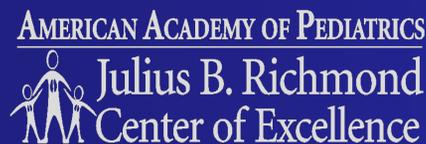


Electronic Cigarette Use among Young Adults



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OBJECTIVE

To describe use of electronic cigarettes among U.S. young adults (ages 18-24), demographic predictors of use, self-reported smoking status of electronic cigarette users, and reported reasons for electronic cigarettes use.

BACKGROUND

Electronic cigarettes entered the U.S. market in 2007, and are often promoted as a safer alternative to traditional cigarettes, as a potential way to decrease the harm caused by combusted tobacco, and as a tobacco cessation device. While electronic cigarettes are likely to be less harmful than combustible cigarettes, the research on the harms of secondhand vapor is limited showing evidence that electronic cigarettes can produce volatile organic compounds, heavy metals, and other toxins in the vapor released, albeit in lower levels than combustible tobacco. The FDA announced its intention to regulate electronic cigarettes as tobacco products in April of 2011 under its authority provided by the Tobacco Control Act and implemented an electronic cigarette deeming rule in April of 2014. This deeming rule, however, did not address marketing restrictions, flavors, or child-safety measures.

METHODS

- Data were from the 2012 Social Climate Survey of Tobacco Control.
- We recruited US residents 18+ years living in multiunit housing from a nationally representative online panel that includes listed and unlisted numbers, those without a landline telephone, does not accept self-selected volunteers, and provides sample coverage for 99% of U.S. households.
- Survey items to assess electronic cigarette use are from the PATH study.
- Participants were asked about smoking status and use of electronic cigarettes.
- Current smokers were defined as those who reported smoking over 100 cigarettes in their lifetime and now smoke everyday or some days.
- Recent former smokers were those that reported they quit smoking less than 5 years ago; distant former smokers reported they quit more than 5 years ago.
- Chi-Square analyses were used to examine predictors of use, while multivariable analyses controlled for demographics.

RESULTS

Of eligible panelists contacted, 3,253 (88%) completed the survey; 258 (8%) were young adults 18-24 years. Sample characteristics are presented in Table 1.

Table 1: Sample Characteristics (n=3,253)

	Unweighted	Weighted
Cigarette Smoking Status		
Never Smoker (n=1,814)	55.8%	55.2%
Former Smoker (n=897)	27.6%	25.1%
Current Smoker (n=508)	15.6%	18.3%
Age		
18-24 years (n=258)	7.9%	9.4%
25+ years (n=2,995)	92.1%	90.6%
Education		
Less than high school diploma (n=242)	7.4%	12.7%
High school degree (n=753)	23.1%	29.6%
Some college (n=952)	29.3%	28.0%
College degree (n=1,306)	40.1%	29.6%
Race/Ethnicity		
White, non-Hispanic (n=1,927)	59.2%	51.1%
Black, non-Hispanic (n=472)	14.5%	17.6%
Other, non-Hispanic (n=247)	7.6%	10.0%
Hispanic (n=607)	18.7%	21.4%
Sex		
Male (n=1,676)	51.5%	48.3%
Female (n=1,577)	48.5%	51.7%

Among young adults, most (84%) had heard of electronic cigarettes, 13% reported trying an e-cigarette, and 6% reported use in the last 30 days (see Table 2).

Table 2: Bivariate Predictors of Awareness and Use of Electronic Cigarettes

	Heard of E-Cigs	Has Tried E-Cigs	Past 30 Day Use of E-Cigs
Overall	83.8%	12.6%	5.7%
Cigarette Smoking Status			
Never Smoker	81.2%***	4.9%***	1.8%***
Former Smoker	92.1%***	11.7%***	7.0%***
Current Smoker	87.4%***	38.0%***	15.7%***
Age			
18-24 years	86.3%	20.1%***	8.8%*
25+ years	84.9%	12.2%***	5.4%*
Education			
Less than high school diploma	67.8%***	21.8%***	10.4%***
High school degree	84.1%***	12.3%***	5.1%***
Some college	88.7%***	15.1%***	7.7%***
College degree	90.0%***	7.4%***	2.5%***
Race/Ethnicity			
White, non-Hispanic	90.9%***	15.2%***	6.6%**
Black, non-Hispanic	83.6%***	11.0%***	3.0%**
Other, non-Hispanic	80.7%***	12.1%***	7.1%**
Hispanic	74.1%***	9.2%***	5.0%**
Sex			
Male	87.3%***	14.6%**	6.3%
Female	82.8%***	11.3%**	5.1%

*p < .05; **p < .01; *** p < .001

In multivariate analysis, ever use of e-cigarettes is significantly associated with age, smoking status, education, race/ethnicity, and gender (see Table 3).

Table 3: Multivariate Predictors of Awareness and Use of Electronic Cigarettes

	Heard of E-Cigs	Has Tried E-Cigs	Past 30 Day Use of E-Cigs
Cigarette Smoking Status			
Never Smoker	REF	REF	REF
Former Smoker	0.4 (0.3-0.5)***	2.9 (2.1-4.0)***	4.7 (2.9-7.5)***
Current Smoker	0.5 (0.4-0.7)***	13.3 (9.80-18.0)***	10.8 (6.9-16.8)***
Age			
18-24 years	0.6 (0.4-0.9)*	3.2 (2.2-4.6)***	2.9 (1.8-4.7)***
25+ years	REF	REF	REF
Education			
Less than high school diploma	3.8 (2.7-5.3)***	2.6 (1.7-3.8)***	3.7 (2.1-6.4)***
High school degree	2.1 (1.5-2.7)***	1.1 (0.8-1.6)	1.5 (0.9-2.5)
Some college	1.3 (0.9-1.7)	1.4 (1.0-2.0)*	2.3 (1.4-3.8)***
College degree	REF	REF	REF
Race/Ethnicity			
White, non-Hispanic	0.6 (0.5-0.8)***	2.0 (1.2-3.2)**	3.6 (2.0-6.2)***
Black, non-Hispanic	REF	REF	REF
Other, non-Hispanic	1.4 (1.0-2.1)	2.0 (1.2-3.2)**	4.7 (2.3-9.4)***
Hispanic	1.5 (1.1-2.0)*	1.1 (0.7-1.6)	2.5 (1.3-4.6)**
Sex			
Male	REF	REF	REF
Female	1.4 (1.1-1.7)**	0.8 (0.6-1.0)*	0.9 (0.6-1.2)

*p < .05; **p < .01; *** p < .001

Young adults provided several reasons for using electronic cigarettes, which are presented in Table 4. Reasons for e-cigarette use differed between young adults in adults with young adults preferring to use e-cigarettes because they don't smell and are more acceptable to non-tobacco users; while older adults (25+ years) are more likely to use electronic cigarettes as a way of cutting down on cigarette smoking and as a safe alternative to quitting tobacco altogether.

Table 4: Reasons for Using Electronic Cigarettes

	Age 18-24	Age 25+
They are affordable*	36.7%	52.8%
Can use in places where smoking cigarettes isn't allowed*	81.7%	68.0%
Might be less harmful to me than cigarettes*	89.8%	73.7%
Might be less harmful to people around me than cigarettes*	86.4%	70.4%
Using e-cigarettes help people to quit smoking cigarettes	70.0%	63.9%
Using e-cigarettes feels like smoking regular cigarettes	61.0%	49.6%
E-cigarettes don't smell**	83.3%	62.6%
E-cigarettes are more acceptable to non-tobacco users*	81.4%	68.4%
E-cigarettes are a way to cut down on cigarette smoking***	13.8%	57.4%
E-cigarettes are a safe alternative to quitting tobacco altogether***	6.9%	58.1%

*p < .05; **p < .01; *** p < .001

DISCUSSION

Our study shows that young adults exclusively use flavored e-cigarettes, and they are not using them as a cessation alternative but rather as a potential substitution for traditional combustible cigarettes. Additionally, many of the young adult electronic cigarette users in our study are current and former smokers. All of these characteristics suggest that young adults are using electronic cigarettes in very different ways than their older adult counterparts – they are being used to maintain nicotine addiction and use may re-expose former smokers to nicotine. These differences indicate that young adults may use e-cigarettes as an alternative when traditional combustible cigarettes can't be used, which could potentially lead to dual use of both products.

LIMITATIONS

- Online panel survey method of recruitment was used
- Self-reported data
- Missing responses for some questions may introduce bias

CONCLUSIONS

While current young adult smokers are most likely to use these products, a significant number of current users are non-smokers (never smokers or former smokers), suggesting that electronic cigarettes continue to contribute to primary nicotine addiction and may lead to renormalization of smoking behaviors in former smokers.

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