, anxiety symptoms). Data were analyzed using SAS version 9.4 (SAS Institute) and  $\chi^2$  tests examined differences by demographic group in the prevalence of responding yes vs no for each outcome ( $\alpha = 0.05$ ). Analysis began January 2020 and ended February 2020.

**Results** | In total, 14 798 youth aged 12 to 17 years completed the survey, of whom 498 (3.6%) had used e-cigarettes in the past 30 days, constituting the analytic sample. Sample characteristics and main outcomes are reported in the **Table**. Approximately 44.5% reported seriously thinking about quitting. Of those, most reported thinking about quitting within the next 30 days (50.2%), followed by beyond 1 year (22.9%), within the year (16.9%), and within the next 6 months (10.1%). Overall, 24.9% had tried to quit vaping completely within the past year. Motivation to quit and incidence of quit attempts were largely consistent across demographic and smoking history subgroups.

**Discussion** | Public health experts have focused on preventing vaping initiation among youth. However, 44.5% of adolescents who vape are seriously interested in quitting and 24.9% tried to quit in the past year, suggesting that vaping cessation interventions are urgently needed. Interest in quitting was of appreciable prevalence across a variety of subgroups. Thus, the development and dissemination of vaping cessation interventions should be disseminated

widely, across those with and without demographic and mental health risk factors. For those not interested in quitting, public education campaigns and interventions to increase motivation to quit may be most useful.

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