

*Full Length Research Paper*

# Underage vaping behaviors and perceptions: Evidence from a social media survey of youth and young adults in New York State

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Vaping products, or “vapes,” remain the most commonly used tobacco product among youth and young adults in the United States. In 2020, we used social media advertisements to recruit current vape users aged 15 to 20 years in New York State. The online survey assessed vaping behaviors, dependence, harm perceptions, and cessation-related outcomes. Disposable vapes were the most commonly used type of vapes. Nearly 75% reported using flavored vapes, and 40.6% reported using vapes with 5% or more nicotine content. Most (89.0%) believed vaping nicotine causes “some” or “a lot of harm,” while only 49.8% reported that vaping cannabis was similarly harmful. Nearly all (90.4%) reported a desire to quit vaping, and behaviors indicative of dependence on vaping were common. Youth and young adult vapers in New York State frequently reported use of disposable vapes, flavored vapes, and vapes with high nicotine concentrations. While nearly all identified vaping nicotine as harmful, less than half reported that vaping cannabis was harmful. We found evidence of dependence on vaping and widespread desire to quit. Findings provide insights regarding vaping behaviors and perceptions during the COVID-19 pandemic and following implementation of state and federal tobacco control restrictions.

**Key words:** Adolescent, young adult, vaping, nicotine, cannabis, tobacco products, COVID-19, policy.

## INTRODUCTION

Despite recent decreases in youth vaping prevalence, vaping remains the most common tobacco product used by youth and young adults, with 14.1% of U.S. high school students reporting current vaping product use

(Park-Lee et al., 2022) and 9.3% of U.S. adults aged 18 to 24 reporting vaping “every day” or “some days” (Wang et al., 2020). Many vapes used by young people contain high nicotine levels (Cornelius et al., 2022). Nicotine is

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addictive and exposure in adolescence can worsen mood disorders, predispose young people to substance use disorders, and contribute to deficits in impulse control, cognition, and attention (Lewinsohn et al., 1999; Jacobsen et al., 2005; Bergstrom et al., 2008; Boden et al., 2010; Moylan et al., 2012; U.S. Department of Health and Human Services, 2016; Hammond et al., 2020). Vaping may also be associated with respiratory and cardiovascular health risks (Treur et al., 2015). Recent federal, state, and local policies in the United States, including restrictions on flavored vapes popular among youth (Oriakhi, 2020; Wang et al., 2020; Miech et al., 2021) and an increase in the minimum age to purchase all tobacco products to 21 years (T21) (Park-Lee et al., 2021), may have affected youth and young adult vaping-related perceptions and behaviors. In addition, the outbreak of e-cigarette or vaping-related lung illness (EVALI) that occurred primarily in the United States in 2019 and the onset of the COVID-19 pandemic in 2020 may have affected vaping (U.S. Food and Drug Administration, 2019; Kreslake et al., 2022). Continued youth and young adult vaping amid these regulatory and environmental changes underscores the need for detailed information about vaping-related beliefs and behaviors. Recent studies have documented vaping frequency; nicotine content, flavors, and brands of vapes used; types of vapes used; beliefs about vapes; perceived addiction; and desire to quit vaping and quit attempts among youth (Cai et al., 2021; Miech et al., 2021; Camara-Medeiros et al., 2021; Wang et al., 2021). Our study adds to the literature by including more detailed information on dependence, harm perceptions, and cessation-related outcomes among youth and young adults, which could inform interventions designed to address vaping. We surveyed vapers in New York State under the legal age for purchasing vapes to understand vaping-related beliefs and behaviors among this recently broadened underage group after the T21 and flavored vaping product policies went into effect and during a global pandemic.

## METHODS

### Data collection

An online survey among a convenience sample of youth and young adult vapers was conducted in New York State during May through September 2020 ( $n = 297$ ). Eligible respondents were aged 15 to 20 years, resided in New York State, and vaped in the past 30 days. We categorized respondents as past 30-day vapers based on their response of “At least one day” to the question “In the past 30 days, on how many days did you vape (use an e-cigarette, vape pen, JUUL, mod, or other vaping product)?” We used paid advertisements on Instagram to recruit eligible youth and young adults for the cross-sectional online survey. Ads targeted 15- to 20-year-olds who lived in New York State and used interest keywords related to vaping (for example, e-cigarette, Vaping Connection). Ads invited potentially eligible participants to take the survey and noted an incentive for eligible respondents who completed the survey. After clicking on the ads, participants were directed to a screener to assess their eligibility with questions related to

demographics and vaping behavior. We invited eligible participants to complete the 20-minute online survey in exchange for a \$15 Amazon.com digital gift card, sent to each participant via e-mail within 1- to 2 weeks of survey completion. We used a robust set of fraud prevention and detection tools to ensure data quality, including checking for duplicate e-mail addresses and non-U.S.-based IP addresses, as well as identifying speeders (defined as completing the survey in a total time less than two standard deviations from the norm). The RTI International and New York State Department of Health Institutional Review Boards determined that this activity was conducted for public health surveillance and thus did not meet the definition of research with human subjects.

### Calibration

Social media recruitment is a nonprobability sampling method and data from this study are not representative. To help address this limitation, we calibrated the data to the population of vaping product users estimated using two probability-based surveys: the 2020 New York Youth Tobacco Survey (NY YTS) (for respondents aged 15–17 years) and the 2019 New York Adult Tobacco Survey (NY ATS) (for respondents' aged 18–20 years). During calibration, we created analysis weights that were then applied to the data, such that the weighted analysis results more closely reflect the estimated target population in terms of age, gender, race, and geographic region (New York City/rest of state). The sample characteristics before and after calibration are available in Table 1.

### Measures

For all questions except those specifically related to cannabis, we asked respondents **not to consider** products used for vaping cannabis, referenced in the survey as marijuana. Although we use the term “cannabis,” throughout this paper, survey questions used the term “marijuana,” which cognitive testing indicates is a more widely recognizable term among youth and young adults who use vaping products. Measures related to vaping behaviors; harm perceptions (except for harm perceptions of vaping and smoking cannabis); and dependence and cessation should not include cannabis.

### Vaping behaviors

We assessed current use of different vaping product types using the question “How often do you currently use each of the following devices?” The available response options were “Every day,” “Some days,” “Rarely,” or “Never” for device types: “A disposable device, like Puff Bar,” “A device that uses replaceable prefilled cartridges or pods, like JUUL,” “A device with a tank you refill with liquids, a mod system, or another type of vaping device.” We classified respondents as current users of a product if they reported using it at least rarely. We then used this definition of current use to classify respondents as single-product type users or users of two or more product types. Respondents who reported using more than one type of vape product were asked, “Which device do you vape most often?” Responses were used to determine preferred device type. For respondents who used only one device type, the device type they used was assumed to be their preferred type. We also asked respondents, “Which of the following vaping devices do you own?” and allowed respondents to choose from the previously listed product types or select “I do not own any vaping devices.” We assessed current use of flavored vaping products with the question “Which flavors have you vaped in the past 30 days?” with response options “I have not vaped any flavors in the past 30 days,” “Tobacco-flavored,” “Menthol,” “Mint,” “Clove or spice,” “Fruit,”

**Table 1.** Participant characteristics, New York state vapers aged 15-20 years (N = 297), 2020.

Variable	Frequency	Percent	
		Uncalibrated	Calibrated
<b>Age (in years)</b>			
15-17	101	33.9	51.1
15	12	4.0	14.8
16	31	10.4	15.3
17	58	19.5	21.0
18-20	196	66.0	48.9
18	70	23.6	16.2
19	64	21.5	16.4
20	62	20.9	16.4
<b>Race/ethnicity</b>			
White	149	50.0	47.7
Black or African American	24	8.2	10.2
Hispanic	71	24.0	28.9
Other	53	17.8	13.3
<b>Gender</b>			
Female	206	69.4	48.8
Male	77	25.9	48.1
Another gender	14	4.7	3.1
<b>Geography</b>			
New York City	123	41.4	27.3
Rest of state	174	58.6	72.7
<b>Household Tobacco Use</b>			
Any tobacco use	143	49.1	48.5
Tobacco cigarette use	79	27.1	23.0
Vaping devices	91	31.3	29.6
Other product use <sup>a</sup>	39	13.4	15.2
No household tobacco use	148	50.9	51.5

<sup>a</sup>Other product use includes traditional cigars, little cigars, cigarillos, hookah, smokeless tobacco, and heated tobacco products. Household tobacco use was determined using the question "Does anyone who lives with you now use..." to which participants could select one or more of the following responses: "Tobacco cigarettes," "Vaping devices, including e-cigarettes, vape pens, JUULS, mods, or other vapes," "Traditional cigars," "Cigarillos or little cigars (such as Black and Mild or Swisher Sweets)," "Hookah or waterpipe with tobacco," "Smokeless tobacco, including dip, chewing tobacco, snuff, and snus (such as Copenhagen, Grizzly, Skoal, Camel Snus, Kodiak, or Longhorn)," "Heated tobacco products like IQOS," "Nicotine pouches like Zyn, On, and Velo," and "No one who lives with me now uses any form of tobacco."

Source: Authors

"Chocolate, candy, desserts or other sweets," "An alcoholic drink (such as wine or margarita)," "A non-alcoholic drink (such as coffee or soda)," and/or "Some other flavor (please specify)." We asked those who reported vaping with flavors to specify the flavor they liked best. We asked respondents to indicate whether they usually vaped "with nicotine," "without nicotine," "both with and without nicotine," or that they were "not sure" about whether they usually vaped with nicotine. For analysis, we combined "with nicotine" and "both with and without nicotine." A separate question asked about the concentration of nicotine respondents usually used, with response options "I don't know the concentration," "0 mg or 0%," "1-11 mg or 0.1-1.1%," "12-17 mg or 1.2-1.7%," "18-23 mg or 1.8-2.3%," "24-49 mg or 2.4-4.9%," "50 or more mg or 5% or more,"

and "Other."

### **Harm perceptions**

To assess perceived harm from vaping and smoking nicotine and cannabis products, we asked respondents how much they thought people were harmed by "smoking cigarettes," "vaping nicotine," "vaping marijuana," and "smoking marijuana or cannabis" with response options "No harm," "A little harm," "Some harm," and "A lot of harm." For analysis, we combined responses for "Some harm" and "A lot of harm." We also asked respondents to rate the harmfulness of specific vaping product flavors using the question

"How harmful to your health do you think [tobacco (traditional, regular); menthol; mint; sweet (fruit, candy, desserts)] flavors are?" Respondents could assign a harm score from 1 (Not at all harmful) to 10 (Extremely harmful) for each flavor. Respondents were then asked about their agreement with the following statements: "Vaping nicotine affects my performance in sports," and "Vaping nicotine hurts my grades in school," with response options "Strongly Agree," "Agree," "Disagree," or "Strongly Disagree." For analysis, we combined "Strongly Agree" and "Agree."

### **Dependence and cessation**

To assess dependence on vaping, we asked participants to respond to four statements: "I find myself reaching for my vape without thinking about it," "When I haven't been able to vape for a few hours, the craving gets intolerable," "I drop everything to go out and get vapes or e-liquid," and "I vape more before going into a situation where vaping is not allowed." Response options for these four statements were "Never," "Rarely," "Sometimes," "Often," "Almost always," and "Prefer not to answer." For analysis, we combined responses for "Sometimes," "Often," and "Almost always." To measure desire to quit vaping, we asked respondents, "How much do you want to stop vaping?" with response options of "Not at all," "A little," "Somewhat," and "A lot." For analysis, we indicated respondents as wanting to quit vaping if they reported wanting to quit vaping at least "A little." We also asked respondents if they have tried to cut down on vaping, with response options of "Yes," "No," and "Prefer not to answer."

### **Analysis**

Descriptive statistics were calculated for key measures among all respondents and among youth (15–17 years of age) and young adults (18–20 years of age) separately. We used F-tests to identify statistically significant differences in findings across age groups ( $p < 0.05$ ). All reported differences between age groups were found to be statistically significant. All analyses were conducted using Stata 16 statistical software and utilized analysis weights.

## **RESULTS**

### **Types, flavors, and nicotine content of vaping products used**

Most youth and young adult vapers (78.1%) reported current use of two or more product types (Table 2). Although use of pod-based products such as JUUL were common among youth and young adult vapers, with 80.1% reporting use of these products, 89.6% of vapers in the study used disposable vaping products, and over half of vapers (53.4%) preferred the disposables. Disposables were the most commonly owned product type by a slight margin- 50.6% of vapers reported that they owned a disposable device, and 48.8% reported that they owned a pod-based device. Nearly 20% of youth and young adult vapers reported that they did not own a vaping device. Stratified analyses comparing age groups found no statistically significant difference in use of, preference for, or ownership of disposables (results not shown). Among youth and young adult vapers, 74.6%

used fruit flavored vaping products (Table 2), and 51.5% indicated fruit flavors were their favorite. Mint (36.5%) and menthol (23.7%) were also among the top reported flavors used. Among youth and young adult vapers, 22.0% reported mint as their favorite flavor, and 7.7% reported menthol as their favorite flavor (Table 2). Flavor use and preferences were similar across age groups, with no statistically significant differences observed (results not shown). Among youth and young adult vapers, rather than 87.3% reported usually vaping nicotine (either exclusively or both with and without nicotine) (Table 2). When asked specifically about the concentration of nicotine they usually use, 40.6% reported using vaping products with a nicotine concentration of 5% or more and 25% reported not knowing the nicotine concentration they usually used. Among those who indicated they knew the nicotine concentration of products they usually used, most (54.1%) reported using products with 5% nicotine or more (results not shown). These findings were consistent across age groups, with no statistically significant differences observed (results not shown).

### **Harm perceptions**

Most youth and young adult vapers (89.0%) believed that vaping nicotine is harmful (causes "Some harm" or "A lot of harm"), and 96.5% reported smoking cigarettes is harmful (Table 3). About half (49.8%) reported vaping cannabis is harmful, and 32.4% reported smoking cannabis is harmful. There were no notable differences in potential harm scores assigned to different vaping product flavors, with youth and young adults assigning a mean harm score of approximately seven out of 10 to tobacco-, sweet-, menthol-, and mint-flavored vaping products. Although 67.6% of youth and young adult vapers agreed that vaping affects their performance in sports, only 19.5% agreed that vaping hurts their grades in school. Harm perceptions did not differ significantly by age group, with the exception of affecting sports performance, with more youth than young adults agreeing that vaping could affect their performance in sports.

### **Dependence and cessation**

Many youth and young adult vapers reported behaviors or experiences indicative of dependence on vaping. Approximately half (48.8%) found themselves reaching for their vaping product without thinking about it "Sometimes," "Often," or "Almost always" and vaping more before going into a situation where vaping is not allowed (51.3%) (Figure 1). Among youth and young adult vapers, 31.8% reported intolerable cravings when they have not been able to vape, and 17.0% would drop everything to go out and get vaping products or e-liquid.

**Table 2.** Vaping device type, flavor, and nicotine use among New York State vapers aged 15–20 years (N = 297), 2020.

Variable		Percent	
		Estimate	Standard Error
<b>Vaping device type</b>			
Use <sup>a</sup>	Disposable	89.6	2.1
	Pod-based	80.1	3.5
	Other	41.5	4.0
Number of device types used <sup>b</sup>	One type	21.9	3.5
	Two or more types	78.1	3.5
Preference	Disposable	53.4	4.1
	Pod-based	35.9	3.8
	Other	10.7	2.3
Ownership <sup>a</sup>	Disposable	50.6	4.1
	Pod-based	48.8	4.1
	Other	18.3	2.6
	Does not own a vaping device	19.8	3.5
<b>Flavor Use</b>			
Past 30-day use <sup>a</sup>	Has not vaped a flavored product in the past 30 days	1.7	0.8
	Tobacco (traditional, regular)	8.0	1.9
	Menthol	23.7	3.4
	Mint	36.5	3.9
	Clove or spice	2.4	0.9
	Fruit	74.6	3.3
	Chocolate, candy, desserts, or other sweets	11.6	2.2
	An alcoholic drink	2.6	1.1
	A non-alcoholic drink	7.5	2.5
	Other flavor	3.3	2.0
Favorite flavor	Tobacco (traditional, regular)	0.4	0.3
	Menthol	7.7	2.2
	Mint	22.0	3.3
	Clove or spice	0.8	0.5
	Fruit	51.5	4.2
	Chocolate, candy, desserts, or other sweets	11.4	2.7
	An alcoholic drink	0.8	0.5
	A non-alcoholic drink	2.7	1.8
	Other flavor	2.4	2.0
It is unflavored	0.3	0.3	
<b>Nicotine use</b>			
Usual use (with or without nicotine)	With nicotine	62.1	3.9
	Both with and without nicotine	25.3	3.4
	Without nicotine	7.6	2.2
	I don't know	5.0	1.9
Usual nicotine concentration	0 mg or 0%	4.8	1.9
	1-11 mg or 0.1-1.1%	11.3	2.7
	12-17 mg or 1.2-1.7%	5.2	1.4
	18-23 mg or 1.8-2.3%	3.9	1.5
	24-49mg or 2.4-4.9%	8.7	2.1
	>= 50mg or >= 5%	40.6	4.1
	Other	0.5	0.4
I don't know the concentration	25.0	3.6	

<sup>a</sup>Indicates items for which survey participants could select more than one response. <sup>b</sup>Among those who reported using at least one of the listed vaping product types included in the survey (n = 292).

Source: Authors

**Table 3.** Vaping harm perceptions among New York State vapers aged 15–20 years (N = 297), 2020.

Variable	Percent						p Value (15-17 vs. 18-20) <sup>a</sup>
	Overall		Youth (15–17 years old)		Young adults (18–20 years old)		
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	
<b>Harm perceptions by product (percentage reporting each product causes "Some harm" or "A lot of harm")</b>							
Smoking cigarettes	96.5	1.5	95.8	2.6	97.3	1.5	0.610
Vaping nicotine	89.0	2.4	89.0	3.9	89.0	2.7	0.997
Vaping cannabis	49.8	4.1	55.5	6.4	43.9	5.0	0.150
Smoking cannabis	32.4	3.9	34.3	6.2	30.4	4.7	0.618
<b>Harm perceptions by vaping product flavor (mean perceived harm score, where 1 = "Not at all harmful," and 10 = "Extremely harmful")</b>							
Tobacco (traditional, regular)	7.0	0.2	7.0	0.2	7.1	0.3	0.781
Sweet (fruit, candy, desserts)	6.5	0.2	6.5	0.3	6.4	0.3	0.839
Menthol	6.9	0.2	7.0	0.3	6.9	0.3	0.802
Mint	6.4	0.2	6.5	0.3	6.3	0.3	0.516
<b>Perceived effects of vaping (percentage reporting "Agree" or "Strongly Agree")</b>							
Vaping nicotine affects my performance in sports	67.6	3.7	74.8	5.2	60.3	5.1	0.047
Vaping nicotine hurts my grades in school	19.5	3.6	21.7	6.0	17.1	3.9	0.520

<sup>a</sup>p-values determined using F-tests comparing outcomes among NY youth vapers aged 15-17 years to those aged 18-20 years.  
Source: Authors

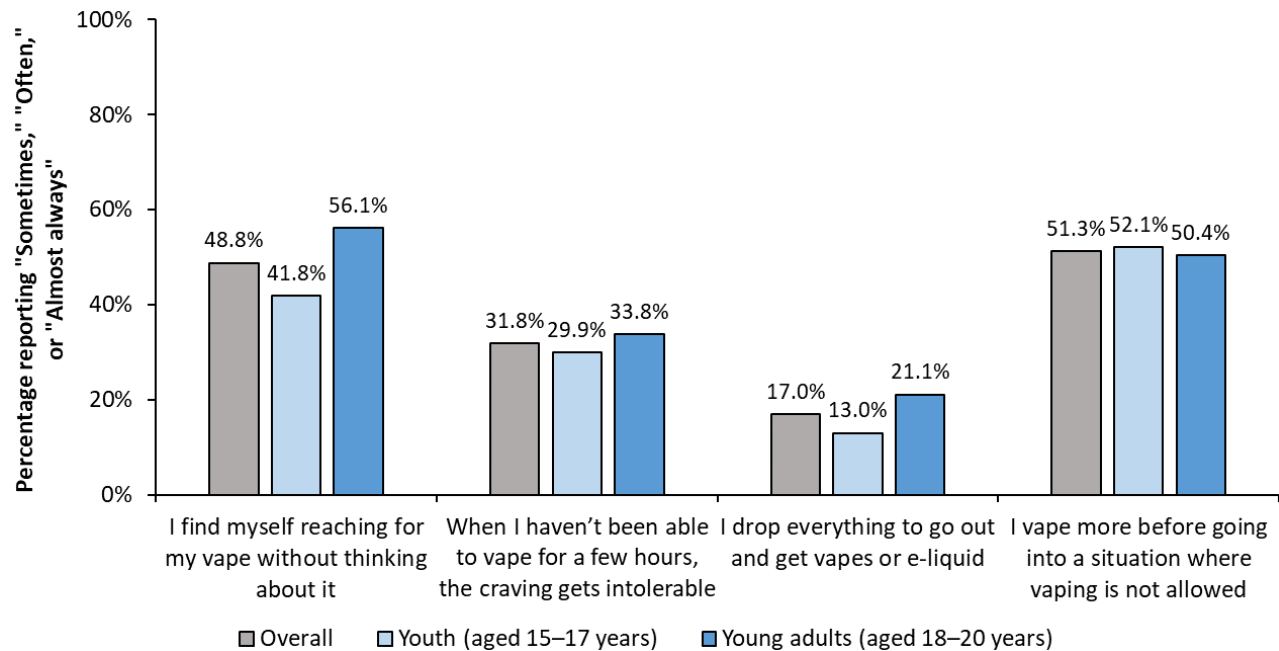
Findings were not significantly different across age groups for all dependence items. Nearly all youth and young adult vapers (90.4%) reported wanting to quit vaping at least a little and 82.8% had tried to cut down on vaping (results not shown). Reports of trying to cut down on vaping were significantly more prevalent among youth (88.3%) than young adults (77.4%) (p=0.036, results not shown).

**DISCUSSION**

With this study, we sought to present new information on dependence, harm perceptions, and cessation among underaged vapers in New York State. We found high reported use of

disposable vaping products, use of flavored vaping products, and use of vaping products with high nicotine concentrations, consistent with prior studies (Dai, 2021; Miech et al., 2021). We also found young adult vapers aged 18 to 20 years reported similar product type, flavor, and nicotine concentration use as vapers aged 15 to 17 years. Despite an increase in the minimum sales age to purchase tobacco products at both the state and federal levels (including vaping products) and flavored vaping product sales restrictions, youth and young adults are still vaping and report vaping flavors. After the U.S. Food and Drug Administration’s (FDA’s) January 2020 federal action prioritized enforcement action focused on the flavored pod-based vaping products commonly used by youth (for example, JUUL) (Wang et al.,

2021), disposable vaping products became more prevalent (U.S. Food and Drug Administration, 2020). Our findings provide additional documentation of the high prevalence of disposable product use and indicate continued use of pod-based vaping products. We also found that fruit and mint flavors were the most used and preferred among youth and young adult vapers. Although New York implemented a state-level restriction on the sale of flavored vaping products, including flavored disposable vapes, in May 2020, which was in effect for much of the study period, it is possible the flavored products respondents reported using were purchased before policies went into place or that respondents purchased them from other states or alternate sources. Therefore, although reported use of flavored



**Figure 1.** Dependence measures among New York State vapers aged 15-20 years (N = 297), 2020.  
Source: Authors

vaping products among study participants may indicate that participants were still able to purchase flavored products after the restriction went into place, it does not necessarily indicate retailer noncompliance with the policy.

A good number of youth and young adult vapers in New York State believed vaping nicotine could cause harm. This is consistent with recent reports of increasing harm perceptions about vaping among U.S. youth and adults (Wang et al., 2021) and may be related to a range of contextual factors, including news coverage of the outbreak of vaping-related lung injury in 2019 (Miech et al., 2021), the COVID-19 pandemic, media campaigns discouraging vaping (for example, FDA's *The Real Cost*) (Tattan-Birch et al., 2020), or other influences. Harm perceptions were consistent across vaping product flavors, which differed from previous findings that tobacco-flavored vaping products were perceived as more harmful than other flavors (Noar et al., 2020). Most vapers believed that both vaping nicotine and smoking cigarettes was harmful, but fewer appeared to believe that vaping or smoking cannabis was harmful. Further, although it seemed to be more common for vapers to perceive smoking nicotine products was harmful than to believe vaping was harmful, the opposite was true for cannabis products. Most youth and young adult vapers surveyed reported that vaping negatively affects their sports performance, but a smaller percentage reported that vaping affects their grades in school. Although at least one study assessed perceptions of the health risks of vaping and motivation for cessation among teens and

young adults utilizing a vaping cessation program (Zare et al., 2018), further research is needed to better understand why the possible cognitive effects of vaping are less salient than physical effects among youth and young adults. Our finding that more youth than young adult vapers believed that vaping negatively affects sports performance may be due to the question being less relevant for young adult vapers, who are less likely to be involved in school athletics.

Youth and young adult vapers in our study self-reported dependence on nicotine and most expressed a desire to quit vaping and reported having tried to cut down. Indications of dependence on vaping included reaching for a vape without thinking about it and vaping more before going into a situation where they cannot vape. A study exploring factors associated with vaping cessation behaviors among youth found a strong relationship between harm perceptions and reported quit intentions as well as recent quit attempts (Amato et al., 2021). In our study, differences between age groups in reported attempts to cut down on vaping indicate that although youth and young adult vapers have similar perceptions about possible harm from vaping, youth are more likely to have tried to cut back. This supports recent findings regarding differences by age in self-reported changes in vaping following the onset of the pandemic (Dai, 2021). Nicotine dependence could hinder cessation attempts among youth and young adult vapers in New York State, as many reported behaviors and experiences are indicative of addiction. Evidence suggests a connection between measures of addiction and use of high-nicotine

products (Gaiha et al., 2020). Most vapers in our study either reported using the highest listed nicotine concentration (5% or more) or did not know the nicotine concentration of the products they were using.

This study is subject to several limitations. First, our results are based on a convenience sample (that targeted past-month vape users) recruited through social media, which, despite calibration of the data, may limit the generalizability of our results. Also, the final sample size is relatively small and therefore may affect the precision of our estimates and our ability to compare estimates across age groups. Third, given that the vaping product use question used to determine eligibility for the survey referenced vaping generally, we cannot assume that respondents were not thinking about vaping cannabis when they were screened into the survey. However, as noted, we addressed this limitation in the survey by asking them to not consider products used for vaping cannabis for all questions except those related to cannabis. Similarly, measures related to vaping behaviors (except those about nicotine use), dependence, and cessation did not ask respondents to distinguish between nicotine and non-nicotine vaping products. Therefore, we cannot assume that respondents were thinking about only nicotine-containing vaping products when answering those questions. We also cannot assess the degree to which participant responses were influenced by the COVID-19 pandemic, which was ongoing during data collection. Finally, our study is limited to a single year of data collection, so we were unable to assess change over time in outcomes of interest.

## Conclusion

Our study provides an in-depth exploration of vaping perceptions and behaviors during a unique time during a pandemic and following implementation of tobacco control restrictions focused on decreasing availability of and access to vaping products for a newly expanded underage group. We also highlight similarities in vaping between youth and young adults less than 21 years of age, the new legal age for purchasing tobacco products in the United States. Continued research on vaping behaviors and perceptions among this age group, including ongoing surveillance, qualitative methods research, and comparison of outcomes by reported level of nicotine used and cessation attempts will help tailor future vaping prevention and cessation efforts.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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