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Publication Date

2023-04-06

Supplemental Material

<https://escholarship.org/uc/item/6qf8f8x1#supplemental>

Data Availability

The data associated with this publication are in the supplemental files.



TEENS NICOTINE &
TOBACCO PROJECT

Results of the California Teens Nicotine and Tobacco Survey

Online Survey: 2021-2022



Results of the California
Teens Nicotine and Tobacco Project
Online Survey
2021-2022

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Contract #: CDPH-20-10026
Contract Period: 3/1/2021 - 2/29/2024

Suggested citation: Chaffee BW, Couch ET, Cheng NF, Ameli N, Gansky SA. (2022). Results of the California Teens Nicotine and Tobacco Project Online Survey 2021-2022. San Francisco, California: University of California San Francisco. Available at: <https://escholarship.org/uc/item/6qf8f8x1>

Made possible by funds received from the California Department of Public Health - California Tobacco Control Program, contract # CDPH-20-10026.

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EXECUTIVE SUMMARY

This report summarizes the main results from the first wave of the Teens, Nicotine, and Tobacco (TNT) Project Online Survey, which was a statewide online survey conducted in California during 2021-2022. Data collection occurred in two cycles: summer (July - September 2021) and winter (January - February 2022), which are combined in this report. To be eligible for the TNT Online Survey, participants must be residents of California from ages 12 to 17 years. A total of 4956 eligible participants completed the 2021-2022 survey wave.

Participant recruitment and data collection occurred entirely online through the use of commercial survey panels. Survey panels are an increasingly common and valid method of conducting behavioral health sciences research. In most instances, panel members have opted to receive invitations to complete surveys in exchange for modest incentives, such as redeemable merchandise reward points. Survey eligibility criteria were matched to the demographic profiles of panel members. Potential TNT Online Survey participants ages 12 or 13 were recruited through invitations to their parents. Potential participants ages 14 to 17 were invited through their parents or contacted directly. The TNT Online Survey relied on multiple panel partners to recruit potential participants, with care taken to avoid duplicate invitations.

The results of this report are weighted for response quality and demographic factors to improve the representativeness of the findings for youth ages 12-17 living in California. However, panel survey results should not be considered a perfect reflection of the statewide general population. Survey panel members represent a wide range of geography, age, income levels, and racial/ethnic groups. However, compared to the general population, survey panel members may also be more computer/internet savvy, and, in the case of the TNT Online Survey, teen participants (and their parents) may be more willing to complete a survey related to tobacco, nicotine, and marijuana products. Thus, the prevalence of tobacco use within the TNT Online Survey is likely an overestimate of tobacco use prevalence among all California 12-17 year-olds.

One goal of the TNT Online Survey was to provide detailed information about the tobacco, nicotine, and marijuana products being used by California youth. Another goal was to collect information that could lead to improvements in the way tobacco use behaviors are monitored in California. For example, findings from the TNT Online Survey could lead to improvements in the way questions are worded in other statewide tobacco surveys, such as the California Youth Tobacco Survey that is administered in California schools. Therefore, the TNT Online Survey includes some questions worded in more than one way. Some questions included a larger number of response options than a survey typically includes to help be sure no reasonable answers were missed. In general, the TNT Online Survey prioritized flexibility and responsiveness to an evolving tobacco marketplace over consistency in question wording between cycles. This report presents results from more than one version of a question to show how changing question wording might affect the way participants respond.

The Appendix to this report provides further information related to the survey methodology.

Key Findings

Tobacco Use Behavior (Chapter 1)

- Approximately one-third (35.2%) of TNT Online Survey participants reported ever using at least one tobacco product in their life.
- 18.1% of participants reported current use of at least one tobacco product.
- Vapes were the most commonly used tobacco product. 13.6% of participants reported current vape use.
- Combustible cigarettes were the next most used tobacco product after vapes (8.5% current use). Any kind of cigar (5.5%), any kind of smokeless tobacco (4.1%), and hookah (4.0%) were the next most used products. No other product exceeded 3% in current use.
- For a discussion of potential reasons why cigarette smoking prevalence appears higher in the TNT online sample than in previous school-based statewide samples, see Appendix.
- Of all participants, 24.7% endorsed having ever heard of nicotine pouches and 19.4% endorsed having ever heard of nicotine tablets, lozenges, or toothpicks.
- Current use of any tobacco product was higher among male-identifying (23.1%) than female-identifying (14.3%) participants.
- By race/ethnicity, current use of any tobacco product was highest among participants categorized as White (23.5%), followed by Hispanic or Latino (19.0%), and African American or Black (14.1%).
- Current use of any tobacco product was somewhat lower among participants who were categorized as a sexual or gender minority (15.0%) than among participants who were not categorized as a sexual or gender minority (18.4%).
- The prevalence of current use of any tobacco product was 17.6% among participants who rated their mental health status as “good,” “very good,” or “excellent” but was slightly higher (19.7%) among participants who rated their mental health as “fair” or “poor.”
- More than one-fourth (28.0%) of current cigarette smokers smoked cigarettes on 20-30 days in the past 30 days.
- 13.3% of current vape users and 9.4% of current user of little cigars or cigarillos used their product on 20-30 days in the past 30 days.
- Among all participants, 9.5% used two or more tobacco products within the past 30 days.
- Approximately half (52.5%) of all current tobacco user were multiple tobacco product users.

Vape Product Details (Chapter 2)

- JUUL was the most recognized vape product brand, followed by Blu, Puff Bar, and Vuse.
- Among all current vapers, it was common to use more than one vape device type.
- Puff Bar-like disposable devices and JUUL-like pod devices were the two most commonly used device types.
- The majority of current vapers (62.7%) reported that the vapes they used contained nicotine, but 17.1% reported that they did not know whether the vapes they used contained nicotine.
- Nearly half (46.8%) of current vapers reported at least one time in the past 30 days using a vape and not being sure what it contained.
- Other substances used in vapes included marijuana, melatonin, and vitamins.

Flavored Products (Chapter 3)

- More than 60% of current cigarette smokers used menthol cigarettes in the past 30 days.
- Over 80% of current users of vapes, cigars, and smokeless tobacco used flavored products.
- Over 90% of current hookah users used flavored hookah.
- Most current marijuana users (64.6%) consumed some form of flavored marijuana in the past 30 days. Blunts were the non-edible method of marijuana consumption most likely to be flavored (66.6%), presumably through the use of flavored cigars or blunt wraps.
- For vapes, cigars, and hookah, fruit was the most commonly used type of flavor among current users of each product.
- Mint was the most commonly used flavor among smokeless tobacco users.
- Fruit, candy, dessert, and fruit-ice combination flavors were each either liked or strongly liked by more than 50% of all vape ever users.

Tobacco Endgame (Chapter 4)

- Most participants (68% - 78%) agreed or strongly agreed with various statements that called for the sale of all tobacco products or flavored tobacco products to be disallowed or ended.
- Strong agreement was slightly greater for various statements related to disallowing or ending flavored tobacco sales (35% - 47%) than for statements related to disallowing or ending the sale of all tobacco products (34% - 41%).
- Most participants (74% - 84%) agreed or strongly agreed with various statements that called for the use of tobacco or marijuana products in public places to be disallowed or ended.
- Strong agreement was slightly greater for various statements that applied to smoking tobacco (47% - 49%) than using vapes (41% - 43%).
- Most participants either strongly agreed or agreed that all apartment buildings should be completely smoke-free (79%) and completely vape-free (73%).

Marijuana Use (Chapter 5)

- Overall, 22.8% of TNT Online Survey participants had ever used marijuana and 13.2% were current marijuana users.
- Current use of marijuana was higher among male-identifying (14.2%) than female-identifying (11.9%) participants.
- Current use of marijuana was highest among Hispanic or Latino participants (16.6%), followed by White (13.1%) and African American or Black (8.5%) participants.
- More than half (54.5%) of current marijuana users reported smoking a marijuana joint in the past 30 days. Small pipes (36.8%), edibles (36.7%), blunts (29.6%), and vaped wax, oil, or liquid (28.8%) were the next most common modes of use.
- Current marijuana and tobacco co-use (9.7%) was more common than marijuana only use (3.5%).
- More than half (54.1%) of current tobacco product users (any product) were also current marijuana users.

Tobacco and Marijuana Perceptions (Chapter 6)

- Most TNT Online Survey participants had low use expectations, indicating that they would “definitely not” be using each of vapes (70.2%), cigarettes (79.7%), cigars (86.1%), hookah (81.7%), smokeless tobacco (88.1%), and marijuana (66.2%) one year in the future.
- Current users were much less likely than current non-users to have low use expectations.
- Participants were more likely to have low use expectations when thinking about one year in the future than when thinking about themselves at age 25.
- Current users of marijuana were the least likely to have low use expectations about using their product one year in the future (6.2%) and the most likely to indicate that they would “definitively yes” be using their product one year in the future (33.8%).
- Among all participants, only 55.2% indicated low use expectations about marijuana use at age 25.
- Among current marijuana non-users, 62.4% had a low use expectations about marijuana at age 25, a lower percentage than for any tobacco product among non-users.
- For vapes, cigarettes, and marijuana, current users of those products expected a lower chance of bad outcomes happening to them and a greater chance of potentially good outcomes than non-users expected.
- Both current users and non-users expected the greatest chance of bad outcomes happening to them from cigarettes and the lowest chance of bad outcomes from marijuana.
- Both current users and non-users expected the greatest chance of good outcomes from marijuana and the lowest chance of good outcomes from cigarettes.

Tobacco Home and Marketing Environment (Chapter 7)

- 39.4% of TNT Online Survey participants indicated that someone who lives with them uses tobacco or marijuana. 22.8% of participants indicated living with someone who smokes cigarettes.
- Most participants (80.1%) indicated that any use of any tobacco or nicotine products is not allowed anywhere or at any time inside their home.
- More than half of participants (56.1%) indicated that they had seen advertisements in the past 12 months that were promoting vaping. 46.6% of participants indicated they had seen advertisements promoting marijuana in the past 12 months.
- The most common place to see vape advertisements was at gas stations or convenience stores, followed by social media ads from companies.
- The most common place to see marijuana advertisements was billboards, followed by cannabis dispensaries, and social media ads from companies.
- Less than 10% of participants indicated that they had received a discount code or coupon for tobacco products or marijuana.
- “Someone offered it to me” was the single most-selected way that vape current users and smokeless tobacco current users got their product.
- “I bought it myself at a store” was the single most-selected way that cigarette current smokers got their product.

LIST OF TERMS

Tobacco Products and Marijuana

These product descriptions were shown to TNT Online Survey participants along with representative images of each product.

Vapes: Vaping or vapes, sometimes called e-cigarettes. Vapes usually contain a nicotine liquid that is vaporized and inhaled. You may also know them as JUULs, Puff Bars, hookah pens, e-hookahs, mods, or pods. They come in different shapes and sizes. All are battery powered and make vapor instead of smoke. Some brands are JUUL, Suorin, SMOK Nord, and Puff Bar.

Throw-away stick or bar (disposable): "Disposable" stick, pod, or bar vapes are shaped like small rectangles. They are used for a few hundred puffs then thrown away. Some brands are Puff Bar, Flum Float, and Bang.

Pod device: Pod vapes are small and reusable. They come with "pods" that fit into the device. Common brands are JUUL and Suorin.

Refillable pen: Pen-style vapes are bigger than Puff Bars. They can be recharged and re-used and have a button to control the battery. They can be refilled with different e-liquids.

Small cigarette-shaped device (cigalike): "Cigalike" vapes are shaped like a cigarette. Some are thrown out after using and some recharge. Some brands are Blu, MarkTen, and NJOY.

Mod, box-mod, or drip device: Some vapes are called a "mod" "box mod" or "rebuildable." They can be homemade (do-it-yourself) or sold ready-made. Some require dripping liquid onto the device. They come in lots of shapes and sizes.

Cigarettes: Cigarettes are sold in packs. Popular brands include Marlboro, Camel, Newport, and American Spirit.

Cigars: *Either of the two types of cigar products below:*

Little cigars or cigarillos: Little cigars and cigarillos are smaller than big cigars. Some are the same size as cigarettes, and some come with plastic or wooden tips. Some common brands are Black & Mild, Swisher Sweets, Dutch Masters, and Backwoods.

Big cigars: Big cigars (also called "traditional", "regular", or "premium" cigars) contain tightly rolled tobacco wrapped in a tobacco leaf. Some brands include Macanudo, Romeo y Julieta, and Cohiba, but there are many others.

Hookah: Hookah is a kind of water pipe used to smoke tobacco. Other names for hookah are shisha and narghile. People sometimes smoke tobacco hookahs at cafes or hookah bars.

Smokeless Tobacco: Smokeless tobacco is placed in the mouth and held under the lip or chewed. There are three main types of smokeless tobacco: chewing tobacco, moist snuff ("dip"), and snus. *In this report, smokeless tobacco refers to any of the three products below:*

Moist snuff: Moist snuff (also called "dip") is finely ground tobacco sold in a round can. Sometimes it is sold as small pouches, but it is NOT snus. Some brands are Copenhagen, Grizzly, and Skoal.

Chewing tobacco: Chewing tobacco is coarsely shredded and dried tobacco. It is usually sold in a large pouch. Some brands are Redman, Levi Garrett, and Beechnut.

Snus: Snus is usually sold as pouches that are placed in the mouth and don't require much spitting. Some brands are Camel Snus and General Snus.

Nicotine pouches: Nicotine pouches are flavored pouches that contain nicotine but do not contain tobacco plant. They are placed in the mouth. Some brands are ZYN, Dryft and VELO.

Nicotine tablets, lozenges, or toothpicks: Nicotine tablets, lozenges, or toothpicks are placed in the mouth and chewed or held in place. Some brands are Rogue, Solace, Revel, Velo, and Pixotine.

Heated tobacco: Heat-not-burn tobacco products (also called heated tobacco) heat tobacco sticks or capsules instead of burning. They are different from vapes. Some brands are IQOS, glo, Eclipse, and Ploom Tech.

Marijuana: Marijuana, also called cannabis, hash, THC, CBD, grass, pot, or weed, comes in many forms and can be smoked, vaped, or eaten (edible). The term marijuana (instead of cannabis) is used throughout this report, as youth were asked specifically about their marijuana use in the survey instrument. TNT focus groups and interviews with youth indicated that "marijuana" was a more familiar term than "cannabis" for this age group.

Product Use

Ever use: Used within a lifetime.

Current use: Used within the last 30 days (1 or more days).

Poly use: Used two or more tobacco products within the last 30 days (each product used 1 or more days, not necessarily on the same day).

Flavored tobacco product use: Used a flavored tobacco product within the last 30 days, excluding "unflavored" or "tobacco" flavored products.

Co-use: Used marijuana and at least one tobacco product within the last 30 days (each product used 1 or more days, not necessarily on the same day).

Never user: A participant who reported never using the tobacco product(s).

Current user: A participant who reported using the tobacco or marijuana product(s) within the last 30 days (1 or more days).

Current non-user: A participant who reported no use of the tobacco or marijuana product(s) within the last 30 days (0 days).

Low use expectations: A participant who reported that they would "definitely not" be using a tobacco product in the future.

Other Terms and Categories

Gender identified another way: Participants who marked their gender identity as Transgender; Something else, please describe; or I'm not sure yet.

Sexual and/or Gender Minority (Yes): Participants who were categorized as identifying their gender in another way (see above definition) and/or reported their sexual orientation as Gay or lesbian; Bisexual; Something else, please describe; or I'm not sure yet.

Sexual and/or Gender Minority (No): Participants who were categorized as identifying their gender as male or female and their sexual orientation as Straight, not gay or lesbian.

Hispanic / Latino: Responded yes to the ethnicity question: "Are you of Hispanic or Latino/Latina/Latinx/Latine origin?", regardless of race(s) reported.

Non-Hispanic single race: Responded no to the ethnicity question (see above definition) and selected only one of the following races when asked "How would you describe yourself?": American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander (e.g., Samoan); or White.

Other race: Responded no to the ethnicity question and selected Other race.

More than one race: Responded no to the ethnicity question and reported two or more races.

CHAPTER 1 – TOBACCO USE BEHAVIOR

This chapter presents tobacco use behavior data from the Teens, Nicotine, and Tobacco (TNT) Online Survey 2021-2022 Wave. Use includes both ever use and current use of various tobacco products. Ever use is defined as use within a lifetime (even once), and current use is defined as use on at least one day within the past 30 days. This chapter also provides the prevalence of tobacco product use across various demographic characteristics (e.g., gender, race/ethnicity), frequency of current use, and the use of multiple tobacco products (i.e., poly use).

Tobacco Product Categories

For the prevalence estimates included in this report, “vape” use includes all participants who endorsed use of any vape or e-cigarette product, including disposable, cigalike, pen, mod, pod, or other device types, including vapes that did not contain nicotine, but excluding vapes used only for marijuana. For the exact wording used when presenting tobacco products in the TNT Online Survey questionnaire, see List of Terms.

Participants were asked about 11 different tobacco products, including vapes. Use of at least one of the 11 products was calculated as “any tobacco.” Use of either little cigars/cigarillos or big cigars was calculated as “either cigar.” Use of moist snuff, chewing tobacco, or snus was calculated as “any smokeless.”

Tobacco Product Use

Table 1 presents the overall prevalence of tobacco product use among participants in the TNT Online Survey 2021-2022 Wave.

Table 1. Prevalence of ever and current use of tobacco products

	Ever Use % (95% CI)	Current Use % (95% CI)
Any tobacco product below	35.2 (32.9, 37.5)	18.1 (16.4, 19.8)
Vapes	25.6 (23.5, 27.7)	13.6 (12.0, 15.1)
Cigarettes	23.5 (21.4, 25.5)	8.5 (7.4, 9.5)
Either cigar below	12.2 (10.6, 13.7)	5.5 (4.5, 6.4)
Little cigars or cigarillos	9.7 (8.3, 11.1)	4.9 (4.0, 5.8)
Big cigars	6.4 (5.3, 7.6)	2.1 (1.7, 2.5)
Hookah	9.1 (7.7, 10.5)	4.0 (3.2, 4.8)
Any smokeless below	6.8 (5.8, 7.8)	4.1 (3.4, 4.7)
Moist snuff	4.9 (4.0, 5.7)	2.6 (2.1, 3.1)
Chewing tobacco	3.9 (3.2, 4.6)	2.4 (2.0, 2.8)
Snus	4.2 (3.5, 5.0)	2.6 (2.1, 3.1)
Nicotine pouches	2.6 (2.1, 3.1)	1.9 (1.5, 2.4)
Nicotine tablets, lozenges, or toothpicks	2.5 (1.9, 3.1)	1.2 (1.0, 1.5)
Heated tobacco	4.6 (3.7, 5.4)	2.7 (2.2, 3.3)

Abbreviation: CI = confidence interval

- More than one-third of participants (35.2%) endorsed ever using at least one tobacco product in their life

- 18.1% of participants reported current use of at least one tobacco product
- Vapes were the most commonly used tobacco product: 13.6% of participants were current vape users
- Combustible cigarettes were the next most used tobacco product after vapes (8.5% current use). For a discussion of potential reasons why cigarette smoking prevalence appears higher in the TNT online sample than in previous school-based statewide samples, see Appendix.
- Current use of any kind of cigar (5.5%) followed vapes and cigarettes as the next most used product. No other product exceeded 5% in current use.
- Nicotine pouches and nicotine tablets, lozenges, or toothpicks are relatively new products that did not appear in previous statewide surveillance.
- Of all participants, 24.7% endorsed having ever heard of nicotine pouches and 19.4% endorsed having ever heard of nicotine tablets, lozenges, or toothpicks.

Demographic Categories

In addition to male and female, TNT Online Survey participants were presented with the following gender identity response options: Transgender; Something else, please describe; and I'm not sure yet. Participant could also choose not to answer the question by leaving the item unmarked. Of the participants who viewed this item, 0.3% left it unmarked; another 5.7% of all participants did not view this item because they closed the survey before completion. For this report, marked response options other than male or female were combined into a single category ("identified another way"). Among all participants with a marked response, 3.0% indicated that they identified their gender in a way other than male or female.

For race/ethnicity, participants were asked whether they were of Hispanic or Latino/Latina/Latinx/Latine origin (i.e., ethnicity). Those who indicated yes were classified as Hispanic or Latino regardless of race(s) reported. Participants who selected no to the ethnicity question were classified as Non-Hispanic and were asked to select all races with which they identified from a list of six, including "Other." If participants selected more than one race, they were classified as "More than one" race. Free-text responses were collected but not recoded. Due to the small number of participants who selected "American Indian / Alaska Native" or "Native Hawaiian / Other Pacific Islander," these two categories were combined with "Other" into a single category for reporting results in Tables.

Throughout the survey, missing data could arise if participants chose to leave a survey item unmarked or if participants closed the survey before completion (but still answered a sufficient number of items to meet inclusion criteria). In this report, missing values are excluded from prevalence estimates. Thus, for some table rows and columns, the total sample size is less than the total 2021-2022 TNT Online Survey sample (N=4956) due to missing data.

Prevalence of Tobacco Use by Demographic Categories

Table 2 presents the prevalence of tobacco product use (any product) among participants according to their gender, race/ethnicity, and age.

Table 2. Prevalence of any tobacco use by gender, race/ethnicity, and age

	Sample Size ¹		Ever Use	Current Use
	N	%	% (95% CI)	% (95% CI)
Overall	4956	100	35.2 (32.9, 37.5)	18.1 (16.4, 19.8)
Gender				
Male	2458	38.7	37.2 (33.7, 40.7)	23.1 (20.2, 25.9)
Female	2130	58.3	32.8 (29.6, 36.0)	14.3 (12.1, 16.5)
Identified Another Way	92	3.0	37.2 (22.4, 52.0)	13.1 (3.9, 22.4)*
Race/Ethnicity				
White	2094	23.3	39.5 (35.9, 43.1)	23.5 (20.7, 26.2)
African American / Black	274	4.7	32.2 (23.9, 40.6)	14.1 (8.9, 19.3)
Hispanic / Latino	1436	51.6	39.6 (35.7, 43.5)	19.0 (16.2, 21.9)
Asian	512	13.3	16.0 (11.4, 20.5)	8.3 (5.0, 11.7)
Other ²	109	1.7	31.0 (16.4, 45.6)	7.3 (3.0, 11.6)*
More Than One	242	5.4	17.7 (11.4, 23.9)	8.0 (3.9, 12.1)
Age				
12	568	16.0	20.6 (15.2, 26.0)	9.4 (6.5, 12.2)
13	760	16.3	31.4 (25.6, 37.1)	16.2 (11.9, 20.5)
14	747	15.6	32.8 (27.2, 38.4)	15.9 (12.1, 19.6)
15	822	15.0	39.3 (33.7, 44.8)	23.1 (18.6, 27.8)
16	1004	17.9	39.0 (33.7, 44.3)	20.4 (16.2, 24.5)
17	1056	19.1	45.7 (40.2, 51.1)	22.6 (18.2, 27.0)

1. Sample sizes (N) are unweighted; percentages are weighted for response quality and participant demographic characteristics

2. Includes participants who indicated their race was American Indian / Alaska Native, Native Hawaiian / Other Pacific Islander, or "Other." Categories were combined to increase sample size.

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Current use of any tobacco product was higher among male-identifying (23.1%) than female-identifying (14.3%) participants.
- By race/ethnicity, current use of any tobacco product was highest among participants who identified as White (23.5%), followed by Hispanic or Latino (19.0%) and African American or Black (14.1%).
- Generally, tobacco use increased with age. Both ever use and current use of any tobacco product were more than twice as high at age 17 years versus age 12 years.
- The age with the single-highest prevalence of current tobacco use was 15 years (23.1%), but this prevalence was not statistically significantly higher than for age 17 years.

Table 3 presents the prevalence of current tobacco use (any product, at least one day in the past 30 days) according to self-identified gender.

Table 3. Prevalence of current tobacco product use by gender

	Male % (95% CI)	Female % (95% CI)
Any tobacco product below	23.1 (20.2, 25.9)	14.3 (12.1, 16.5)
Vapes	16.7 (14.2, 19.3)	10.9 (9.0, 12.8)
Cigarettes	12.0 (10.2, 13.8)	6.0 (4.7, 7.4)
Either cigar below	8.3 (6.5, 10.1)	3.3 (2.3, 4.4)
Little cigars or cigarillos	7.3 (5.6, 9.1)	3.0 (2.0, 4.0)
Big cigars	3.6 (2.7, 4.4)	1.3 (0.8, 1.8)
Hookah	5.7 (4.2, 7.2)	3.1 (2.2, 4.1)
Any smokeless below	7.1 (5.8, 8.3)	2.4 (1.7, 3.2)
Moist snuff	4.3 (3.3, 5.3)	1.6 (1.1, 2.1)
Chewing tobacco	4.5 (3.5, 5.5)	1.2 (0.8, 1.5)
Snus	4.1 (3.2, 5.1)	1.6 (1.0, 2.3)
Nicotine pouches	3.3 (2.6, 4.1)	1.2 (0.6, 1.7)
Nicotine tablets, lozenges, or toothpicks	1.9 (1.3, 2.4)	0.9 (0.6, 1.2)
Heated tobacco	4.5 (3.3, 5.6)	1.6 (1.0, 2.2)

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Current use of any tobacco was higher among male participants (23.1%) than female participants (14.3%).
- For each individual tobacco product, current use prevalence was higher among males than females.
- The most pronounced gender difference in tobacco use was for smokeless tobacco. Smokeless tobacco use prevalence was 7.1% among male participants but only 2.4% among female participants.
- Participants who did not identify as male or female comprised a relatively small portion of the total sample (3.0%). This resulted in unreliable estimates of tobacco use prevalence due to small sample size. Therefore, these results are not reported.

Table 4 presents the prevalence of current use of specific tobacco products according to self-identified ethnicity and race. Not all race/ethnicity categories are included in the table due to small sample sizes for some categories.

Table 4. Prevalence of current tobacco product use by race/ethnicity

	White % (95% CI)	African American / Black % (95% CI)	Hispanic / Latino % (95% CI)	Asian % (95% CI)
Any tobacco product below	23.5 (20.7, 26.2)	14.1 (8.9, 19.4)	19.0 (16.2, 21.9)	8.3 (5.0, 11.7)
Vapes	16.1 (13.8, 18.4)	12.4 (7.2, 17.5)	14.7 (12.2, 17.3)	5.8 (3.0, 8.5)
Cigarettes	14.3 (12.3, 16.4)	7.8 (4.4, 11.2)	7.8 (6.0, 9.5)	3.6 (1.6, 5.6)
Either cigar below	7.2 (5.7, 8.7)	6.5 (2.1, 10.8)*	5.5 (4.0, 7.1)	1.2 (0.4, 2.0)*
Little cigars or cigarillos	5.7 (4.4, 7.0)	6.3 (1.9, 10.6)*	5.2 (3.7, 6.8)	0.7 (0.2, 1.3)*
Big cigars	4.4 (3.2, 5.6)	3.3 (1.1, 5.6)*	1.5 (1.0, 2.1)	1.0 (0.2, 1.7)*
Hookah	6.3 (4.8, 7.8)	6.2 (2.9, 9.4)	4.2 (2.8, 5.7)	0.7 (0.1, 1.2)*
Any smokeless below	7.3 (6.0, 8.7)	4.6 (2.2, 7.0)	3.6 (2.6, 4.6)	2.1 (0.4, 3.9)*
Moist snuff	4.4 (3.5, 5.3)	3.6 (1.4, 5.9)*	2.5 (1.7, 3.3)	1.0 (0.1, 2.0)*
Chewing tobacco	4.2 (3.4, 5.1)	3.8 (1.5, 6.0)*	2.0 (1.4, 2.6)	1.6 (0.1, 3.1)*
Snus	4.5 (3.4, 5.6)	3.7 (1.4, 6.0)*	2.2 (1.5, 3.0)	1.0 (0.0, 1.9)*
Nicotine pouches	3.3 (2.5, 4.0)	2.4 (0.8, 4.0)*	1.9 (1.1, 2.6)	0.9 (0.2, 1.5)*
Nicotine tablets, lozenges, or toothpicks	1.9 (1.4, 2.4)	1.8 (0.7, 2.9)*	1.3 (0.8, 1.8)	0.3 (0.1, 0.5)*
Heated tobacco	4.8 (3.7, 5.9)	3.1 (0.8, 5.3)*	2.5 (1.6, 3.4)	0.7 (0.1, 1.2)*

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Note: Race/ethnicity categories reported in the table exclude "Other" and "More Than One" due to insufficient sample size

- Across all race/ethnicity categories, vapes were the most used tobacco product
- Current use of any tobacco (23.5%) and current use of most of the individual tobacco products was highest among participants who identified as White.
- Current use of any tobacco (8.3%) and current use of most of the individual products was lowest among participants who identified as Asian. However, some estimates were unreliable due to small sample size.

Table 5 presents the prevalence of current use of any tobacco product according to age. Results are reported according to age and not grade in school because TNT Online Survey participants are not necessarily students. Age categories are collapsed into 2-year increments to increase sample size.

Table 5. Prevalence of current tobacco product use by age

	12-13 years % (95% CI)	14-15 years % (95% CI)	16-17 years % (95% CI)
Any tobacco product below	12.8 (10.2, 15.5)	19.4 (16.5, 22.4)	21.5 (18.5, 24.6)
Vapes	9.5 (7.3, 11.7)	13.5 (11.0, 15.9)	17.2 (14.3, 20.1)
Cigarettes	7.7 (5.8, 9.7)	9.7 (7.8, 11.5)	8.2 (6.4, 9.9)
Either cigar below	4.4 (3.2, 5.6)	5.6 (3.8, 7.3)	6.3 (4.5, 8.1)
Little cigars or cigarillos	3.7 (2.6, 4.9)	5.2 (3.4, 6.9)	5.7 (3.9, 7.4)
Big cigars	2.7 (1.8, 3.6)	1.9 (1.3, 2.5)	1.7 (1.1, 2.2)
Hookah	3.8 (2.5, 5.0)	4.6 (3.1, 6.2)	3.8 (2.4, 5.1)
Any smokeless below	3.7 (2.6, 4.8)	5.4 (4.1, 6.8)	3.2 (2.4, 4.1)
Moist snuff	2.7 (1.9, 3.5)	3.7 (2.6, 4.9)	1.6 (1.1, 2.1)
Chewing tobacco	2.3 (1.6, 3.0)	3.4 (2.4, 4.4)	1.6 (1.1, 2.1)
Snus	2.8 (1.8, 3.9)	2.7 (2.0, 3.4)	2.2 (1.5, 3.0)
Nicotine pouches	2.4 (1.4, 3.5)	2.1 (1.6, 2.6)	1.4 (0.9, 1.9)
Nicotine tablets, lozenges, or toothpicks	1.3 (0.8, 1.8)	1.5 (0.9, 2.1)	1.0 (0.7, 1.3)
Heated tobacco	2.7 (1.9, 3.6)	3.7 (2.4, 4.9)	1.9 (1.2, 2.7)

Abbreviation: CI = confidence interval

- Current use of any tobacco product was lowest among participants who were 12 or 13 years old (12.8%) and highest among participants who were 16 or 17 years old (21.5%)
- The prevalence of current vaping was lowest among 12-13 year old participants (9.5%) and highest among 16-17 year old participants (17.2%).

Table 6 presents the prevalence of current use of any tobacco and individual tobacco products according to sexual and/or gender minority status. Among the 4633 participants with no missing data needed to categorize their sexual and/or gender status, 15.9% (unweighted N = 604) were categorized as a sexual or gender minority (See List of Terms for details).

Table 6. Prevalence of current tobacco product use by sexual and/or gender minority status

	Sexual and/or Gender Minority: No % (95% CI)	Sexual and/or Gender Minority: Yes % (95% CI)
Any tobacco product below	18.4 (16.5, 20.3)	15.0 (11.1, 18.9)
Vapes	13.6 (11.9, 15.3)	11.7 (8.3, 15.2)
Cigarettes	8.9 (7.6, 10.1)	6.2 (3.7, 8.7)
Either cigar below	5.4 (4.4, 6.4)	5.4 (2.8, 8.0)
Little cigars or cigarillos	4.8 (3.8, 5.7)	5.0 (2.4, 7.6)
Big cigars	2.3 (1.8, 2.8)	1.4 (0.6, 2.2)
Hookah	4.4 (3.4, 5.3)	3.4 (1.6, 5.1)
Any smokeless below	4.5 (3.8, 5.3)	2.4 (1.0, 3.8)
Moist snuff	2.9 (2.3, 3.4)	1.3 (0.7, 2.0)
Chewing tobacco	2.5 (2.1, 3.0)	2.0 (0.7, 3.3)*
Snus	2.9 (2.3, 3.5)	1.1 (0.6, 1.5)
Nicotine pouches	2.2 (1.7, 2.7)	1.1 (0.5, 1.7)
Nicotine tablets, lozenges, or toothpicks	1.3 (1.0, 1.6)	1.1 (0.4, 1.7)*
Heated tobacco	2.9 (2.2, 3.5)	1.8 (0.9, 2.7)

Abbreviation: CI = confidence interval

- Current use of any tobacco product was lower among participants who were categorized as a sexual or gender minority (15.0%) than among participants who were not categorized as a sexual or gender minority (18.4%).
- For each individual product (except cigars), current use prevalence was lower among participants who were categorized as a sexual or gender minority than those who were not.
- The results above should be interpreted with caution. In the TNT Online Survey sample, participants whose status was a sexual or gender minority were more likely to identify as female (65.7%) than male (14.8%). Gender identity overall was a strong predictor of tobacco use in the TNT sample (see Table 3). Thus, the apparent lower tobacco use prevalence among sexual and/or gender minority participants in Table 6 may partly reflect a relatively larger share of female-identifying participants. Restricted only to male-identifying participants, current use any tobacco product was higher among sexual and/or gender minority participants (28.4%) than among sexual and/or gender non-minority participants (23.0%). Restricted only to female-identifying participants, current use any tobacco product was only slightly lower among sexual and/or gender minority participants (12.3%) than among sexual and/or gender non-minority participants (14.9%). This type of data phenomenon is known as Simpson's Paradox.

Table 7 presents the prevalence of current use of any tobacco and individual tobacco products according to level of mental health status. Participants selected the adjective that best defined their mental health (See Variable Definitions for details). Ratings of “excellent,” “very good,” or “good” and ratings of “fair” or “poor” were combined to increase sample size. Overall, among the 4804 participants who reported their mental health status, 81.4% (unweighted N = 4,077) rated their mental health as “excellent,” “very good,” or “good,” and 18.6% (unweighted N = 727) rated their mental health as “fair” or “poor.”

Table 7. Prevalence of current tobacco product use by self-rated mental health status

	Excellent, Very Good, or Good % (95% CI)	Fair or Poor % (95% CI)
Any tobacco product below	17.6 (15.8, 19.5)	19.7 (15.4, 24.0)
Vapes	13.2 (11.5, 14.8)	15.5 (11.5, 19.5)
Cigarettes	8.8 (7.6, 10.1)	6.4 (4.3, 8.6)
Either cigar below	5.3 (4.3, 6.3)	5.5 (3.1, 7.9)
Little cigars or cigarillos	4.7 (3.7, 5.6)	5.1 (2.8, 7.5)
Big cigars	2.4 (1.9, 2.9)	0.7 (0.3, 1.2)*
Hookah	4.4 (3.5, 5.4)	2.4 (0.9, 3.9)*
Any smokeless below	4.6 (3.8, 5.4)	1.9 (1.1, 2.6)
Moist snuff	2.9 (2.4, 3.5)	0.9 (0.6, 1.3)
Chewing tobacco	2.7 (2.2, 3.2)	0.8 (0.4, 1.3)
Snus	2.9 (2.3, 3.5)	1.0 (0.4, 1.6)
Nicotine pouches	2.1 (1.7, 2.6)	1.0 (0.2, 1.9)*
Nicotine tablets, lozenges, or toothpicks	1.4 (1.0, 1.7)	0.6 (0.3, 0.9)
Heated tobacco	3.1 (2.4, 3.8)	1.0 (0.5, 1.6)

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Note: Responses “Fair” and “Poor” were combined to increase sample size

- The prevalence of current use of any tobacco product was 17.6% among participants who rated their mental health status as “good,” “very good,” or “excellent” but was slightly higher (19.7%) among participants who rated their mental health as “fair” or “poor.”
- Current vaping was highest among participants who rated their mental health as “fair” or “poor” (15.5%).

Table 8 presents on how many days in the past 30 days participants used each tobacco product among participants who used each individual tobacco product in the past 30 days.

Table 8. Frequency of current use among current users of a given tobacco product

	1 or 2 days % (95% CI)	3-5 days % (95% CI)	6-19 days % (95% CI)	20-30 days % (95% CI)
Vapes	39.4 (33.7, 45.2)	27.7 (22.3, 33.2)	19.5 (14.9, 24.1)	13.3 (9.7, 16.9)
Cigarettes	25.1 (19.7, 30.5)	21.8 (16.5, 27.1)	25.1 (20.1, 30.1)	28.0 (22.0, 34.1)
Little cigars or cigarillos	47.2 (37.5, 56.8)	24.6 (16.6, 32.5)	18.9 (12.2, 25.5)	9.4 (4.5, 14.3)
Big cigars	39.2 (29.6, 48.8)	22.3 (14.5, 30.2)	32.3 (22.7, 41.9)	6.1 (2.9, 9.4)
Hookah	45.5 (35.2, 55.7)	23.0 (15.6, 30.4)	27.0 (18.2, 35.8)	4.5 (2.5, 6.6)
Moist snuff	42.8 (33.6, 52.0)	31.4 (22.5, 40.3)	20.9 (15.2, 26.6)	4.9 (2.6, 7.2)
Chewing tobacco	41.3 (32.6, 49.9)	29.5 (20.9, 38.2)	24.8 (18.7, 30.9)	4.4 (2.2, 6.6)
Snus	46.7 (36.8, 56.6)	29.0 (21.0, 37.1)	21.3 (15.2, 27.4)	2.9 (1.4, 4.4)
Nicotine pouches	50.2 (39.8, 60.6)	24.8 (16.5, 33.2)	16.8 (11.6, 22.0)	8.2 (4.6, 11.7)
Nicotine tablets, lozenges, or toothpicks	36.3 (25.2, 47.4)	29.2 (20.1, 38.2)	28.1 (19.0, 37.1)	6.5 (3.2, 9.8)
Heated tobacco	34.5 (25.2, 43.8)	32.3 (22.3, 42.4)	27.2 (17.8, 36.6)	5.9 (2.3, 9.5)*

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Notes: Frequency refers to number of days a product was used in the past 30 days

For vapes, the number of days refers to the type of vape device used the most in the past 30 days (disposable, cigalike, pen, mod, pod, or other)

- More than one-fourth (28.0%) of current cigarette smokers smoked cigarettes on 20-30 days in the past 30 days.
- 13.3% of current vape users reported using vapes on 20-30 days in the past 30 days.
- Approximately half (50.2%) of nicotine pouch users reporting using their product on only 1 or 2 days in the past 30 days. Few snus users (2.9%) reported using their product on 20-30 days in the past 30 days.

Table 9 presents the prevalence of any tobacco use and use of multiple tobacco products overall and according to participant characteristics. See Variable Definitions for details on how multiple product use was calculated.

Table 9. Prevalence of current use of at least one product and of multiple tobacco products by gender, race/ethnicity, and age

	Sample Size ¹		Current Use	Current Use
	N	%	≥1 product % (95% CI)	≥2 products % (95% CI)
Overall	4956	100	18.1 (16.4, 19.8)	9.5 (8.3, 10.7)
Gender				
Male	2458	38.7	23.1 (20.2, 25.9)	13.6 (11.4, 15.8)
Female	2130	58.3	14.3 (12.1, 16.5)	6.8 (5.4, 8.3)
Identified Another Way	92	3.0	13.1 (3.9, 22.4)*	5.4 (0, 12.6)*
Race/Ethnicity				
White	2094	23.3	23.5 (20.7, 26.2)	14.6 (12.4, 16.7)
African American / Black	274	4.7	14.1 (8.9, 19.3)	10.8 (5.9, 15.8)
Hispanic / Latino	1436	51.6	19.0 (16.2, 21.9)	9.5 (7.5, 11.4)
Asian	512	13.3	8.3 (5.0, 11.7)	2.3 (1.0, 3.7)*
Other ²	109	1.7	7.3 (3.0, 11.6)*	3.9 (1.1, 6.7)*
More Than One	242	5.4	8.0 (3.9, 12.1)	4.4 (0.9, 8.0)*
Age				
12	568	16.0	9.4 (6.5, 12.2)	5.7 (3.9, 7.6)
13	760	16.3	16.2 (11.9, 20.5)	10.6 (7.4, 13.8)
14	747	15.6	15.9 (12.1, 19.6)	8.4 (5.9, 11.0)
15	822	15.0	23.1 (18.6, 27.8)	12.7 (9.4, 16.1)
16	1004	17.9	20.4 (16.2, 24.5)	9.5 (6.5, 12.5)
17	1056	19.1	22.6 (18.2, 27.0)	10.0 (7.2, 12.8)

1. Sample sizes (N) are unweighted; percentages are weighted for response quality and participant demographic characteristics
2. Includes participants who indicated their race was American Indian / Alaska Native, Native Hawaiian / Other Pacific Islander, or "Other." Categories were combined to increase sample size.

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Note: For purpose of defining multiple product use, all conventional smokeless tobacco (i.e., moist snuff, chewing tobacco, and snus) was considered "one" product. Likewise, big cigars and little cigars/cigarillos were considered "one" product. For example, someone who used only moist snuff and snus would not be considered a multiple product user.

- Among all participants, 9.5% used two or more tobacco products within the past 30 days.
- Approximately half of all current tobacco users were multiple tobacco product users.
- Multiple product use was higher among male (13.6%) than female (6.8%) participants.
- Among all race/ethnicity categories, multiple product use was highest among White participants (14.6%).
- Multiple product use was lowest among age 12 participants (5.7%) and highest among age 15 participants (12.7%).

CHAPTER SUMMARY

In the TNT Online Survey 2021-2022 Wave, 18.1% of California youth ages 12-17 reported current use of at least one tobacco product. The most commonly used tobacco product was vapes (13.6% current use prevalence). Approximately two-thirds (67.2%) of current vape users reported vaping no more than 5 days in the last 30 days, while 13.3% reported vaping 20-30 days. By race/ethnicity, current use of any tobacco product was highest among participants who identified as White and lowest among participants who identified as Asian. Approximately half (52.5%) of all current tobacco users reported use of more than one tobacco product in the past 30 days.

CHAPTER 2 – VAPE PRODUCT DETAILS

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to vape products, also known as electronic cigarettes (e-cigarettes). This chapter includes vape brands, device types, the substances contained in vapes, and symptoms of vaping dependence. One key purpose of the TNT Online Survey was to test whether the way certain survey questions were asked affected how participants responded. Therefore, some information is presented separately if it was collected from questions asked in different ways.

Vape Brands

All TNT Online Survey participants were asked to identify various brands of vape products, but the brand question was asked in three different ways. In question Version A, participants were asked, “What is the brand of your favorite vaping advertisement? Select only one.” In question Version B, participants were asked, “What vaping product do you think is most popular among people your age? Select only one.” In question Version C, participants were asked, “What vaping products do you think are popular among people your age? Select all you think are popular right now.” Participants were shown a list of 20 brands they could select, plus “something else.” Participants shown Version A had the option to select “I do not have a favorite vaping advertisement.” Participants shown Versions B or C had the option to select “I don’t know.” Each participant was shown only one version of the question. The survey computer program determined at random which question version participants were shown: N = 1635 participants (unweighted count) answered the Version A question; N = 1630 answered the Version B question (unweighted count); and N = 1616 (unweighted count) answered the Version C question. Table 10 presents the results of these vape brand questions.

Vape Devices

All TNT Online survey participants were asked if they had ever used a vape device. Those who reported that they had ever vaped were then asked which types of vape devices, if any, they had used in the past 30 days. The device type questions were asked in two different ways. In question Version A, participants who reported that they vaped in the past 30 days were asked which type of device they used the most. In question Version B, participants were asked about each device type individually and could indicate using more than one device type. Each participant was shown only one version of the questions. The survey computer program determined at random which question version participants were shown. Among the N = 1130 (unweighted count) current vapers in the TNT Online survey, N = 526 participants (unweighted count) answered the Version A question; N = 604 (unweighted count) answered the Version B question. Table 11 presents the results of these vape device questions. For the wording used when presenting tobacco products in the TNT Online Survey questionnaire, see List of Terms.

Table 10. Favorite vape advertisement brands and most popular brands

	Version A: Favorite Vape Ad (select one) % (95% CI)	Version B: What is Popular (select one) % (95% CI)	Version C: What is Popular (select all) % (95% CI)
Don't have favorite or Don't know	85.4 (82.9, 87.9)	53.4 (49.2, 57.5)	55.2 (51.0, 59.4)
JUUL	3.7 (2.2, 5.2)	20.5 (17.2, 23.7)	30.2 (26.3, 34.1)
Blu	2.4 (1.3, 3.4)	4.1 (2.2, 5.9)	12.6 (9.8, 15.5)
Puff Bar	2.0 (1.0, 2.9)	6.3 (4.3, 8.4)	12.2 (9.6, 14.8)
Vuse	1.3 (0.4, 2.1)*	2.5 (1.2, 3.9)	9.8 (7.3, 12.3)
NJOY ¹	0.4 (0, 0.8)*	1.9 (0.2, 3.6)*	9.7 (5.0, 14.4)
Bang	0.5 (0.2, 0.8)	3.4 (1.9, 4.9)	9.0 (6.5, 11.5)
eSmoke	0.2 (0.1, 0.4)	1.1 (0.5, 1.7)	5.3 (3.7, 6.9)
Vapor King	0.3 (0.1, 0.6)*	0.6 (0.2, 0.9)*	4.6 (3.1, 6.2)
ProVape	0.7 (0.4, 1.0)	0.6 (0.3, 1.0)	4.4 (2.9, 5.9)
SMOK fit	0.2 (0.1, 0.3)*	0.8 (0.2, 1.3)*	4.1 (2.3, 6.0)
E-Swisher	0.1 (0, 0.2)*	0.7 (0.1, 1.3)*	3.6 (2.3, 4.9)
Pop	0.4 (0, 0.9)*	0.8 (0.1, 1.4)*	3.4 (1.7, 5.1)
Bolt	0.2 (0, 0.4)*	0.6 (0.2, 0.9)	3.3 (1.7, 4.9)
Flum Float ²	0.7 (0, 2.0)*	0.5 (0.1, 0.9)*	3.3 (1.2, 5.3)*
Smok Nord/Novo	0.4 (0, 0.9)*	0.2 (0, 0.3)*	2.3 (0.8, 3.9)*
STIG	0.2 (0, 0.4)*	0.5 (0, 1.2)*	2.0 (1.0, 3.0)
Vagon	0.2 (0, 0.3)*	0.3 (0.1, 0.5)*	1.6 (0.8, 2.5)
Mi-Pod ¹	0.1 (0, 0.3)*	0.3 (0, 0.6)*	1.6 (0.6, 2.6)*
Suorin	0.1 (0, 0.1)*	0.2 (0, 0.4)*	1.5 (0.8, 2.2)
MarkTen	0.2 (0, 0.5)*	0.2 (0, 0.4)*	1.2 (0.4, 2.0)*
Something Else	0.5 (0.1, 0.9)*	0.7 (0, 1.4)*	1.5 (0.1, 2.9)*

1. Brands "NJOY" and "Mi-Pod" for question Version C were available in the summer cycle only (due to coding error); estimates in table restricted to that cycle for these brand for this question version
2. Brand "Flum Float" added in winter cycle for all question versions; estimates in table restricted to that cycle for this brand

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Notes: Brands were presented to participants in alphabetical order; Order in this table is based on most-endorsed brands for question Version C.

- When asked to identify the brand of their favorite vape advertisement, most participants (85.4%) indicated that they do not have a favorite ad.
- Endorsing any tobacco brand when asked about their favorite advertisement is considered a measure of tobacco marketing receptivity. These results suggest that 14.6% of participants who viewed question Version A are potentially susceptible to vape marketing.
- Question Versions B and C, which both asked participants what brands are popular (not necessarily participants' own favorite ad) yielded fewer "don't know / no favorite" responses.
- Question Version C, which allowed participants to select more than one brand, resulted in fewer unstable, low-prevalence estimates.
- In all question versions, JUUL was the most commonly selected vape brand.

- Generally, Blu, Puff Bar, and Vuse were the next most commonly selected vape brands, but not necessarily in that order and in all question versions.

Table 11. Vape device types among current vape users

	Version A: Device Type Use the Most (select one) % (95% CI)	Version B: Used This Device Type (select all) % (95% CI)
Throw-away stick or bar (disposable)	20.8 (14.4, 27.2)	52.4 (48.9, 55.8)
Pod device	34.0 (24.9, 43.1)	45.1 (41.6, 48.5)
Refillable pen	18.2 (12.7, 23.8)	43.9 (40.5, 47.4)
Small cigarette-shaped device (cigalike)	18.3 (12.1, 24.5)	37.5 (34.1, 40.8)
Mod, box-mod, or drip device	6.9 (3.3, 10.5)	36.7 (33.4, 40.1)
Something else	1.7 (0, 3.4)*	27.6 (24.5, 30.7)

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Notes: In question Version A participants who reported using vapes in the past 30 days were asked which type of vape device they used the most. In question Version B, participants were asked individually by device type on how many days they used each type of vape device in the past 30 days. This table shows the percentage of current vaper who reported using that device type on 1 or more days. For the exact wording used when presenting tobacco products in the TNT Online Survey questionnaire, see List of Terms. The device types in this table are listed in descending order of use based on question Version B.

- Among all current vapers, several different types of vape devices were used.
- The most commonly used device type was different depending on the way the device type questions were asked on the TNT Online Survey.
- When asked which device type current vapers used the most, JUUL-like pod devices were the most common response (34.0%).
- When asked to indicate all device types used in the past 30 days, Puff Bar-like disposable devices were used the most (52.4%), followed by JUUL-like pod devices (45.1%).

Vape Contents, Including Nicotine and Other Substances

All current vapers were asked a series of questions about what substances, such as nicotine, were in the vapes they used. The questions were presented in different parts of the survey. First, current vapers were asked, “In the PAST 30 DAYS, how often did the vapes you used contain nicotine?” Later in the survey, current vapers were also asked, “In the PAST 30 DAYS, did any of the vapes that you used contain nicotine?” These two different ways of asking about nicotine were included in the survey to help understand how question wording might affect the way people answer. Current vapers were also asked, “In the PAST 30 DAYS, did any of the vapes that you used contain the following substances?” and were given a list of substances they could select. Finally, current vapers were asked, “Was there ever a time in the PAST 30 DAYS that you used a vape and were not sure what it contained?” The weighted responses to each of these questions are presented in Table 12. For a comments and recommendations related to designing survey items related to vape contents, see Appendix.

Table 12. Vape contents among current vapers

Question	% (95% CI)
In the PAST 30 DAYS, how often did the vapes you used contain nicotine?	
Always had nicotine	36.4 (30.5, 42.3)
Mostly had nicotine	28.7 (23.8, 33.8)
Mostly did not have nicotine	13.7 (10.2, 17.2)
Never had nicotine	6.2 (3.7, 8.7)
I don't know	15.0 (10.2, 19.8)
In the PAST 30 DAYS, did any of the vapes that you used contain nicotine?	
Yes	62.7 (56.9, 68.5)
No	20.2 (15.8, 24.5)
I don't know	17.1 (12.0, 22.3)
In the PAST 30 DAYS, did any of the vapes that you used contain the following substances? Select all that apply.	
Marijuana with THC	38.2 (31.6, 44.9)
Marijuana without THC	20.6 (15.0, 26.1)
Melatonin	12.5 (9.6, 15.4)
Vitamins	9.1 (6.7, 11.5)
Something else	1.0 (0.2, 1.9)*
None of these	38.4 (31.5, 45.3)
Was there ever a time in the PAST 30 DAYS that you used a vape and were not sure what it contained?	
Yes	46.8 (40.9, 52.8)
No	53.2 (47.2, 59.1)

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Combined, more than half of current vapers reported that the vapes they used always (36.4%) or mostly (28.7%) contained nicotine. Asked in another way, 62.7% of current vapers reported that any the vapes they used in the past 30 days contained nicotine.
- Some current vapers reported that they never or only sometimes used vapes that contain nicotine. 6.2% of current vapers reported that that the vapes they used in the past 30 days never contained nicotine.
- Some current vapers did not know whether the vapes they used contained nicotine. Nearly half (46.8%) reported at least one time in the past 30 days using a vape and not being sure what it contained.
- Current vapers reported using vapes containing substances other than nicotine. From a list of four substances, marijuana with THC was selected the most (38.2%).
- Melatonin (12.5%) and vitamins (9.1%) were other substances sometimes used in vapes among current vapers.

CHAPTER SUMMARY

JUUL, Puff Bar, Blu, and Vuse were the vape brands participants reported as most popular among their peers. When asked to select the one brand of their favorite vape advertisement, most participants reported they do not have a favorite advertisement. Indicating the brand of a favorite tobacco advertisement is considered to be a measure of tobacco advertising receptivity and can be used to predict future tobacco use. These results from the TNT Online Survey suggest that most participants were not receptive to vape advertisements. Among all current vapers, it was common to use more than one vape device type during the past 30 days. Puff Bar- like disposable devices and JUUL-like pod devices were the two most commonly used device types. The majority of current vapers reported that the vapes they used contained nicotine. However, nearly half of current vapers reported that at least one time in the past 30 days they used a vape and were not sure what it contained. Besides nicotine, participants reported that the vapes they used sometimes contained marijuana, “vitamins,” and melatonin.

CHAPTER 3 – FLAVORED PRODUCTS

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to the current use of flavored tobacco and marijuana products. It also examines the use of specific flavors for certain tobacco products and use of flavors in various modes of marijuana consumption. For vapes, perceived ease of access to flavored products is presented.

Flavored Tobacco Use

All current users of vapes, cigarettes, cigars, hookah, and smokeless tobacco were asked about their use of flavored products in the past 30 days. Please note that flavored cigarette use in this chapter reflects use of menthol-flavored cigarettes (the only characterizing flavor permissible in cigarettes under federal law). Questions were presented to tobacco product users in different ways. In Version A questions, separately by tobacco product, participants were asked whether *any* of the products they used in the past 30 days were flavored. In Version B questions, also separately by tobacco product, participants were asked whether the product they *usually* used were flavored. Participants who indicated that they only used “unflavored” or “tobacco flavored” products or do not know what flavor they used in the past 30 days were considered not to have used flavored products. All other indicated flavors, such as mint, fruit, candy, and “other,” were categorized as flavored product use. The TNT Online Survey did not include flavor questions related to heated tobacco, nicotine pouches, or nicotine tablets, lozenges, or toothpicks. Participants who currently used only these products are not included in this chapter. Table 13 shows the prevalence of current flavored tobacco use among current users of various products.

Table 13. Prevalence of using flavored products among participants who were current users of a given tobacco product

	N ¹	Version A: Any Flavored Product Use % (95% CI)	Version B: Usually Use Flavored Products % (95% CI)
Any tobacco product below	1569	89.8 (86.2, 93.3)	87.1 (82.7, 91.4)
Vapes	1129	89.9 (85.7, 94.2)	83.8 (78.2, 89.4)
Cigarettes	1074	63.1 (54.5, 71.6)	70.3 (62.7, 77.8)
Cigars ²	639	83.3 (75.4, 91.1)	76.1 (67.1, 85.1)
Hookah	580	92.7 (87.5, 97.9)	93.0 (88.3, 97.7)
Smokeless Tobacco ³	711	87.6 (79.2, 95.9)	85.8 (79.2, 92.4)

1. Sample size (N) is unweighted and includes Version A and Version B responses combined

2. Includes big cigars and/or little cigars or cigarillos

3. Includes moist snuff, chewing tobacco, and/or snus

Abbreviation: CI = confidence interval

- Use of flavored tobacco products was very common among current tobacco users.
- More than 60% of current cigarette smokers used menthol cigarettes in the past 30 days.
- Over 80% of current users of vapes, cigars, and smokeless tobacco used flavored products.
- Over 90% of current hookah users used flavored hookah.
- Flavored tobacco product use was very common regardless of whether questions were formatted to ask about any flavored use or the flavor that participants “usually” used.

Flavored Marijuana Use

This section discusses the use of flavored marijuana products. For more information about marijuana use, in general, see Chapter 5. A subset of current marijuana users were asked about whether the products they used in the past 30 days were flavored. The questions differed depending on the way that participants consumed marijuana. All edible marijuana products (like cookies, candies, and drinks) were assumed to be “flavored.” Participants who used any combustible form of marijuana and/or a dry leaf vaporizer were asked whether the marijuana flower, bud, or leaf they used contained added flavors. Participants who vaped or dabbed marijuana oil, wax, or concentrate were asked whether the liquid they used was flavored. Participants who smoked blunts were asked about flavored blunts or blunt wraps. Participants who used joints or spliffs were asked about flavored rolling paper. Participants who consumed marijuana in more than one way were asked the flavor questions about each way they consumed marijuana. Using flavors one or more of the above ways was considered “any” flavored marijuana use. Table 14 presents the prevalence of flavored marijuana product use among current marijuana users.

Table 14. Prevalence of using flavored marijuana products among participants who were current users of a given marijuana product

	N ¹	Flavored Marijuana Product Use % (95% CI)
Any marijuana, including edibles	566	64.6 (56.1, 73.0)
Any marijuana, excluding edibles	566	47.1 (38.8, 55.4)
Marijuana flower, bud, or leaf	502	26.3 (19.6, 33.0)
Vaped or dabbed marijuana oil or liquid	173	47.2 (33.1, 61.3)
Blunt cigar or blunt wraps	175	66.6 (49.9, 83.3)
Joint or spliff rolling paper	432	29.9 (21.5, 38.3)

1. Sample size (N) is the unweighted number of current marijuana users who were asked to identify the mode(s) of marijuana consumption they used in the past 30 days
Abbreviation: CI = confidence interval

- Many current marijuana users consumed some form of flavored marijuana in the past 30 days. This was true whether edible marijuana products were included (64.6%) or excluded (47.1%) in calculating flavor use.
- Blunts were the method of marijuana consumption most likely to be flavored (66.6%), presumably through the use of flavored cigars or blunt wraps.
- Flavor added to the marijuana flower, bud, or leaf itself was the least common way to consumed flavored marijuana (26.3%) among the methods included in the survey.

Specific Flavors of Tobacco Products

For vapes, cigars, smokeless tobacco, and hookah, current users were asked which flavors they used in the past 30 days. In Version A questions, current users were asked about *any* of the flavors they used in the past 30 days. In Version B questions current users were asked about the flavors they *usually* used. Table 15 presents the results.

Table 15. Prevalence of using specific flavors of tobacco products among current users of a given tobacco product

	Vapes		Cigars		Smokeless Tobacco		Hookah	
	Version A (select all) % (95% CI)	Version B (select one) % (95% CI)	Version A (select all) % (95% CI)	Version B (select one) % (95% CI)	Version A (select all) % (95% CI)	Version B (select one) % (95% CI)	Version A (select all) % (95% CI)	Version B (select one) % (95% CI)
	Unflavored	11.6 (7.0, 16.1)	6.9 (2.7, 11.1)*	23.4 (15.1, 31.8)	19.1 (10.9, 27.4)	24.9 (16.9, 32.9)	13.9 (7.4, 20.5)	30.1 (15.5, 44.7)
Tobacco Flavored	11.2 (7.4, 14.9)	6.5 (3.5, 9.6)	N/A	N/A	N/A	N/A	N/A	N/A
Menthol, Frost, Ice	24.0 (17.7, 30.2)	10.6 (6.5, 14.8)	24.0 (14.7, 33.3)	10.0 (5.3, 14.7)	41.9 (29.8, 54.1)	13.3 (7.4, 19.1)	22.4 (12.3, 32.5)	11.1 (4.0, 18.1)*
Mint (Not Frost, Ice)	14.7 (8.9, 20.4)	5.2 (2.6, 7.8)	22.3 (13.5, 31.1)	8.3 (3.4, 13.1)	41.0 (30.2, 51.8)	22.5 (15.0, 30.0)	27.3 (15.0, 39.6)	17.1 (9.4, 24.7)
Wintergreen (Not Frost, Ice)	N/A	N/A	N/A	N/A	25.6 (16.8, 34.4)	18.5 (8.1, 29.0)	N/A	N/A
Fruit-Ice Combination	33.9 (25.6, 42.2)	20.6 (13.1, 28.2)	N/A	N/A	N/A	N/A	N/A	N/A
Fruit	51.6 (43.4, 59.9)	28.8 (21.7, 35.9)	53.9 (41.9, 65.8)	36.8 (23.7, 49.8)	41.7 (29.9, 53.5)	20.5 (12.1, 29.0)	59.0 (44.6, 73.4)	37.6 (25.1, 50.1)
Dessert	21.1 (13.9, 28.4)	7.0 (2.1, 11.9)*	21.8 (12.5, 31.1)	8.0 (3.3, 12.7)	N/A	N/A	28.4 (14.0, 42.9)	17.4 (4.0, 30.8)*
Candy	34.4 (26.1, 42.6)	9.6 (4.1, 15.2)	N/A	N/A	N/A	N/A	N/A	N/A
Spice	9.1 (4.9, 13.4)	1.5 (0.3, 2.6)*	13.4 (8.4, 18.3)	3.0 (1.1, 5.0)*	17.2 (11.5, 22.9)	4.7 (1.7, 7.6)*	18.7 (8.5, 28.9)	6.9 (2.7, 11.1)*
Alcohol	3.4 (2.0, 4.8)	0.2 (0, 0.4)*	11.5 (6.2, 16.8)	8.4 (0, 19.5)*	17.8 (11.3, 24.4)	6.3 (0, 14.1)*	11.4 (5.9, 16.9)	2.7 (0, 6.7)*
Non-Alcoholic Drink	2.5 (1.0, 4.1)*	0.2 (0, 0.4)*	2.0 (0.9, 3.2)	0.3 (0, 0.8)*	N/A	N/A	N/A	N/A
Other	0.2 (0, 0.4)*	0 (0, 0)	3.8 (0, 8.7)*	1.3 (0, 3.4)*	0 (0, 0)	0 (0, 0)	0 (0, 0)	0.2 (0, 0.7)*
Don't Know	1.4 (0.1, 2.6)*	2.7 (0, 5.4)*	6.9 (0, 15.6)*	4.8 (1.2, 8.3)*	6.7 (0, 13.9)*	0.3 (0, 0.7)*	2.6 (0, 5.3)*	2.2 (0, 6.1)*

Abbreviations: CI = confidence interval; N/A = Not applicable (some flavor categories were not presented for all products) *Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- For vapes, cigars, and hookah, fruit was the most commonly used type of flavor among current users of each product.
- Mint, menthol, and fruit were the most used flavors among smokeless tobacco users.
- After fruit, the most used flavors among vape users were candy, fruit-ice combination, and menthol (although the order of these flavors depended on question format).
- Question formats that allowed participants to select all of the flavors they used in the past 30 days (Version A) revealed that while certain flavors, like candy, spice, and alcohol, were unlikely to be the flavor that someone “usually” used, these flavors were still being used by a substantial proportion of tobacco users.

Perceived Access to Flavored Vapes

All participants in the TNT Online Survey were asked how easy or difficult they thought it would be to find vapes in “flavors that you like” (Table 16). This question was worded differently for current vape non-users. For non-users, the question asked them to assume they had access to vapes and wanted to get one, before asking how easy or difficult they thought it would be to find vapes in “flavors that you like.” Non-users were also given the option to select “I don’t know.”

Table 16. Current vape users and non-users who think it is easy or difficult to find vapes in flavors that they like

	Vape Current Users % (95% CI)	Vape Current Non-Users % (95% CI)
Very difficult to find flavors I like	10.6 (6.8, 14.5)	6.1 (4.8, 7.3)
Somewhat difficult to find flavors I like	16.2 (12.0, 20.4)	5.4 (4.8, 7.3)
Somewhat easy to find flavors I like	34.4 (28.9, 39.8)	18.1 (16.1, 20.1)
Very Easy to find flavors I like	38.8 (32.9, 44.7)	18.0 (15.9, 20.1)
I don't know	N/A	52.4 (49.8, 55.1)

Abbreviations: CI = confidence interval; N/A = Not applicable (option not available for current users)

- Most current vapers thought it would be either “somewhat” (34.4%) or “very” easy(38.8%) to find vapes in flavors that they like.
- Less than one-third of current vapers thought it would be either “somewhat” (16.2%) or “very” difficult (10.6%) to find vapes in flavors that they like.
- About half (52.4%) of vape non-users indicated that they do not know how easy or difficult it would be to find vapes in flavors that they like.
- Among vape non-users that indicated a response other than “I don’t know,” it was approximately 3-times as common to indicate that it would be “somewhat” (18.1%) or “very” (18.0%) easy to find vapes in flavors that they like than it was to indicate it would be “somewhat” (5.4%) or “very” (6.1%) difficult.

Preferences for Specific Vape Flavors

In the winter cycle of the TNT Online Survey 2021-2022 Wave, all vape product ever-users were asked how much they liked or disliked certain flavors for vapes. Table 17 presents how much the 11 listed flavor categories were liked or disliked.

Table 17. Liking and disliking of various flavors for vapes among vape ever users.

	Strongly Like % (95% CI)	Somewhat Like % (95% CI)	Neither Like Nor Dislike % (95% CI)	Somewhat Dislike % (95% CI)	Strongly Dislike % (95% CI)
Fruit	35.2 (28.9, 41.5)	34.8 (28.4, 41.1)	14.7 (10.3, 19.1)	6.6 (2.9, 10.3)	8.8 (5.3, 12.3)
Candy	32.6 (26.3, 38.9)	28.5 (22.7, 34.3)	22.9 (17.2, 28.5)	4.1 (1.7, 6.5)*	11.9 (7.6, 16.2)
Dessert	26.7 (20.8, 32.7)	28.6 (22.7, 34.5)	25.4 (19.8, 31.0)	5.9 (2.6, 9.2)	13.3 (8.9, 17.8)
Fruit-Ice Combination	20.3 (15.0, 25.7)	35.2 (28.8, 41.6)	22.0 (16.6, 27.4)	6.7 (3.7, 9.6)	15.8 (11.2, 20.5)
Non-Alcoholic Drink	9.7 (6.0, 13.4)	13.9 (9.2, 18.7)	26.4 (20.9, 32.0)	13.2 (8.8, 17.6)	36.7 (30.3, 43.2)
Mint (Not Frost, Ice)	9.1 (5.8, 12.4)	30.0 (23.9, 36.1)	26.4 (20.3, 32.4)	10.8 (6.8, 14.8)	23.7 (18.3, 29.2)
Menthol, Frost, Ice	8.7 (5.4, 12.1)	23.4 (17.9, 29.0)	23.3 (17.6, 29.1)	12.0 (8.1, 15.9)	32.5 (26.2, 38.8)
Alcohol	6.2 (3.4, 8.9)	11.6 (7.6, 15.7)	20.7 (15.5, 25.9)	15.4 (10.7, 20.2)	46.1 (39.5, 52.7)
Spice	5.8 (3.0, 8.5)	11.2 (7.5, 15.0)	31.6 (25.4, 37.7)	19.5 (14.0, 24.9)	32.0 (25.8, 38.1)
Unflavored	4.7 (2.3, 7.0)	10.2 (6.6, 13.8)	23.9 (18.2, 29.6)	15.6 (10.6, 20.5)	45.6 (39.0, 52.2)
Tobacco Flavored	3.0 (1.6, 4.5)	10.2 (6.7, 13.6)	16.7 (11.7, 21.8)	10.8 (7.3, 14.4)	59.2 (52.9, 65.5)

Abbreviations: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Note: Results in Table 17 limited to N=752 (unweighted count) vape product ever-users in the winter cycle who indicated an opinion about all 11 flavors listed in the table

- Among vape ever users, fruit was the vape flavor that was most often strongly liked (35.2%) and least often strongly disliked (8.8%).
- Fruit, candy, dessert, and fruit-ice combination flavors were each either liked or strongly liked by more than 50% of all vape ever users.
- Unflavored and tobacco flavored were the least liked vape flavors. The majority of vape ever users (59.2%) strongly disliked tobacco flavor, and 45.6% strongly disliked unflavored vapes.

CHAPTER SUMMARY

Tobacco and marijuana users commonly used flavored products. More than 60% of current cigarette smokers used menthol cigarettes in the past 30 days. Over 80% of current users of vapes, cigars, and smokeless tobacco used flavored versions of these products. Over 90% of current hookah users used flavored hookah. Use of flavored marijuana products was common, even if edible marijuana products were excluded. Blunts were the method of marijuana consumption most likely to be flavored. Fruit was the flavor used most often by current users of vapes, cigars, and hookah. Mint, menthol, and fruit were the flavors used most often by current smokeless tobacco users. Fruit, candy, dessert, and fruit-ice combination flavors were each either liked or strongly liked by more than 50% of all vape ever users. Both vape users and non-users were more likely to report it would be somewhat or very easy to find vapes in flavors that they like than to report it would be somewhat or very difficult.

CHAPTER 4 – TOBACCO ENDGAME

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to the Tobacco Endgame. California has set a goal of eliminating tobacco use statewide. This will be achieved through a number of policy priorities to strengthen tobacco control efforts. The TNT Online Survey included several questions intended to assess participants' attitudes related to some of these policies.

Tobacco Endgame Policy Statements

All TNT Online Survey participants were asked to indicate how much they agreed or disagreed with nine different policy statements. Three of the statements related to the sale of tobacco products, and three statements related to the use of tobacco or marijuana products in public places. In the Wave 2021-2022 summer cycle, participants were asked how much they agreed that certain practices "should NOT be allowed." In the Wave 2021-2022 winter cycle, these survey questions were modified slightly and asked participants whether these same practices "should end." Three additional policy statements were worded exactly the same way for all Wave 2021-2022 participants. Table 18 shows how participants responded to the Tobacco Endgame policy statements related to potential restrictions on tobacco sales. Table 19 shows how participants responded to the Tobacco Endgame policy statements related to tobacco or marijuana use in public places, apartment buildings, and flavored tobacco use by youth.

Table 18. Agreement with tobacco endgame policy statements - tobacco sales restrictions

	Strongly Agree % (95% CI)	Agree % (95% CI)	Disagree % (95% CI)	Strongly Disagree % (95% CI)
<u>Version: "should NOT be allowed"</u>				
The sale of all tobacco products, including cigarettes, cigars, chewing tobacco, and vapes, should NOT be allowed	34.1 (30.5, 37.7)	33.8 (30.2, 37.4)	25.2 (22.0, 28.5)	6.8 (4.9, 8.7)
Menthol cigarettes taste like mint. The sale of menthol cigarettes should NOT be allowed	35.3 (31.6, 38.9)	32.9 (29.3, 36.5)	23.5 (20.4, 26.6)	8.3 (6.3, 10.4)
The sale of FLAVORED tobacco, like cigarettes, chew, cigars, and vapes that taste like mint, fruit, or candy, should NOT be allowed	37.8 (34.1, 41.5)	32.3 (28.7, 35.9)	22.6 (19.5, 25.6)	7.4 (5.4, 9.3)
<u>Version: "should end"</u>				
The sale of all tobacco products, including cigarettes, cigars, chewing tobacco, and vapes, <u>should end</u>	40.8 (37.6, 44.1)	34.4 (31.2, 37.5)	19.0 (16.4, 21.5)	5.8 (4.4, 7.3)
Menthol cigarettes taste like mint. The sale of menthol cigarettes <u>should end</u>	44.0 (40.7, 47.2)	34.2 (31.0, 37.3)	16.4 (14.0, 18.8)	5.4 (4.0, 6.8)
The sale of FLAVORED tobacco, like cigarettes, chew, cigars, and vapes that taste like mint, fruit, or candy, <u>should end</u>	46.6 (43.3, 49.9)	31.4 (28.3, 34.4)	16.3 (13.9, 18.7)	5.7 (4.3, 7.1)

Abbreviation: CI = confidence interval

- Most participants supported statements that called for the sale of all tobacco products or flavored tobacco products to be disallowed or ended.
- Between 34% and 47% of participants "strongly agreed" and between 31% and 34% "agreed" that sales should not be allowed or should end.
- Strong agreement was somewhat greater when statements said that sales "should end" as opposed to when statements said sales "should not be allowed."
- Strong agreement was somewhat greater for endgame statements related to flavored tobacco sales than for statements related to the sales of all tobacco products.

Table 19. Agreement with tobacco endgame policy statements - public places, apartment buildings, and tobacco flavors

	Strongly Agree % (95% CI)	Agree % (95% CI)	Disagree % (95% CI)	Strongly Disagree % (95% CI)
<u>Version: "should NOT be allowed"</u>				
Smoking cigarettes, little cigars, or cigarillos in all public places should NOT be allowed	46.6 (42.8, 50.4)	33.2 (29.6, 36.8)	15.2 (12.4, 17.9)	5.1 (3.4, 6.7)
Smoking marijuana in all public places should NOT be allowed	45.7 (41.9, 49.4)	33.0 (29.4, 36.5)	15.6 (12.5, 18.7)	5.7 (4.2, 7.3)
Using vapes in all public places should NOT be allowed	40.9 (37.1, 44.6)	33.6 (30.0, 37.1)	17.7 (15.0, 20.4)	7.9 (5.4, 10.3)
<u>Version: "should end"</u>				
Smoking cigarettes, little cigars, or cigarillos in all public places <u>should end</u>	48.8 (45.5, 52.1)	33.6 (30.5, 36.8)	12.8 (10.6, 15.1)	4.8 (3.4, 6.1)
Smoking marijuana in all public places <u>should end</u>	44.2 (41.0, 47.5)	31.8 (28.7, 34.8)	15.1 (12.7, 17.5)	8.9 (7.0, 10.9)
<u>Using vapes in all public places should end</u>	43.1 (39.8, 46.4)	34.4 (31.3, 37.6)	14.9 (12.6, 17.1)	7.6 (5.8, 9.4)
<u>Version: same wording in all surveys</u>				
All apartment buildings should be completely smoke-free	44.9 (42.5, 47.3)	34.1 (31.7, 36.4)	15.2 (13.5, 16.9)	5.8 (4.7, 6.9)
All apartment buildings should be completely vape-free	43.1 (40.7, 45.5)	30.7 (28.5, 33.0)	19.3 (17.4, 21.2)	6.9 (5.7, 8.1)
Eliminating the sale of flavored tobacco will help prevent youth from using any and all tobacco products	38.8 (36.4, 41.2)	34.8 (32.5, 37.1)	18.6 (16.7, 20.4)	7.8 (6.6, 9.1)

Abbreviation: CI = confidence interval

- Most participants supported statements that called for the use of tobacco or marijuana products in public places to be disallowed or ended.
- Between 39% and 49% of participants "strongly agreed" and between 31% and 35% "agreed" that tobacco or marijuana use in public places should not be allowed or should end.
- Strong agreement was slightly greater when statements said that tobacco smoking or using vapes in public places "should end" as opposed to when statements said that public use "should not be allowed;" however, strong agreement was slightly greater when it was stated that marijuana use in public places "should not be allowed."
- Strong agreement was slightly greater when statements applied to smoking tobacco than using vapes.
- Most participants either "strongly agreed" or "agreed" that all apartment buildings should be completely smoke-free and completely vape-free. There was slightly more strong agreement that apartments should be smoke-free than vape-free.
- Most participants either "strongly agreed" (39%) or "agreed" (35%) that eliminating sales of flavored tobacco will help prevent youth tobacco use.

CHAPTER SUMMARY

Most participants supported statements that called for the sale of all tobacco products or flavored tobacco products to be disallowed or ended. Strong agreement was slightly greater for endgame statements related to flavored tobacco sales than for statements related to the sales of all tobacco products. Most participants supported statements that called for the use of tobacco or marijuana products in public places to be disallowed or ended. Strong agreement was slightly greater when statements applied to smoking tobacco than using vapes. Most participants either “strongly agreed” or “agreed” that all apartment buildings should be completely smoke-free and completely vape-free. There was slightly more strong agreement that apartments should be smoke-free than vape-free.

CHAPTER 5 – MARIJUANA USE

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to marijuana products, also known as cannabis. It examines who ever and current users of marijuana products were, the usual mode of marijuana use, as well as current marijuana and tobacco co-use (i.e., use of both marijuana and tobacco in the past 30 days). Information about exposure to marijuana marketing, household rules about marijuana use, marijuana use by another household member, flavored marijuana use, and how participants acquired marijuana products can be found in other chapters.

Marijuana Use

All TNT Online Survey participants were asked whether they had ever used marijuana and on how many days they used marijuana in the past 30 days (current use was defined as use of marijuana on at least one day in the past 30 days). For the wording used when presenting marijuana in the TNT Online Survey questionnaire, see List of Terms. Table 20 presents the prevalence of marijuana product use (in any mode of consumption) among participants according to their gender, race/ethnicity, and age.

Table 20. Prevalence of any tobacco use by gender, race/ethnicity, and age

	Sample Size ¹		Ever Use	Current Use
	N	%	% (95% CI)	% (95% CI)
Overall	4885	100	22.8 (20.7, 24.9)	13.2 (11.6, 14.9)
Gender				
Male	1890	38.7	23.2 (20.0, 26.5)	14.2 (11.6, 16.8)
Female	2845	58.3	21.5 (18.6, 24.4)	11.9 (9.6, 14.2)
Identified Another Way	148	3.0	28.5 (14.7, 42.2)	16.3 (5.5, 27.0)*
Race/Ethnicity				
White	1086	23.3	23.0 (20.0, 26.1)	13.1 (10.7, 15.4)
African American / Black	221	4.7	18.1 (11.3, 24.9)	8.5 (4.0, 13)
Hispanic / Latino	2406	51.6	27.2 (23.5, 30.8)	16.6 (13.6, 19.6)
Asian	619	13.3	7.7 (4.2, 11.2)	1.9 (0.5, 3.2)*
Other ²	108	2.3	12.7 (5.5, 19.9)	6.6 (2.3, 11.0)*
More Than One	253	5.4	14.0 (8.6, 19.5)	8.0 (3.9, 12.2)
Age				
12	787	16.1	9.5 (5.6, 13.4)	6.2 (3.2, 9.2)
13	793	16.2	19.5 (14.0, 24.9)	11.8 (7.4, 16.3)
14	765	15.7	18.4 (13.8, 22.9)	10.1 (7.0, 13.3)
15	730	14.9	26.0 (20.7, 31.3)	17.4 (12.8, 22.0)
16	877	18.0	29.4 (24.2, 34.7)	14.6 (10.6, 18.6)
17	932	19.1	31.8 (26.5, 37.1)	18.4 (13.8, 22.9)

1. Sample size (N) and percentage are weighted for response quality and participant demographic characteristics; the weighted sample sizes presented are less than the total TNT Online survey sample size because some participants did not answer the questions related to marijuana use.
2. Includes participants who indicated their race was American Indian / Alaska Native, Native Hawaiian / Other Pacific Islander, or "Other." Categories were combined to increase sample size.

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Overall, 22.8% of TNT Online survey participants had ever used marijuana and 13.2% were current marijuana users.
- Current use of marijuana was higher among male-identifying (14.2%) than female-identifying (11.9%) participants.
- By race/ethnicity, current use of marijuana was highest among participants who identified as Hispanic or Latino (16.6%), followed by White (13.1%), and African American or Black (8.5%).
- Generally, marijuana use increased with age. Both ever use and current use of marijuana were approximately three times as high at age 17 years versus age 12 years.

Modes of Marijuana Use

There are multiple modes through which marijuana products can be consumed, which include combustible, non-combustible, edible, and other methods. A subset of current marijuana users in the TNT Online Survey were asked to report on how many days in the past 30 days they used marijuana in various modes from a list of 12 possibilities. Only a subset of participants were asked about modes of consumption in order to reduce the length of the survey overall. Table 21 presents the prevalence of using marijuana in various modes at least one day in the past 30 days among current marijuana users.

Table 21. Modes of marijuana use among current marijuana users

	Mode of Use (select all) % (95% CI)
Joint (marijuana-only cigarette)	54.5 (46.2, 62.8)
Small pipe	36.8 (28.6, 45.0)
Edible (cookie, candy, other food or drink)	36.7 (28.5, 44.9)
Blunt (marijuana insides a cigar)	29.6 (21.7, 37.4)
Vaped wax, oil, or liquid	28.8 (21.4, 36.2)
Bong (waterpipe)	23.8 (17.1, 30.5)
Dabbed oil, wax, shatter, extract, concentrate	12.7 (7.5, 18.0)
Vaped flower or leaf in a vaporizer	10.9 (5.9, 15.8)
Spliff (marijuana and tobacco mixed cigarette)	9.7 (6.4, 13.0)
Tincture (drops or spray)	8.9 (3.9, 13.8)
Moke (marijuana and tobacco mixed waterpipe)	5.9 (3.0, 8.9)
Synthetic marijuana	1.4 (0.4, 2.3)*
Other	1.1 (0, 2.2)*

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Note: Results based on N = 566 (unweighted) current marijuana users who were asked to identify the mode(s) of marijuana consumption they used in the past 30 days.

- More than half (54.5%) of current marijuana users reported smoking a marijuana joint in the past 30 days.
- Small pipes (36.8%), edibles (36.7%), blunts (29.6%), and vaped wax, oil, or liquid (28.8%) were the next most common modes of use.

Marijuana Use and Tobacco Co-Use

Table 22 further categorizes current marijuana use based on whether participants used marijuana only or co-used marijuana and any tobacco product. Co-use was considered use of both marijuana (any mode of consumption) and tobacco (any product, including vapes) on at least one day in the past 30 days (not necessarily on the same day).

Table 22. Prevalence of current marijuana only use and co-use of marijuana and any tobacco product by gender, race/ethnicity, and age

	Sample Size ¹		Marijuana Only Use % (95% CI)	Marijuana and Tobacco Co-Use % (95% CI)
	N	%		
Overall	4884	100	3.5 (2.5, 4.5)	9.7 (8.3, 11.1)
Gender				
Male	1891	38.7	3.2 (1.7, 4.7)	11.0 (8.8, 13.2)
Female	2845	58.3	3.6 (2.2, 5.0)	8.3 (6.4, 10.2)
Identified Another Way	148	3.0	5.6 (0, 12.4)*	10.7 (1.9, 19.5)*
Race/Ethnicity				
White	1086	23.3	2.5 (1.4, 3.7)	10.6 (8.4, 12.7)
African American / Black	221	4.8	2.7 (0.6, 4.8)*	5.8 (1.8, 9.8)*
Hispanic / Latino	2406	51.6	5.1 (3.2, 7.0)	11.5 (9.0, 14.0)
Asian	619	13.3	0.1 (0, 0.3)*	1.8 (0.4, 3.1)*
Other ²	108	2.3	3.5 (2.9, 6.6)*	3.2 (0.4, 6.0)*
More Than One	253	5.4	1.7 (0.1, 3.3)*	6.3 (2.5, 10.2)*
Age				
12	787	16.1	2.5 (0.4, 4.7)	3.7 (1.5, 5.8)
13	793	16.2	2.2 (0, 4.8)	9.7 (5.8, 13.5)
14	765	15.7	1.2 (0.3, 2.1)	9.0 (5.9, 12.0)
15	730	15.0	4.6 (2.1, 7.1)	12.8 (8.7, 17.0)
16	877	18.0	5.6 (2.9, 8.3)	9.1 (5.9, 12.2)
17	931	19.1	4.7 (1.8, 7.5)	13.7 (9.8, 17.6)

1. Sample size (N) and percentage are weighted for response quality and participant demographic characteristics; the weighted sample sizes presented are less than the total TNT Online survey sample size because some participants did not answer the questions related to marijuana use.

2. Includes participants who indicated their race was American Indian / Alaska Native, Native Hawaiian / Other Pacific Islander, or "Other." Categories were combined to increase sample size.

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Overall, current marijuana and tobacco co-use (9.7%) was more common than marijuana only use (3.5%). This was true in all subgroups large enough to produce stable estimates.
- Current marijuana and tobacco co-use was most common among male participants (11.0%), and participants identifying as Hispanic or Latino (11.5%), and participants age 17 (13.7%).

Table 23 presents the prevalence of current marijuana use among current users of various tobacco products.

Table 23. Prevalence of current marijuana use and among current users of tobacco products

	Current Marijuana Use % (95% CI)
Current Any Tobacco Product Users	54.1 (49.2, 59.1)
Current Vape Users	57.6 (52.0, 63.3)
Current Cigarette Smokers	51.8 (45.5, 58.1)
Current Cigar Smokers	67.4 (59.9, 75.0)
Current Hookah Users	63.2 (54.4, 72.0)
Current Smokeless Tobacco Users	47.9 (40.0, 55.8)

Abbreviations: CI = confidence interval

Notes: Tobacco use categories are not mutually exclusive. Participants could appear in more than one row if they used more than one tobacco product in the past 30 days.

Nicotine pouches, nicotine tablets, lozenges, or toothpicks, and heated tobacco excluded due to small sample sizes.

- More than half (54.1%) of current tobacco product users (any product) were also current marijuana users.
- Among current tobacco product users, current marijuana use was most common among cigar smokers: 67.4% of current cigar smokers were also current marijuana users.

CHAPTER SUMMARY

Overall, 22.8% of TNT Online survey participants had ever used marijuana and 13.2% were current marijuana users. The prevalence of current use of marijuana was greater among male-identifying than female-identifying participants and was highest among participants who identified as Hispanic or Latino, followed by White and African American or Black. Among current marijuana users, the most common way to consume marijuana was smoking a marijuana joint, followed by small pipes, edibles, blunts, and vaped wax, oil, or liquid. More than half of current tobacco product users were also current marijuana users.

CHAPTER 6 – TOBACCO AND MARIJUANA PERCEPTIONS

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to what participants thought about and expected regarding use of tobacco and marijuana products.

Tobacco and Marijuana Future Use Expectations

All TNT Online Survey participants were posed a series of questions in which they were asked whether they think they will be using various tobacco products and marijuana in the future. One set of questions asked participants about whether they think they will be using products one year in the future. Another set of questions asked about product use at age 25. The possible response options that participants could choose ranged from definitely not to definitely yes. Table 24 presents participants' use expectations for one year in the future. Table 25 presents participants' use expectations for age 25.

Table 24. Participants' expectations for using various tobacco products and marijuana one year in the future

	N ¹	Do you think you will be using any of the following products one year from now?			
		Definitely Not % (95% CI)	Probably Not % (95% CI)	Probably Yes % (95% CI)	Definitely Yes % (95% CI)
All Participants					
Vapes	4684	70.2 (68.0, 72.4)	17.4 (15.5, 19.3)	9.1 (7.7, 10.5)	3.3 (2.6, 4.1)
Cigarettes	4684	79.7 (77.8, 81.5)	12.5 (10.9, 14.2)	5.1 (4.2, 6.0)	2.7 (2.0, 3.3)
Cigars	4680	86.1 (84.6, 87.7)	8.4 (7.1, 9.7)	3.8 (3, 4.6)	1.7 (1.3, 2.1)
Hookah	4681	81.7 (79.8, 83.5)	11.4 (9.8, 13.0)	4.7 (3.8, 5.6)	2.3 (1.6, 2.9)
Smokeless Tobacco	4682	88.1 (86.7, 89.5)	7.2 (6.0, 8.4)	3.2 (2.5, 3.9)	1.5 (1.1, 1.9)
Marijuana	4680	66.2 (63.9, 68.6)	15.3 (13.5, 17.0)	12.5 (10.8, 14.3)	6.0 (4.8, 7.1)
Product Users Only					
Vapes	1079	13.1 (9.2, 17.1)	29.6 (23.8, 35.4)	39.6 (33.7, 45.6)	17.6 (13.8, 21.5)
Cigarettes	1020	18.6 (12.7, 24.4)	26.8 (20.7, 32.9)	34.5 (28.5, 40.5)	20.1 (15.9, 24.2)
Cigars	606	34.0 (24.4, 43.5)	19.8 (13.3, 26.4)	29.5 (21.7, 37.3)	16.7 (11.3, 22.1)
Hookah	558	19.1 (9.8, 28.4)	17.1 (9.6, 24.6)	36.7 (26.9, 46.5)	27.0 (18.5, 35.6)
Smokeless Tobacco	679	21.7 (13.2, 30.2)	22.1 (16.6, 27.6)	35.3 (27.5, 43.0)	20.9 (15.6, 26.3)
Marijuana	785	6.2 (3.7, 8.6)	14.3 (9.8, 18.8)	45.8 (38.6, 53.0)	33.8 (27.2, 40.4)
Product Non-Users Only					
Vapes	3601	78.9 (76.7, 81.1)	15.5 (13.5, 17.4)	4.5 (3.3, 5.6)	1.2 (0.6, 1.7)
Cigarettes	3663	85.3 (83.5, 87.1)	11.2 (9.6, 12.9)	2.4 (1.7, 3.1)	1.1 (0.5, 1.6)
Cigars	4074	89.1 (87.5, 90.6)	7.8 (6.4, 9.1)	2.3 (1.7, 3.0)	0.8 (0.5, 1.2)
Hookah	4121	84.5 (82.6, 86.3)	11.1 (9.5, 12.8)	3.2 (2.5, 4.0)	1.2 (0.7, 1.7)
Smokeless Tobacco	4001	91.0 (89.7, 92.4)	6.5 (5.3, 7.7)	1.8 (1.2, 2.4)	0.7 (0.3, 1.0)
Marijuana	3893	75.2 (72.9, 77.5)	15.4 (13.5, 17.3)	7.6 (6.1, 9.0)	1.8 (1.2, 2.4)

1. Sample size (N) is the unweighted number of participants who answered each question; sample size may be less than the total number of participants due to missing data
Abbreviation: CI = confidence interval

- Among all TNT Online Survey participants, most (66.2% - 88.1%) indicated that they would “definitely not” be using each of 5 different tobacco products and marijuana one year in the future.
- There were large differences according to whether participants were using each product. Unlike non-users, more than half of all current users of each product (except for cigars) indicated that they would “probably” or “definitely” be using one year in the future.
- Current users of marijuana were the most likely to indicate that they would “definitely” be using their product one year in the future (33.8%).
- The vast majority of current non-users indicated that they would “definitely not” be using one year in the future.
- Smokeless tobacco was the product with highest percentage of “definitely not” responses among non-users (91.0%). Marijuana was the product with lowest percentage of “definitely not” responses among non-users (75.2%).

Table 25. Participants’ expectations for using various tobacco products and marijuana when they are age 25

	N ¹	Do you think you will be using any of the following products when you are age 25?			
		Definitely Not % (95% CI)	Probably Not % (95% CI)	Probably Yes % (95% CI)	Definitely Yes % (95% CI)
<u>All Participants</u>					
Vapes	4678	66.1 (63.8, 68.5)	20.9 (18.8, 23.0)	9.6 (8.2, 11.0)	3.3 (2.7, 4.0)
Cigarettes	4685	73.9 (71.8, 76.0)	16.6 (14.8, 18.5)	6.2 (5.2, 7.2)	3.3 (2.6, 4.0)
Cigars	4678	80.5 (78.7, 82.4)	12.7 (11.1, 14.4)	4.8 (3.9, 5.7)	1.9 (1.4, 2.4)
Hookah	4677	75.1 (73.0, 77.2)	16.2 (14.3, 18.1)	6.0 (5.0, 7.1)	2.7 (2.0, 3.4)
Smokeless Tobacco	4682	84.1 (82.4, 85.7)	11.4 (9.9, 13.0)	2.7 (2.2, 3.3)	1.8 (1.3, 2.2)
Marijuana	4672	55.2 (52.8, 57.7)	21.9 (19.8, 23.9)	15.8 (14.0, 17.6)	7.1 (5.8, 8.3)
<u>Product Users Only</u>					
Vapes	1077	20.4 (15.4, 25.5)	27.0 (21.4, 32.7)	35.5 (29.7, 41.2)	17.1 (13.1, 21.0)
Cigarettes	1019	21.7 (15.5, 27.9)	21.6 (15.7, 27.4)	33.3 (27.6, 39.0)	23.4 (18.5, 28.4)
Cigars	604	31.1 (21.8, 40.4)	23.2 (15.5, 30.9)	31.0 (23.1, 38.9)	14.7 (9.9, 19.4)
Hookah	557	18.2 (9.6, 26.7)	23.1 (14.0, 32.3)	33.9 (24.2, 43.7)	24.8 (16.9, 32.7)
Smokeless Tobacco	679	15.8 (8.7, 22.9)	29.3 (21.6, 37.1)	35.5 (28.1, 42.9)	19.4 (14.1, 24.8)
Marijuana	785	7.3 (4.1, 10.5)	15.3 (10.2, 20.5)	41.6 (34.5, 48.8)	35.7 (29.0, 42.4)
<u>Product Non-Users Only</u>					
Vapes	3597	73.1 (70.7, 75.5)	20.0 (17.8, 22.2)	5.7 (4.4, 6.9)	1.3 (0.9, 1.7)
Cigarettes	3665	78.7 (76.5, 80.9)	16.2 (14.2, 18.2)	3.7 (2.8, 4.7)	1.4 (0.8, 2.0)
Cigars	4074	83.3 (81.4, 85.2)	12.1 (10.5, 13.8)	3.4 (2.6, 4.2)	1.2 (0.8, 1.6)
Hookah	4118	77.6 (75.5, 79.7)	15.9 (13.9, 17.8)	4.8 (3.8, 5.8)	1.7 (1.1, 2.3)
Smokeless Tobacco	4001	87.1 (85.4, 88.7)	10.6 (9.1, 12.2)	1.3 (0.9, 1.7)	1.0 (0.6, 1.4)
Marijuana	3885	62.4 (59.8, 65.0)	22.8 (20.6, 25.1)	12.0 (10.3, 13.7)	2.8 (1.9, 3.7)

1. Sample size (N) is the unweighted number of participants who answered each question; sample size may be less than the total number of participants due to missing data
Abbreviation: CI = confidence interval

- Generally, participants were less likely to indicate that they would “definitely not” use each of 5 different tobacco products and marijuana at age 25 compared to one year in the future.
- There were large differences according to whether participants were using each product. For all products, a majority of current users of each product indicated that they would “probably” or “definitely” be using one year in the future.
- Current users of marijuana were the most likely to indicate that they would “definitely” be using their product at age 25 (35.7%).
- The vast majority of current non-users indicated that they would “definitely not” be using tobacco products at age 25.
- Smokeless tobacco was the product with highest percentage of “definitely not” responses among non-users (87.1%).
- Marijuana was the product with lowest percentage of “definitely not” responses among non-users (62.4%).
- 14.8% of current marijuana non-users indicated that they “probably” or “definitely” would use marijuana at age 25, which was more than twice the percentage of vape non-users “probably” or “definitely” expecting future vape use and almost 3-times the percentage of cigarette non-users “probably” or “definitely” expecting future cigarette smoking.

Conditional Risk Perceptions

All TNT Online Survey participants were posed a series of questions in which they were asked to imagine that they use certain products. Specifically, in separate questions, they were asked to imagine that they use vapes, cigarettes, or marijuana 2 to 3 times per day. For each product, they were then asked to move a slider on the screen to show the chance that certain things would happen to them, from 0% chance to 100% chance of happening. These types of questions are called conditional risk perception items because the questions measure what someone thinks will happen (their perception) under the *condition* that they used a certain product. In the TNT Online Survey, participants reported the chances of bad outcomes (for example, getting into trouble or having worse health) and the chances of potentially good outcomes, like getting along with friends. The average chance that participants assigned to a certain outcome is not necessarily an accurate prediction of the probability something will happen. However, comparing different outcomes and different products can be helpful to researchers who want to know what people think about the possible risks and benefits of different products relative to each other. Table 26 presents the findings from conditional risk perception questions about vapes, cigarettes, and marijuana.

Table 26. Participants’ perceptions that certain outcomes would happen to them if they used vapes, cigarettes, or marijuana

	Mean Perceived Probability Event Would Happen (range: 0 - 100)		
	Total Sample	Current Users ¹	Current Non-Users ¹
Vapes			
Get into trouble	71.7 (70.1, 73.3)	50.2 (46.1, 54.4)	75.1 (73.3, 76.8)
Get lung cancer	70.8 (69.3, 72.3)	53.5 (49.5, 57.4)	73.4 (71.8, 75.1)
Have worse health in general	73.4 (71.9, 74.9)	52.8 (48.8, 56.7)	76.6 (75.0, 78.2)
Have fun while using	37.0 (35.3, 38.6)	61.7 (58.3, 65.1)	33.1 (31.3, 34.9)
Get along with friends	42.2 (40.5, 43.9)	60.6 (57.2, 64.1)	39.4 (37.5, 41.3)
Cigarettes			
Get into trouble	74.1 (72.5, 75.7)	46.3 (42.3, 50.2)	76.7 (75.0, 78.3)
Get lung cancer	78.6 (77.3, 79.9)	56.1 (51.6, 60.5)	80.7 (79.3, 82.0)
Have worse health in general	81.2 (79.9, 82.5)	54.8 (50.5, 59.1)	83.7 (82.3, 85.0)
Have fun while using	30.5 (29.0, 32.1)	53.9 (49.5, 58.3)	28.3 (26.7, 30.0)
Get along with friends	35.2 (33.6, 36.8)	53.7 (49.7, 57.7)	33.5 (31.8, 35.2)
Marijuana			
Get into trouble	72.6 (70.9, 74.2)	47.7 (42.7, 52.7)	76.3 (74.6, 77.9)
Get lung cancer	58.5 (56.7, 60.2)	39.0 (34.0, 43.9)	61.4 (59.6, 63.2)
Have worse health in general	61.4 (59.6, 63.2)	35.0 (30.8, 39.3)	65.3 (63.5, 67.2)
Have fun while using	45.9 (44.1, 47.7)	76.0 (72.4, 79.7)	41.3 (39.5, 43.2)
Get along with friends	46.3 (44.5, 48.0)	71.7 (67.6, 75.8)	42.4 (40.6, 44.2)

1. Use status refers to the specific product. The column “Current Users” shows vape users’ perceptions of vapes, cigarette smokers’ perceptions of cigarettes, and marijuana users’ perceptions of marijuana. The column “Current Non-Users” shows vape non-users’ perceptions of vapes, cigarette non-smokers’ perceptions of cigarettes, and marijuana non-users’ perceptions of marijuana
Abbreviation: CI = confidence interval

- For all three products (vapes, cigarettes, and marijuana), current users expected a lower chance of bad outcomes happening to them than non-users expected. This included getting into trouble, getting lung cancer, and having worse general health.
- For all three products (vapes, cigarettes, and marijuana), current users expected a greater chance of potentially good outcomes happening to them than non-users expected. This included having fun while using and getting along with friends.
- Both current users and non-users expected the greatest chance of bad outcomes happening to them from cigarettes and the lowest chance of bad outcomes from marijuana.
- Both current users and non-users expected the greatest chance of potentially good outcomes happening to them from marijuana and the lowest chance of bad outcomes from cigarettes.
- These findings indicate not only large differences in risk and benefit perceptions between users and non-users of tobacco and marijuana but also that both users and non-users perceive cigarettes, vapes, and marijuana to have distinct risk and benefit profiles.

CHAPTER SUMMARY

Most TNT Online Survey participants indicated that they would “definitely not” be using each of vapes, cigarettes, cigars, hookah, smokeless tobacco and marijuana one year in the future. However, unlike non-users, most current users did not have low use expectations for one year in the future. Participants were generally less likely to have low use expectations for tobacco and marijuana at age 25 than for one year in the future. Among both users and non-users, marijuana was the product that participants were least likely to strongly reject for future use. Participants had different perceptions of the potential risks and benefits of vapes, cigarettes, and marijuana. Current users perceived lower chances of risks and greater chances of benefits than did non-users. Both users and non-users perceived cigarettes as offering the greatest chance of bad outcomes and lowest chance of potential good outcomes. Marijuana was perceived as having the greatest chance of potential good outcomes and lowest chance of bad outcomes.

CHAPTER 7 – TOBACCO HOME AND MARKETING ENVIRONMENT

This chapter presents data from the TNT Online Survey 2021-2022 Wave related to situations and other factors that might have influenced participants' willingness to use tobacco and marijuana products. This includes participants' home life, such as living with someone else who uses a tobacco or marijuana product or living in a home that sets certain rules about using tobacco or marijuana. This chapter also presents information about what kinds of tobacco or marijuana advertisements participants might have seen recently and whether they ever received coupons to buy tobacco products. In addition, for participants who were current tobacco or marijuana users, this chapter shows how they said they acquired those products.

Tobacco and Marijuana Use in the Home

All TNT Online Survey participants were asked whether someone who lives with them now uses various tobacco products or marijuana. Participants indicated which products anyone who lives with them now uses. Table 27 presents the results from this question.

Table 27. Prevalence of tobacco and marijuana product use by someone who lives with you

Not including yourself, does anyone who lives with you now use any of the following?	Use by Someone Living with You % (95% CI)
Vapes	15.6 (13.9, 17.3)
Cigarettes	22.8 (20.9, 24.6)
Cigars	6.3 (5.3, 7.4)
Hookah	4.0 (3.1, 4.9)
Smokeless Tobacco	3.2 (2.5, 3.8)
Marijuana	20.3 (18.3, 22.2)
No one who lives with me now uses any of these	60.4 (58.1, 62.7)

Abbreviation: CI = confidence interval

- More than one-fifth of TNT Online Survey participants (22.8%) indicated living with someone who now smokes cigarettes.
- 20.3% of TNT Online Survey participants indicated living with someone who now uses marijuana.
- In total, 39.6% of TNT Online Survey participants indicated that someone who lives with them uses at least one tobacco product or marijuana.

Rules About Tobacco Use Inside the Home

All TNT Online Survey participants were asked about rules in their home about using tobacco products. Participants were asked to think about rules that apply inside the home and to think about everyone who might be in the home, including children, adults, and visitors. The survey questions were presented two different ways. In version A questions, participants were asked separately about vapes and tobacco products that are burned, like cigarettes. In version B questions, participants were asked about all tobacco and nicotine products in a single question. Table 28 presents the results related to these household rules questions.

Table 28. Rules about use of tobacco and vape products inside the home

	Version A Questions N ¹ = 2453		Version B Question N ¹ = 2503
	Tobacco Products That Are Burned % (95% CI)	Vapes and Vaping Products % (95% CI)	All Tobacco and Nicotine % (95% CI)
It is not allowed anywhere or at any time	79.5 (76.9, 82.2)	78.7 (76.0, 81.5)	80.1 (77.5, 82.6)
It is allowed in some places, at some times, or by some people	14.1 (11.8, 16.3)	14.1 (11.8, 16.3)	15.3 (13.0, 17.6)
It is allowed anywhere and at any time	3.7 (2.5, 4.9)	3.7 (2.5, 4.9)	2.7 (1.8, 3.5)
I don't know	2.7 (1.4, 3.9)	3.5 (2.1, 4.9)	2.0 (1.0, 3.0)

1. Sample size (N) is the unweighted number of participants who viewed and answered these questions
Abbreviation: CI = confidence interval

- Most participants indicated that the use of burned tobacco products and vaping is not allowed anywhere or at any time inside their home.
- Approximately one-fifth of participants indicated that tobacco use was allowed in their home, either everywhere or at least in some places, at some times, or by some people.
- There was very little difference in how participants answered the questions when asked about rules for burned tobacco, rules for vapes, or rules for all tobacco and vapes together.

Rules About Marijuana Use Inside the Home

A subset of TNT Online Survey participants were asked about rules in their home about using marijuana. Participants were asked to think about rules inside the home and everyone who might be in the home, including children, adults, and visitors Tables 29 & 30 present the results.

Table 29. Rules about use of marijuana inside the home

	Marijuana Rules N ¹ = 3421 % (95% CI)
It is not allowed anywhere or at any time	75.3 (72.9, 77.8)
It is allowed in some places, at some times, or by some people	17.8 (15.6, 20.0)
It is allowed anywhere and at any time	3.8 (2.7, 4.9)
I don't know	3.1 (2.1, 4.1)

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
Abbreviation: CI = confidence interval

- Most participants (75.3%) indicated that marijuana use is not allowed anywhere or at any time inside their home.
- More than one-fifth of participants indicated that marijuana use was allowed in their home, either everywhere or at least in some places, at some times, or by some people.

Table 30. Differences in rules about marijuana use inside the home if marijuana is burned or consumed some other way

	Marijuana Rules N ¹ = 3420 % (95% CI)
Rules are the same for all marijuana	76.4 (73.8, 78.9)
Different rules for smoked or other ways	12.4 (10.5, 14.4)
I don't know	11.2 (9.2, 13.1)

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
Abbreviation: CI = confidence interval

- Most participants (76.4%) indicated that rules in their home related to marijuana were the same no matter whether the marijuana was burned or consumed some other way.

Advertisements for Vape and Marijuana Products

All participants were asked where they had seen advertisements promoting vapes recently and a subset was also asked about marijuana ads. In version A of the questions, participants were asked to think about places they might have seen advertisements in the past 30 days. In version B of the questions, participants were asked to think about places they might have seen ads in the past 12 months. Participants could select multiple locations from a list or indicate that they had not seen any vape or marijuana ads during this time period. Tables show the percentages of participants to select each location for vape ads (Table 31) and marijuana ads (Table 32).

Table 31. Prevalence of noticing advertisements promoting vapes in various places

	Version A Question: In the Past 30 Days N ¹ = 2421 % (95% CI)	Version B Question: In the Past 12 Months N ¹ = 2433 % (95% CI)
I Have Not Seen Any Ads	53.2 (49.7, 56.6)	44.1 (40.7, 47.5)
Gas Stations or Convenience Stores	27.9 (24.8, 30.9)	33.4 (30.1, 36.7)
Social Media Ads from Companies	14.6 (12.3, 16.9)	19.9 (17.2, 22.6)
Television	13.8 (11.4, 16.2)	13.6 (11.3, 16.0)
Vape Shops	13.7 (11.4, 16.0)	14.2 (12.0, 16.5)
Tobacco/Smoke Shops	11.2 (9.2, 13.3)	12.9 (10.8, 15.1)
Billboards	10.8 (8.7, 12.8)	14.5 (12.1, 16.9)
Social Media Plugs or Shoutouts from People	10.4 (8.3, 12.4)	12.7 (10.5, 14.9)
Websites (Not Social Media)	6.1 (4.6, 7.7)	9.3 (7.3, 11.3)
Radio	5.5 (3.9, 7.1)	5.4 (4.0, 6.8)
Newspapers or Magazines	5.4 (4.0, 6.8)	7.4 (5.7, 9.1)
Festivals, Concerts, Sports, or Other Events	2.5 (1.6, 3.4)	3.4 (2.4, 4.4)
Somewhere Else	0.3 (0, 0.6)*	0.5 (0.2, 0.9)*

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Approximately half of participants indicated that had seen advertisements recently that were promoting vaping.
- The most common place to see vape advertisements was gas stations or convenience stores. The next-most common places to see vape ads were social media ads from companies, television, vape shops, and tobacco/smoke shops.
- Participants were modestly more likely to indicate having seen vape ads when asked to think about the past 12 months instead of the past 30 days.

Table 32. Prevalence of noticing advertisements promoting marijuana in various places

	Version A Question: In the Past 30 Days N ¹ = 1670 % (95% CI)	Version B Question: In the Past 12 Months N ¹ = 2426 % (95% CI)
I Have Not Seen Any Ads	62.2 (58.2, 66.2)	53.2 (49.8, 56.6)
Billboards	14.9 (12.1, 17.7)	20.4 (17.6, 23.2)
Cannabis Dispensaries	11.9 (9.0, 14.8)	13.7 (11.4, 16.1)
Social Media Ads from Companies	9.6 (7.1, 12.1)	11.1 (9.0, 13.1)
Social Media Plugs or Shoutouts from People	9.0 (6.5, 11.5)	10.2 (8.2, 12.2)
Gas Stations or Convenience Stores	7.3 (5.4, 9.2)	10.5 (8.4, 12.7)
Vape Shops	5.3 (3.8, 6.9)	7.0 (5.4, 8.6)
Tobacco/Smoke Shops	5.3 (3.9, 6.6)	6.1 (4.6, 7.7)
Television	5.2 (3.5, 7.0)	6.7 (5.0, 8.4)
Newspapers or Magazines	5.1 (3.2, 7.0)	4.8 (3.4, 6.1)
Websites (Not Social Media)	4.7 (2.7, 6.7)	6.3 (4.6, 8.0)
Radio	3.9 (2.4, 5.4)	5.4 (3.8, 7.0)
Festivals, Concerts, Sports, or Other Events	3.6 (1.9, 5.2)	3.9 (2.7, 5.1)
Somewhere Else	0.5 (0.1, 0.9)*	1.0 (0.2, 1.8)*

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Approximately 38-47% of participants indicated they had seen advertisements recently that were promoting marijuana.
- The most common place to see marijuana advertisements was billboards. The next-most common places to see marijuana ads were cannabis dispensaries, social media ads from companies, and social media plugs or shoutouts from people.
- Participants were modestly more likely to indicate having seen marijuana ads when asked to think about the past 12 months instead of the past 30 days.

Coupons for Tobacco and Marijuana Products

In the TNT Online Survey winter cycle, all participants were asked whether they had received coupons or discount codes for tobacco products. In version A of this question, participants were asked to think about the past 12 months. In version B of this question, participants were asked whether they had ever received discount codes or coupons in their life. Table 33 presents the percentage of participants who indicated that they received coupons or discount codes for various tobacco products or marijuana. Among participants who indicated that they did receive a discount code or coupon, Table 34 presents where or how they received it.

Table 33. Prevalence of receiving a coupon or discount code for various products

	Version A Question: In the Past 12 Month N ¹ = 1230 % (95% CI)	Version B Question: Ever N ¹ = 1234 % (95% CI)
I Did Not Receive Any Codes or Coupons	92.8 (90.7, 94.9)	92.0 (89.6, 94.5)
Cigarettes	3.3 (1.8, 4.7)	3.6 (2.1, 5.0)
Vapes	2.7 (1.6, 3.9)	3.9 (2.3, 5.4)
Cigars	0.6 (0.3, 0.9)	1.1 (0.3, 1.9)*
Hookah	0.5 (0.2, 0.8)	0.9 (0.1, 1.7)*
Smokeless Tobacco	0.4 (0, 0.9)*	0.7 (0.3, 1.1)
Marijuana	2.6 (1.1, 4.1)	2.7 (1.1, 4.3)*
Some Other Type of Tobacco Product	0.7 (0, 1.4)*	0.1 (0, 0.3)*

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- More than 90% of participants indicated that they did not receive any discount codes or coupons for any of the listed tobacco products or marijuana.
- Cigarettes and vapes were the products that participants were most likely to indicate receiving a discount code or coupon, followed by marijuana.
- Participants were slightly more likely to indicate ever receiving a tobacco discount code or coupon than to indicate receiving a tobacco discount code or coupon in the past 12 months.

Table 34. Ways that participants received coupons or discount codes for tobacco or marijuana products among those who received coupons

	Got It This Way N ¹ = 382 % (95% CI)
E-Mail	34.3 (23.9, 44.6)
Postal Mail	33.0 (22.7, 43.3)
Website (Not Social Media)	25.5 (16.4, 34.6)
Social Media	24.1 (15.3, 32.9)
Someone I Know Gave It to Me	23.9 (13.7, 34.1)
Someplace Else	3.8 (0, 8.3)*

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
 Abbreviation: CI = confidence interval
 *Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- Participants who indicated that they did receive a discount code or coupon for at least one tobacco product or marijuana also reported receiving the code or coupon in various ways.
- E-mail (34.3%) and postal mail (33.0%) were the most common ways of receiving a code or coupon.

How Tobacco Users Got Various Products

All current users of vapes, cigarettes, cigars, or smokeless tobacco were asked to select from a list all the ways that they got the products that they used. Table 35 presents the percentages of tobacco product users who indicated that they got their product in various ways within the past 30 days.

Table 35. Ways that current tobacco product users got the products that they used

	Vape Users N ¹ = 805 % (95% CI)	Cigarette Smokers N ¹ = 826 % (95% CI)	Cigar Smokers N ¹ = 476 % (95% CI)	Smokeless Tobacco Users N ¹ = 562 % (95% CI)
Someone offered it to me	34.5 (28.0, 41.1)	27.4 (21.3, 33.5)	22.7 (14.8, 30.7)	32.9 (24.4, 41.4)
I bought it from another person	31.6 (25.3, 37.9)	24.3 (18.9, 29.7)	19.4 (12.1, 26.7)	29.4 (22.0, 36.7)
I bought it myself from a store	26.2 (20.4, 32.0)	36.9 (29.4, 44.4)	27.2 (19.7, 34.6)	23.2 (16.8, 29.7)
I gave someone else money to buy it for me	22.7 (17.1, 28.3)	19.7 (15.1, 24.2)	29.2 (19.6, 38.8)	20.0 (14.8, 25.2)
I asked someone to give it to me	18.6 (13.1, 24.1)	24.1 (18.6, 29.7)	27.3 (17.1, 37.4)	23.3 (17.2, 29.4)
I bought it myself online	18.6 (14.3, 22.9)	28.2 (22.2, 34.1)	13.6 (9.5, 17.7)	28.7 (22.1, 35.4)
I took it from a store or another person	4.0 (1.8, 6.2)	4.5 (2.7, 6.3)	4.5 (2.3, 6.8)	5.2 (2.8, 7.6)
Snapchat, TikTok, Instagram, or other social media ²	1.3 (0.2, 2.4)*	0.8 (0.2, 1.4)*	1.1 (0, 2.1)*	1.0 (0, 2.0)*
Some other way	0.9 (0.2, 1.7)*	0.6 (0, 1.2)*	0.7 (0, 1.4)*	0.8 (0, 1.5)*

1. Sample size (N) is the unweighted number of participants who viewed and answered this question

2. This response option added for the winter cycle only; percentages shown are among winter cycle respondents

Abbreviation: CI = confidence interval

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

- “Someone offered it to me” was the single most-selected way that current vape and smokeless tobacco users got their products.
- “I bought it myself at a store” was the single most-selected way that current cigarette and cigar smokers got their products.
- It was common for participants to select multiple ways of getting their product.
- No single way of getting any product was selected by more than 35% of current users.

CHAPTER SUMMARY

Approximately 40% of TNT Online Survey participants indicated that someone who lives with them uses at least one tobacco product or marijuana. Most participants indicated that their home has rules that prohibit all use of burned tobacco, vapes, and marijuana inside the home at all times. Approximately half of participants indicated that they had recently seen advertisements promoting vaping, most often at gas stations or convenience stores. Less than half of participants indicated that they had recently seen advertisements promoting marijuana, most often on billboards. Less than 10% of participants indicated that they received a discount code or coupon for tobacco products or marijuana. The single most-selected way that current vape and smokeless tobacco current users got their products was “someone offered it to me.” The single most-selected way that current cigarette and cigar smokers got their products was “I bought it myself at a store.”

APPENDIX

Survey Methodology

The primary goal of the Teens Nicotine and Tobacco (TNT) Project is to uncover and understand tobacco, nicotine, and cannabis product use behaviors, perceptions, and terminology among California adolescents (ages 12-17). This information will inform ongoing surveillance, messaging, and evaluation activities of the California Tobacco Control Program (CTCP) of the California Department of Public Health (CDPH).

The TNT Online Survey is one component of the TNT Project. The TNT Online Survey is administered entirely electronically via online recruitment strategies. Each annual wave of the TNT Online Survey includes approximately 5000 participants and is comprised of two cycles, completed approximately 6 months apart. The 2021-2022 TNT Online Survey Wave consisted of a summer cycle (data collection: July - September 2021) and winter cycle (data collection: January - February 2022). Participants are not followed between cycles; each cycle is an independent sample, which together can be combined into a single cross-sectional wave. While most survey items are consistent between cycles, some additions, deletions, and revisions occurred to allow the TNT Online Survey to be responsive to a changing tobacco policy and marketing landscape and to serve CTCP/CDPH priorities.

To enhance California representation, each cycle of survey sampling sets a minimum quota of 100 respondent per region over the 7 regions defined in the California Health Interview Survey (Figure 1). The unweighted counts of participant responses by region in the 2021-2022 TNT Online Survey Wave are shown in Table 36.

Figure 1. California Sampling Regions, TNT Online Survey



Figure 1 Legend. Survey sampling covers seven California regions. A minimum quota of 100 responses per region per cycle (200 responses per wave) is set to enhance statewide representation.

Table 36. Participant responses by California region, 2021-2022 TNT Online Survey Wave

	Summer Cycle (unweighted count)	Winter Cycle (unweighted count)	2021-2022 Wave (unweighted count)
Northern & Sierra	263	126	389
Greater Bay Area	413	437	850
Sacramento Area	148	177	325
San Joaquin Valley	248	325	573
Central Coast	105	115	220
Los Angeles	665	721	1386
Other Southern	589	624	1213
All Regions (Total)	2431	2525	4956

Recruitment - Research Panels: Commercial research panels were the main source of participant samples. Primarily, samples came from traditional, actively managed market research panels, such as members of e-commerce discount programs or member reward clubs. Panel members must "opt-in for market research," requiring respondents to submit an initial registration form requesting to participate in market research studies. Potential respondents build a demographic profile from a standardized list of questions. Panel operators use the profiles to select studies that would best fit the case specifications. Panelist participation in an online survey includes a double opt-in requirement. Individuals who do not reconfirm will not be contacted to participate in a survey. While a third-party vendor provides recruiting services, TNT Online Survey researchers maintain full control over and complete access to all questionnaires and all uncleaned, raw survey data collected.

Market research panels allow targeting based on geographic location and socio-demographic and attitudinal profiles. Each panelist enters or updates their profile information during registration and upon sign-in. To ensure profiles are consistently updated, each profiling question has a set expiration date. Members may unsubscribe at any time. The TNT Online Survey draws from multiple panel providers. Only panel providers that adhere to ESOMAR standards for ethical conduct of market research are included.

To assemble the TNT Project survey sample, potential participants whose panel profiles fit qualifying demographic and geographic criteria are matched to the survey invitation. Panel members routinely receive email invitations for survey opportunities, but with limited frequency to avoid overcontact fatigue. The email invitation sent to potential respondents comes from the panel and informs them that the survey is for research purposes only, how long the survey is expected to take, and what incentives are available. To reduce self-selection bias, the survey invitation does not include specific details about the contents of the survey. Children ages 12-13 years are recruited through invitations to their parents. Invitations for children are only sent to households where children in the relevant age window reside. Children ages 14-17 years are recruited through parents or invited directly, depending on the specific practices and policies of each panel provider.

Recruitment - Social Media: In the winter cycle of the 2021-2022 TNT Online Survey Wave, research panel recruitment was supplemented with independent, parallel recruitment through paid advertisements placed on social media platforms. Advertisements targeted California parents of children ages 12-17 and include an invitation to enroll their child in the TNT Online Survey. Potential participants were directed first to a pre-screen survey to confirm eligibility (i.e.,

age, California residence). Eligible participants were then directed to the full-length survey. Less than 1% of TNT Online Survey responses were recruited through social media.

Data Quality Checks: Multiple methods were implemented to enhance data quality.

Incomplete Responses: Research participation is voluntary. Given that some questionnaire items, particularly those related to tobacco or marijuana use, could make some respondents feel uncomfortable, forced completion of items was not implemented. However, each questionnaire page included an automated reminder to request completion of any items initially left unfilled. A participant's questionnaire was considered "complete" if sufficient information was provided to classify the respondent's past 30-day use status (user or non-user) for $\geq 75\%$ of assessed tobacco, nicotine, and cannabis products. Thus, some participants who did not mark responses for all items or who retired prior to completion of the entire survey were included in the final sample.

Response Formatting: The vast majority of response options in the TNT Online Survey are multiple choice, objective, closed responses. When possible, validation was added to any brief open-response options such that only appropriately formatted responses (e.g., numeric vs. text) within plausible and permissible ranges (e.g., 5-digit US postal code) could be entered.

Free-Text Responses: Free-text response options, which allow participants to type a response manually without validation restrictions, are important for allowing the TNT Project to uncover newly emerging tobacco brands, products, product features, or behaviors. However, it is expected that some adolescent participants will provide responses that are intentionally irrelevant or inappropriate. Therefore, free-text items will be used judiciously throughout the survey questionnaire. To maintain participant anonymity, free-text responses are redacted from Public Use datafiles.

Duplicate Responses: Potential participants receive personalized unique survey invitation links that cannot be reused. Social Media recruitment featured a delay between survey completion and incentive payment to allow checking for duplicate email addresses and ineligible or incomplete responses before issuing incentive payments. While care was taken to recruit participants from separate, independent research panels, it is possible that some duplicate responses were recorded, if for example, an individual has memberships with different email addresses in more than one commercial panel.

Fraudulent Responses: Commercial research panels use multiple methods to attain sample integrity and confirm respondent identity within the panels, including digital fingerprinting technology, TrueSample, Verity, SmartSample, and US Postal Service verification. All commercial panels verify respondent mailing address, demographic information, and email address. Social media recruitment safeguards included a multiple-step recruitment process. Specifically, rather than provide a direct anonymous survey link within posted advertisements, potential participants were directed to "screeener" survey to assess eligibility and collect contact information (email address). Once contact information was collected, invitations to the main survey were distributed as single-use personalized survey links. All TNT Online Survey questionnaires included a ReCAPTCHA challenge item and a "hidden" item that were viewable only to non-human (computer "bot") responses but not shown on screens. Failure to achieve a minimum ReCAPTCHA challenge score or provision of any response to a hidden item resulted in removal from the TNT Online Survey sample. Free-text items were also reviewed subjectively for gibberish responses potentially indicative of bot responses. Clearly suspicious free-text

responses resulted in removal of a survey response from the TNT Online Survey sample. Given the ability of bots to adapt to the strategies used against them over time, challenge questions were replaced with new ones periodically.

The TNT Online Survey was hosted on the Qualtrics XM Survey Platform. This platform includes two automated scoring programs for data quality: a duplicate response algorithm and a fraudulent response algorithm. Any response scoring below the minimum quality threshold on either program was removed from the TNT Online Survey sample.

Attention Checks: The TNT Online Survey questionnaire included an item that directed participants to provide a particular response (i.e., “For this question, select the choice “somewhat agree” to show that you are reading carefully”). Participant responses that failed this attention check were not removed from the TNT Online Survey sample, but attention check response was one of several factors incorporated in survey quality weights (see below).

Weights: Any analysis of TNT Online Survey data should incorporate the provided weights to improve the generalizability and quality of obtained estimates. Further details regarding weighting procedures can be found in the *TNT Online Survey Technical Report*.

Geographic-demographic weights are intended to make survey findings representative of the geographic, gender, and race/ethnicity distribution of California adolescents ages 12-17. Initial geodemographic weights account for the following post-stratification factors: sex, race/ethnicity, and region of the state. American Community Survey (source: US Census Bureau) Public Use Microdata Sample (PUMS) files for California 2015-2019 (approximately 147,000 responses) were used to estimate cross-classified population count totals for sex, race/ethnicity, and California region for post-stratification weights developed to account for non-response bias and provide inference to the overall population, as well as subgroups of interest. Raking was used to adjust the initial weights for sex, age, race/ethnicity, and region factors to the full cross-classification of all the factors.

Quality weights are intended to decrease the contribution of potential survey responses that nominally meet all eligibility criteria and pass all quality checks but share attributes with known fraudulent responses without being automatically disqualifying. For example, completion time in the hours from midnight to 4:00 am or ReCAPTCHA score <0.8 would not independently disqualify a response from the TNT Online Survey sample but, as a group, surveys with these attributes are more likely to include fraudulent responses, such as those from computer bots. To decrease the overall contribution to project findings from these potentially lower-quality responses, all survey responses meeting eligible criteria were assigned a probability of being a fraudulent response using multivariable regression modeling. The inverse of that probability was assigned as the quality weight. Factors included in modeling were ReCAPTCHA score, Qualtrics XM RelevantID fraud score, geographic location, time of day of survey completion, gender, current use of cigarettes, marijuana, nicotine pouches, and nicotine lozenges, attention check pass, and ambiguous free-text entry. These factors were selected because they were shown to be associated with known fraudulent responses in the full (eligible and ineligible) dataset.

Full weights: Survey weights were calculated as the product of geographic-demographic weights and quality weights.

The 2021-2022 TNT Online Survey Wave includes 9 weight variables:

GD_WEIGHT_W1C1	Geographic-demographic weight, summer cycle only
Q_WEIGHT_W1C1	Quality weight, summer cycle only
WEIGHT_W1C1	Full weight, summer cycle only
GD_WEIGHT_W1C2	Geographic-demographic weight, winter cycle only
Q_WEIGHT_W1C2	Quality weight, winter cycle only
WEIGHT_W1C2	Full weight, winter cycle only
GD_WEIGHT_W1	Geographic-demographic weight, wave 2021-2022
Q_WEIGHT_W1	Quality weight, wave 2021-2022
WEIGHT_W1	Full weight, wave 2021-2022

The cycle-specific weights are intended for use only with survey items that appeared in only one of the two cycles. For items that were consistent across cycles, the full 2021-2022 wave weights should be used.

Generalizability of TNT Online Survey Findings

TNT Online Survey results are not necessarily directly comparable to findings from other youth tobacco surveillance occurring across California or nationally, including school-based surveys. In general, online research panels include participants representing a wide range of socioeconomic, demographic, and geographic profiles, but should be considered a convenience sampling method due to the lack of a population-based sampling frame. It is reasonable to expect that panel members would differ from the general population in their degree of engagement in online activities and willingness to participate in survey research. Although geographic-demographic weights have been applied to the TNT Online Survey sample to match geographic, gender, and race/ethnicity distribution of California adolescents ages 12-17, the weights do not account for potential attitudinal, behavioral, or socioeconomic differences between the TNT Online Survey participants and the general population.

Notably, the prevalence of cigarette smoking among TNT Online Survey participants (8.5%) is much higher than cigarette smoking prevalence estimated in the 2019-2020 California School Tobacco Survey (1.2%). Speculatively, but not conclusively, several influences may have contributed to the higher smoking prevalence, among them: 1) Although the survey topic was not part of initial survey invitations, a brief description of the survey content appeared after accepting the invitation; interest in completing the survey may have been greater among tobacco-using youth; 2) Parental permission was required to participate; more permissive parents with regard to tobacco use may have been more inclined to allow their child to take part; 3) Despite survey language indicating otherwise, parents may have mistakenly believed questions applied to their own tobacco use; 4) Undetected fraudulent responses may exist in the sample and these bot respondents were more likely to report tobacco use; 5) Despite survey language indicating otherwise, participants may have mistakenly believed use of tobacco was a study eligibility criterion; 6) Online survey panelist differ substantially from the general population in their tobacco use behaviors; 7) Participants report their behavior differently at home than in school-based surveys; and 8) Other factors.

Despite the above limitations in generalizing TNT Online Survey prevalence estimates to the general population of California adolescents ages 12-17, results can be expected to have adequate internal validity, for example, for examining associations between tobacco-related

perceptions and behaviors *within* the TNT Online Survey sample. Additionally, achieving the primary project goals of uncovering and understanding patterns in tobacco-related behaviors, perceptions, and terminology is not necessarily reliant on generalizable prevalence estimates. Thus, when interpreting and contextualizing the TNT Online Survey findings, one can have confidence in within-study results but should take caution when comparing results across other sources of youth tobacco surveillance data.

Results of TNT Online Survey Experiments & Recommendations for Future Surveys

One goal of the TNT Online Survey was to collect information that could lead to improvements in the way tobacco use behaviors are monitored in California. For example, findings from the TNT Online Survey could lead to improvements in the way questions are worded in other statewide tobacco surveys, such as the California Youth Tobacco Survey. Therefore, the TNT Online Survey included some questions worded in more than one way. Participants saw only one question version or another. Which version they were shown was randomly assigned by the computer survey (i.e., an embedded randomized experiment). Therefore, differences in answers between question versions should result only from differences in the versions, not due to differences in the people who answered them. In this section, we summarize the results of these survey question experiments (among other related design features of the TNT Online Survey) and discuss potential implications for future tobacco surveys.

Flavored Products: To assess current flavored tobacco product use, current tobacco users were randomized to either Version A, where they were asked to select from a list of all the flavors of that tobacco product that they used at least once in the past 30 days, or to Version B, where they were asked to select from the same list which flavor of tobacco they usually used in the past 30 days (Table 13). Table 37 reports the results of the two question versions. In this table, “flavored” tobacco is defined as a participant selecting any flavor from the list of all flavors provided, such as fruit, mint, or “other flavor.” The percentages shown for “unflavored” include participants who selected only “tobacco flavor” or “unflavored” from the flavors list. The percentages shown for “don’t know” include participants who selected only “don’t know” from the flavors list.

Flavored Products Findings: There was no consistent, meaningful, and statistically significant findings between flavors question wording on the calculated prevalence of using any kind of flavored tobacco in the past 30 days. The prevalence of flavored product use was higher in Version A questions for vapes and cigars (but not statistically significantly), lower in the Version B question for cigarettes (also not statistically significant), and not meaningfully different by version for hookah or smokeless tobacco (note: there was a statistically significant effect for smokeless tobacco, most likely from differences in the prevalence of “unflavored” and “don’t know”). However, while there was no meaningful effect on the overall calculated prevalence of using any flavor, Version A questions did allow participants to indicate more of the flavors that they used (Table 15).

Flavored Products Recommendations: It is recommended to format questions to allow participants to indicate all the different flavors that they used in the past 30 days. This wording does not lead to meaningful differences in the overall calculated prevalence of flavored tobacco use but does provide more information and more precise estimates on the use of particular flavors, like fruit and mint.

Table 37. Version effects: flavored tobacco use among current tobacco users

		Version A: Any Flavor Use, %	Version B: Usually Flavored, %	Difference, %	P-value
Vapes	Flavored	89.2	83.8	+5.4	0.25
	Unflavored	9.6	13.5		
	Don't Know	1.2	2.7		
Cigarettes	Menthol ¹	63.1	70.3	-7.2	0.44
	Unflavored	34.4	28.2		
	Don't Know	2.5	1.5		
Cigars ²	Flavored	83.3	76.1	+7.4	0.47
	Unflavored	12.7	19.1		
	Don't Know	3.8	4.8		
Hookah	Flavored	92.7	93.0	-0.4	0.99
	Unflavored	5.2	4.8		
	Don't Know	2.2	2.2		
Smokeless ³	Flavored	87.6	85.8	+1.8	0.003
	Unflavored	5.8	13.9		
	Don't Know	6.6	2.6		
<i>Total Flavor Effect⁴</i>		81.5	80.6	+0.9	0.74

1. For all product except cigarettes, a list of flavors was provided. For cigarettes, menthol was the only flavor.
2. Includes big cigars and/or little cigars or cigarillos
3. Includes moist snuff, chewing tobacco, and/or snus
4. Model predicted probability of selecting a flavored product based on a survey-weighted repeated-measures generalized estimated equation model that includes responses for all five tobacco products

Vape Brands: All TNT Online Survey participants were asked to identify various brands of vape products, but the brand question was asked in three different ways. In Version A, participants were asked, “What is the brand of your favorite vaping advertisement? Select only one.” In Version B, participants were asked, “What vaping product do you think is most popular among people your age? Select only one.” In question Version C, participants were asked, “What vaping products do you think are popular among people your age? Select all you think are popular right now.” Participants were shown a list of 20 vape brands they could select, plus “something else” and “I don’t know.” As shown in Table 10, Version C was the only version that allowed participants to select more than one brand. In Table 38, the five most-selected brands from Version C are shown for current vape users and vape never-users.

Table 38. Most popular vape brands by current vape users and vape never-users

	Vape Current Users		Vape Never-Users
	What is Popular (select all), %		What is Popular (select all), %
I Don't Know	13.6	I Don't Know	67.2
JUUL	53.1	JUUL	23.2
Blu	30.3	Blu	7.5
Vuse	27.9	Bang	6.8
Puff Bar	27.0	Puff Bar	6.7
Bang	13.6	Vuse	5.9

Note: Five most-selected brands for each user group (and don't know) shown in table

Vape Brand Findings: Asking participants to select all the brands that they perceive to be popular allowed the survey to capture a much greater number of reliable estimates of brand popularity than when participants were only allowed to select one brand. Asking about what is popular among peers, rather than what brands the participant themselves might like, presumably gave non-users more leeway to select a choice. This approach has the potential to track brand popularity over time (i.e., in future survey waves) but has not yet been tested in more than one survey wave. Identifying any brand in this survey item (as opposed to selecting “I don’t know”) could be associated with susceptibility to future vape use but has not yet been tested in that way. Preliminarily, vape never users who selected at least one brand from the list were more likely than vape never users who selected “I don’t know” to indicate that they would “probably” or “possibility” be using vapes one year from now (7.0% vs. 1.8%, $P=0.02$) and “probably” or “possibility” be using vapes at age 25 (10.6% vs. 2.4%, $P=0.002$).

Vape Brand Recommendations: Formatting questions about vape brands to allow participants to respond about peers use (i.e., not directly about themselves) and to select more than one brand will likely yield useful information about brand popularity among youth and might serve as a measure of vape susceptibility among non-users. If survey items require a list of example vape brands to be provided, JUUL, Blu, Bang, Vuse, and Puff Bar are the most recognized brands among both vape users and non-users. JUUL is the single-most recognized brand.

Vape Device Types: TNT Online Survey participants who reported that they had ever vaped were asked which types of vape devices, if any, they had used in the past 30 days (Table 11). The device type questions were asked in two different ways. In question Version A, participants who reported that they vaped in the past 30 days were asked which type of device they used the most. In question Version B, participants were asked about each device type individually (i.e., in separate questions) and could indicate using more than one device type.

Vape Device Type Findings: In Version A, pod devices were selected the most. In Version B, throw-away stick or bar disposables were selected the most. It appears that participants are using multiple types of vape devices. For example, all five device types presented in Version B were selected as having been used in the past 30 days by >36% of ever vapers (Table 11). Unexpectedly, first-generation “cigalike” products were selected as the most-used device by 18.3% of ever vapers that were shown Version A and 37.5% shown that were shown Version B (Table 11), despite these devices being largely displaced in the market by newer products. These unexpected findings may result from confusion about various vape designs, despite descriptions and photos shown in the survey. For example, many of the currently popular disposable bar and stick devices may resemble first-generation cigalikes. Some of these disposable devices are marketed as “pens,” but differ in design from refillable second-generation vape pens and tanks.

Vape Device Type Recommendations: Future surveys should use simpler taxonomies of vape devices, but further testing is needed. In the next TNT Online Survey Wave, commencing in summer 2022, only three vape device types will be presented: disposable, refillable, and pod.

Vape Contents: All current vapers were asked a series of questions about what substances, such as nicotine, were in the vapes they used. The questions were presented in different parts of the survey, and current vapers were presented all of the questions (Table 12). Table 39 shows cross tabulations between questions about the nicotine content of vapes.

Table 39. Vape nicotine content among current vapers, asked two different ways

	In the PAST 30 DAYS, did any of the vapes that you used contain nicotine?				Was there ever a time in the PAST 30 DAYS that you used a vape and were not sure what it contained?	
	Total, %	Yes, %	No, %	Don't Know, %	Yes, %	No, %
In the PAST 30 DAYS, how often did the vapes you used contain nicotine?						
Always had nicotine	36.4	90.3	6.1	3.5	40.5	59.5
Mostly had nicotine	28.7	75.8	10.9	13.3	53.1	46.9
Mostly did not have nicotine	13.7	48.1	44.6	7.3	47.6	52.4
Never had nicotine	6.2	5.2	92.2	2.6	31.7	68.3
I don't know	15.0	6.9	21.4	71.7	55.3	44.7

Vape Content Findings: There was good, but imperfect, alignment in responses to questions asking how often participants used vapes containing nicotine in the past 30 days and asking whether any of the vapes used in the past 30 days contained nicotine. 90% of participants who said they “always” used vapes containing nicotine also affirmed that they used any nicotine vapes. 92% of participants who said they “never” used vapes containing nicotine also affirmed that they did not use any nicotine vapes. However, illogical response combinations across items were not uncommon. Of the participants who responded that the vapes they used “always,” “mostly,” or “mostly did not” contain nicotine (implying at least some nicotine use), 22% did not affirm that any of the vapes they used contained nicotine. Overall, 46% of vape users reported using a vape in the past 30 days and not being sure what it contained (Table 12). The prevalence of being unsure about vape contents was not statistically significantly different by reported frequency of using nicotine vapes ($P=0.24$).

Vape Content Recommendations: Regardless of item format, it will be difficult to evaluate the content of vapes used by adolescents because many adolescents are unaware or uncertain of what the vapes they used contained. Plausibly, a question format that allows participants to respond along a gradient of use (e.g., “always,” “mostly yes,” “mostly not,” “never”) might better accommodate mixed use of nicotine and non-nicotine vapes than a dichotomous response choice. The accuracy of reported use may not be possible to verify. Survey designers should interpret the results of any item related to vape contents with caution.

Ever Use of Cigarettes and Hookah: For cigarette and hookah use (in different survey questions for each product), participants were randomized to two different formats for determining ever-use history. In the two-item version, participants were first asked whether they had ever used the product. Those who answered “yes” were then asked how many times they had ever used it. In the one-item version, participants were asked only how many times they had ever used the product, and one of the response options was “never.” Table 40 provides the calculated ever use prevalence for cigarettes and hookah under these two question formats.

Table 40. Version effects: Prevalence of cigarette and hookah ever use

Version	Cigarettes	Ever Use, %		P-value
		P-value	Hookah	
Two-item format				
Have you ever tired X, even once?	23.3	0.89	8.6	0.51
<If yes>				
How many times in your life?				
One-item format				
How many times in your life?	23.6	9.6		

Notes: "X" stands for cigarettes or hookah, depending on the question. Wording in the table is shortened from the exact wording that appeared on surveys.

Ever Use Findings: There was no statistically significant or meaningful difference in the estimated prevalence of cigarette or hookah ever use calculated from the two-item or one-item format. There was also no statistically significant or meaningful difference in the reported number of times products were ever used (cigarettes: $P=0.51$; hookah: $P=0.45$; not shown in table).

Ever Use Recommendations: Ever use and lifetime use of tobacco products can be estimated from a single item for each product, which may help to reduce survey length.

Household Tobacco and Marijuana Rules: All TNT Online Survey participants were asked about rules in their home about using tobacco products (See Table 28). In version A questions, participants were asked separately about vapes and tobacco products that are burned, like cigarettes. In version B questions, participants were asked about all tobacco and nicotine products in a single question. Additionally, a subset of participants were asked a similarly worded question about marijuana use in the home (See Table 29).

Household Rules Findings: A similar percentage of respondents reported that use of these products were not allowed anywhere or at any time in their home; burned tobacco: 79.5%; vapes: 78.7%; all tobacco (combined item): 80.1%; and marijuana 75.3% (See Tables 28, 29). When asked the two separate questions about burned tobacco and vapes, 86.6% of participants provided the same answer choice, and there was no statistically significant difference in response distributions (unweighted sign-rank test, $P=0.12$; weighted probability of reporting not allowed anywhere or at any time, $P=0.53$). Comparing responses from those participants who were given the two separate questions (burned tobacco and vapes) to responses from participants who were given only one question about all tobacco, there was no meaningful or statistically significant difference in response distributions (burned tobacco vs. single question, $P=0.39$; vapes vs. single question, $P=0.12$). For the participants that were asked a single question about all tobacco and the question about marijuana, 79.6% of participants provided the same answer choice. Of participants with different tobacco-marijuana responses, among those who reported more permissive rules about tobacco than marijuana current use behaviors were: cigarettes 27.0%, e-cigarettes 37.0%, marijuana 12.6%. Of participants with different tobacco-marijuana responses, among those who reported more permissive rules about marijuana than tobacco current use behaviors were: cigarettes 10.1%, e-cigarettes 15.8%, marijuana 23.6%.

Household Rules Recommendations: There appears to be limited value in asking separately about rules for burned tobacco and vapes, given how few participants reported discordant rules by tobacco product type. A single question would be adequate, barring a specific research focus on

household permissiveness. Separate questions for tobacco and marijuana products could be warranted, given slightly greater differences in responses and differences in tobacco and marijuana control policies.

E-cigarette Dependence: All current vapers were randomized to one of two previously developed instruments for measuring e-cigarette dependence. One instrument was a 4-item scale developed by researchers at Yale University (Morean ME, Krishnan-Sarin S, S O’Malley S. *Drug Alcohol Depend.* 2018 Jul 1;188:60-63). The other instrument was a 5-item scale that has been used in the Population Assessment of Tobacco and Health Study. Both scales feature 5-point Likert-type response options that can be converted to a mean score across items. Thus, the mean scores from each instrument are readily comparable (Tables 41, 42).

Table 41. Version effects: e-cigarette dependence

Version	N ¹	Mean Score	P-value	Cronbach’s alpha ²
Four-item format	528	2.32	0.48 ³	0.902
Five-item format	570	2.41	0.64 ⁴	0.898

1. Sample size (N) is the unweighted number of participants who viewed and answered this question
2. Unweighted
3. Test of mean scores on four-item vs, five-item format, not adjusted for e-cigarette use frequency
4. Test of mean scores on four-item vs, five-item format, adjusted for e-cigarette use frequency

Table 42. E-cigarette dependence and e-cigarette frequency

E-Cigarette Use Frequency	E-Cigarette Dependence, Mean Score	
	Four-Item Format	Five-Item Format
1-2 days in past 30 days	1.94	1.94
3-5 days in past 30 days	2.31	2.34
6-19 days in past 30 days	2.74	3.20
20-30 days in past 30 days	3.05	2.78

E-Cigarette Dependence Findings: The two instruments to measure e-cigarette dependence performed similarly. Mean scores from each instrument were not meaningfully or statistically significantly different (Table 41). Both instruments were internally consistent (Table 41). For both items, dependence scores were higher among more frequent vapers; however, only for the four-item format was there a gradient response between dependence and use frequency (Table 42).

E-Cigarette Dependence Recommendations: The four-item format performs at least as well as the five-item format and requires slightly less participant burden. Between these two instruments, the four-item format is recommended.

Timeframe for Advertising Exposure Items: Participants were asked where they had seen advertisements promoting vapes and promoting marijuana recently. In version A questions, participants were asked to think about places they might have seen ads in the past 30 days. In version B of the questions, participants were asked to think about places they might have seen advertisements in the past 12 months. Participants could select multiple locations from a list or indicate that they had not seen any vape or marijuana ads during this time period (See Tables 31, 32). Table 43 examines how the 30-day vs. 12-month anchoring of the questions potentially affected responses.

Table 43. Prevalence of noticing vape and marijuana advertisements, timeframe effects

	Version A: P30D, %	Version B: P12M, %	Difference (12 Month vs. 30 Days) %	P-value	rank
Ads Promoting Vapes					
I Have Not Seen Any Ads	53.2	44.1	-9.0	<0.001	same
Gas Stations or Convenience Stores	27.9	33.4	+5.5	0.02	same
Social Media Ads from Companies	14.6	19.9	+5.3	0.003	same
Television	13.8	13.6	-0.1	0.94	-2
Vape Shops	13.7	14.2	+0.5	0.75	same
Tobacco/Smoke Shops	11.2	12.9	+1.7	0.26	-1
Billboards	10.8	14.5	+3.7	0.02	+3
Social Media Plugs or Shoutouts from People	10.4	12.7	+2.3	0.13	same
Websites (Not Social Media)	6.1	9.3	+3.2	0.01	same
Radio	5.5	5.4	-0.1	0.96	-1
Newspapers or Magazines	5.4	7.4	+2.0	0.08	+1
Festivals, Concerts, Sports, or Other Events	2.5	3.4	+0.9	0.19	same
Somewhere Else	0.3*	0.5*	+0.2	0.39	same
Ads Promoting Marijuana					
I Have Not Seen Any Ads	62.2	53.2	-9.0	<0.001	same
Billboards	14.9	20.4	+5.5	0.007	same
Cannabis Dispensaries	11.9	13.7	+1.8	0.35	same
Social Media Ads from Companies	9.6	11.1	+1.5	0.38	same
Social Media Plugs or Shoutouts from People	9.0	10.2	+1.3	0.44	-1
Gas Stations or Convenience Stores	7.3	10.5	+3.2	0.03	+1
Vape Shops	5.3	7.0	+1.6	0.16	same
Tobacco/Smoke Shops	5.3	6.1	+0.8	0.42	-2
Television	5.2	6.7	+1.5	0.24	+1
Newspapers or Magazines	5.1	4.8	-0.4	0.77	-2
Websites (Not Social Media)	4.7	6.3	+1.6	0.26	+2
Radio	3.9	5.4	+1.5	0.19	+1
Festivals, Concerts, Sports, or Other Events	3.6	3.9	+0.3	0.76	same
Somewhere Else	0.5*	1.0*	+0.5	0.27	same

Abbreviations: P30D = past 30 days; P12M = past 12 months

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Timeframe for Advertising Exposure Findings: Participants did appear to answer differently when asked to consider ads seen in the past 12 months vs. the past 30 days. For both vapes and marijuana, the prevalence of not seeing any ads was 9.0% lower (vapes: 44% vs. 53%; marijuana: 53% vs. 62%) when anchoring questions to the past 12 months (Table 43). However, there were not meaningfully different results for the distribution of where ads were seen. The ranking of locations and endorsed prevalence of each location, although sometimes different (uncommonly statistically significantly), did not meaningfully differ between results derived from the two question versions.

Timeframe for Advertising Exposure Recommendations: Anchoring advertising exposure in either the past 12 months or the past 30 days should not be expected to alter overall conclusions. Survey designers should select a timeframe that best fits their research or surveillance needs. Caution is encouraged when making assumptions about the accuracy of recalled advertising exposure within any given timeframe.

Timeframe for Coupon Items: Participants were asked where they had received coupons or discount codes for tobacco or marijuana products. In version A of this question, participants were asked whether they received a coupon or discount code in the past 12 months. In version B of this question, participants were asked whether they had ever received a coupon or discount code in their life (See Table 33). Table 44 examines how the 12-month vs. ever anchoring of this question potentially affected responses.

Table 44. Prevalence of receiving a coupon or discount code, timeframe effects

	Version A:	Version B:	Difference (Ever vs. 12 Month)		
	P12M, %	Ever, %	%	P-value	rank
I Did Not Receive Any Codes or Coupons	92.8	92.0	-0.8	0.62	same
Cigarettes	3.3	3.6	+0.3	0.78	-1
Vapes	2.7	3.9	+1.1	0.24	+1
Cigars	0.6	1.1*	+0.1	0.21	+1
Hookah	0.5	0.9*	+0.5	0.26	+1
Smokeless Tobacco	0.4*	0.7	+0.4	0.44	+1
Marijuana	2.6	2.7*	+0.3	0.93	same
Some Other Type of Tobacco Product	0.7*	0.1*	-0.6	0.03	-3

Abbreviation: P12M = past 12 months

*Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Timeframe for Coupon Findings: The timeframe specified in the question stem had very little impact on the reported prevalence of having received a tobacco or marijuana product coupon or discount code. It was uncommon for participants to report having received coupons or discount codes, regardless of the timeframe that anchored the question (Table 44). There was no meaningful difference between question versions for any specific product and no statistically significant difference (one exception: the difference for “some other type of tobacco product” reached nominal statistical significance). Although differences were small, they were in the expected direction: participants were more likely to report ever receiving a coupon than receiving one in the past 12 months.

Timeframe for Coupon Recommendations: Survey designers should select a timeframe that best fits their research or surveillance needs. Caution is encouraged when making assumptions about the accuracy of recall within any given timeframe. Additionally, given the low prevalence of reported coupon receipt, survey designers may wish to pool multiple tobacco products into a single category. In other words, rather than ask participants to endorse from a list of eight choices, simpler response choices could be “Any tobacco, such as cigarettes, cigars, or chew,” “Vapes,” “Marijuana,” and “I Did Not Receive Any Codes or Coupons.”

Socioeconomic Status Measures: Participants were randomized to view different survey items designed to measure the socioeconomic status of their families. Half of participants viewed a set of questions about family possessions, like computers and cars, that could be combined into a numeric score (i.e., a wealth index). The other half of participants viewed questions about the highest level of education attained by their parents. Participants who viewed parent education questions were further randomized to two versions. In the one-item version, participants were asked a single question: “Think about your parent or legal guardian who finished the most school. What is the highest grade in school they finished?” (six answer choices from “8th grade

or less” to “Finished graduate school, law school, or medical school” and “I don’t know”). In the two-item version, participants were first asked, “Does one or more of your parents or legal guardians have a college degree?” and, if answering no, then, “Did one or more of your parents or legal guardians finish high school?” In Table 45, these two versions were used to create comparable three-level categories. Also in Table 45, wealth index score was used to create a three-level categorical measure (low, moderate, or high) based on natural breaks in the observed score distribution. In Table 46, these derived categories are compared to reported racial/ethnic identities. Given long-standing ethnic/racial disparities in education, income, and wealth, it would be expected that a valid measure of family socioeconomic status would correlate with self-identified race/ethnicity.

Table 45. Socioeconomic status measures

Parent Education	Prevalence ¹ , %		Wealth Index	Prevalence, %
	One-Item Version	Two-Item Version		
Less Than High School	8.2	2.8	Low	18.6
High School, No College Degree	35.7	30.2	Moderate	30.2
College Degree or Higher	54.5	65.8	High	51.2
Don't Know	1.6	1.3		

1. Statistically significant by version ($P=0.003$)

Table 46. Socioeconomic status measures and race/ethnicity

Race/Ethnicity	Socioeconomic status, %			
	Parent Education, One-Item Version			
	Less Than High School	High School, No College Degree	College Degree or Higher	Don't Know
Asian	6.9	17.6	75.0	0.6
Black/African American	6.8	46.8	45.8	5.9
Hispanic/Latino	10.9	42.8	44.1	2.2
White	3.4	30.8	64.2	1.6
Race/Ethnicity	Parent Education, Two-Item Version			
	Less Than High School	High School, No College Degree	College Degree or Higher	Don't Know
Asian	0	16.8	77.5	5.7
Black/African American	1.6	15.0	83.3	0
Hispanic/Latino	3.9	39.6	56.4	0.2
White	3.1	19.3	76.5	1.2
Race/Ethnicity	Wealth Index, Three Constructed Categories			
	Low	Moderate	High	
Asian	5.3	22.8	71.9	
Black/African American	15.2	35.4	49.5	
Hispanic/Latino	23.6	32.9	43.5	
White	15.3	26.7	58.0	

Socioeconomic Status Findings: The one-item and two-item versions of the parent education questions yielded distributions that were meaningfully and statistically significantly different (Table 45). The two-item version resulted in more participants reporting that at least one parent

had earned a college degree and fewer participants reporting a parent education of less than high school. Both measures are likely to over-estimate parent educational attainment in California, where about one-third of adults age 25 or older hold a college degree. The one-item version of parental education and the wealth index constructed categories align better with external documented racial/ethnic disparities in education and wealth than did the two-item version of parental education.

Socioeconomic Status Recommendations: The one-item version of the parent education question is recommended over the two-item version. The wealth index approach appears to provide information similarly associated with race/ethnicity and could be used if survey length were able to accommodate the multiple items required to calculate this index.

Components of the TNT Online Survey Not Included in This Report

There were several items and topics included in the TNT Online Survey Wave 2021-2022 that were not summarized for this report. Those survey components are listed in Table 47. For more information about these components, please refer to the TNT Online Survey Codebook or contact the Principal Investigator.

Table 47. TNT Online Survey components not reported

Component	Further Details
Discrete choice experiment	to elicit preferences for vape device type, flavor, nicotine vs. marijuana
General health status	self-report, from “excellent” to “poor”
Adverse respiratory symptoms	such as asthma symptoms, shortness of breath
School performance	grades in school
Lifetime use of various products	for example, use of vapes once, 2-10 times, 11-50 times, 51-99 times, 100 times or more
Alcohol and binge drinking	
Sensation seeking	to measure preference for exciting, risky behaviors; a known predictor of future tobacco use
Ease of accessing various products	perceive ease of acquiring tobacco
Marijuana problem inventory	established measure of problematic marijuana use among adolescents
Cessation attempts and intentions	