AHRQ Agency for Healthcare Research and Quality
MEPS Medical Expenditure Panel Survey

Characteristics of Young Adults Aged 18–24 Who Had Ever Used an Electronic Nicotine Product, 2021

Statistical Brief #554 | February 2024 | Anita Soni, PhD, MBA, and Sandra L. Decker, PhD

Introduction

The prevalence of electronic nicotine product use has risen dramatically among adolescents and young adults over the past decade.[1] Electronic nicotine products include e-cigarettes, vape pens, personal vaporizers and mods, e-cigars, e-pipes, e-hookahs, and hookah pens. No matter how it is delivered, nicotine is addictive and harmful for youth and young adults.[2] Accordingly, the Surgeon General cites e-cigarette use among youth as a significant public health concern.[3] Reducing the use of any tobacco product, including electronic nicotine products, is also a Healthy People 2030 objective.[4]

This Statistical Brief explores the characteristics of young adults (aged 18-24) who had ever used an electronic nicotine product. The estimates are presented by age, sex, race/ethnicity, perceived physical and mental health status, census region, residence inside or outside a metropolitan statistical area (MSA), current smoking status, and presence of an asthma diagnosis. The data source is the Agency for Healthcare Research and Quality's (AHRQ's) 2021 Medical Expenditure Panel Survey Household Component (MEPS-HC). The sample represents all adults aged 18 and older in the U.S. civilian noninstitutionalized population. All differences mentioned in the text are significant at the $p<0.05$ level or better.

Highlights

- Nearly one-third (30.6 percent) of U.S. adults ages 18–24 reported ever having used an electronic nicotine product.
- More than one-third (38.3 percent) of non-Hispanic White young adults reported ever having used an electronic nicotine product, nearly double the rate for Hispanic young adults and 12 percentage points higher than for non-Hispanic Black young adults.
- Nearly one-third (29.6 percent) of young adults in metropolitan areas reported ever having used an electronic nicotine product; the percentage was nearly 10 percentage points higher for young adults living outside of metropolitan areas.
- Young adults with fair or poor physical or mental health reported ever having used an electronic nicotine product at higher rates than those in excellent health.
- Young adults who smoked or had an asthma diagnosis were more likely than those who did not smoke or were without an asthma diagnosis to report ever having used an electronic nicotine product.

Findings

Overall, 15.5 percent of U.S. civilian noninstitutionalized adults reported having ever used an electronic nicotine product in 2021 (not shown).

Age (figure 1)

The prevalence of having ever used an electronic nicotine product was found to be higher among young adults (aged 18–24) than among older adults. Nearly one-third of young adults (30.6 percent) had used an electronic nicotine product compared to about one-fourth (25.2 percent) of adults ages 25–34; 17.9 percent of adults ages 35–44; 11.2 percent of those ages 45–64, and 4.1 percent of adults ages 65 and older.

Race/ethnicity and sex (figure 2)

In 2021, non-Hispanic White young adults reported ever having used an electronic nicotine product at nearly double the rate of Hispanic young adults (38.3 percent and 19.7 percent, respectively). A little over one-fourth

(26.2 percent) of non-Hispanic Black young adults reported ever having used an electronic nicotine product. Among men and women, there was no difference found, as about 31 percent reported ever having used an electronic nicotine product, regardless of sex.

Region and MSA status (figure 3)

Young adults who lived outside of an MSA were more likely to have used an electronic nicotine product than those who lived within an MSA (39.3 percent and 29.6 percent, respectively). Young adults living in the Midwest were most likely to have used an electronic nicotine product (36.4 percent). Young adults in the West and Northeast were least likely to have ever used an electronic nicotine product (26.3 percent and 26.6 percent, respectively).

General health and mental health status (figure 4)

Young adults in fair or poor general health were more likely (46.6 percent) to have used an electronic nicotine product compared to young adults in excellent health (27 percent). Young adults in worse mental health were more likely to report having used an electronic nicotine product. About 44.1 percent of those in fair or poor mental health reported ever having used an electronic nicotine product compared to 25.1 percent of those reporting excellent mental health.

Current smoking status and asthma diagnoses (figure 5)

Young adults who smoked cigarettes (at least some days) were much more likely than those who did not smoke to report also having tried an electronic nicotine product. Nearly 70 (68.3) percent of young adults who smoked cigarettes reported having used an electronic nicotine product compared to about 28 percent among nonsmokers. Young adults with a diagnosis of asthma were more likely than those without to have tried an electronic nicotine product (39.3 percent compared to 29 percent).

Data Source

This Statistical Brief uses data from the 2021 Medical Expenditure Panel Survey (MEPS) Full-Year Consolidated Data File (HC-233). The question about electronic nicotine cigarette use came from the 2021 MEPS Social and Health Experiences Self-Administered Questionnaire (https://meps.ahrq.gov/survey_comp/survey.jsp), a multimode supplement fielded in spring 2021, with follow-up for nonresponse in fall 2021.[5]

Definitions

Electronic nicotine product use

The supplement asked adults: Have you ever used an electronic nicotine product, even one or two times? (Electronic nicotine products include e-cigarettes, vape pens, personal vaporizers and mods, e-cigars, e-pipes, e-hookahs, and hookah pens.)

Age

Age was categorized based on the age around the time the supplement was initiated (AGE31X).

Race/ethnicity

Classification by race/ethnicity was based on information reported for each family member. First, respondents were asked if the person's main national origin or ancestry was Puerto Rican; Cuban; Mexican, Mexican American, or Chicano; other Latin American; or other Spanish. All people whose main national origin or ancestry was reported in one of these Hispanic groups, regardless of racial background, were classified as Hispanic. All other people were classified according to their reported race. For this analysis, the following classification by race and ethnicity was used: Hispanic, non-Hispanic Black, non-Hispanic White, and non-Hispanic other. The "other"

category included American Indian, Alaska Native, Asian or Pacific Islander, other race, and multiple races.

Census region

The census region variable was based on the location of residence around the time the supplement was initiated (REGION31).

- Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont
- Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
- South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
- West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

Metropolitan statistical area

The MSA variable was based on the county of residence around the time the supplement was initiated and reflects the most recent delineations of MSAs established by the Office of Management and Budget. An MSA contains a core urban area with a population of 50,000 or more. All counties that are not part of an MSA are considered rural.

Perceived health status

The MEPS respondent was asked to rate the health of each person in the family around the time the supplement was initiated according to the following categories: excellent, very good, good, fair, and poor (RTHLTH31).

Perceived mental health status

The MEPS respondent was asked to rate the mental health of each person around the time the supplement was initiated according to the following categories: excellent, very good, good, fair, and poor (MNHLTH31).

Smoking status

The question asked the household respondent whether the person currently smoked every day, some days, or not at all (OFTSMK53).

Asthma diagnosis

The ASTHDX variable indicates whether a person had ever been diagnosed with asthma.

About MEPS

The MEPS-HC collects nationally representative data on healthcare use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. The MEPS-HC is cosponsored by AHRQ and the National Center for Health Statistics. More information about the MEPS-HC can be found on the MEPS website at https://www.meps.ahrq.gov.

For a detailed description of the MEPS-HC survey design, sample design, and methods used to minimize sources of nonsampling error, see the following publications:

Cohen, J. *Design and Methods of the Medical Expenditure Panel Survey Household Component*. MEPS Methodology Report No. 1. AHCPR Pub. No. 97-0026. July 1997. Agency for Health Care Policy and Research (AHCPR), Rockville, MD. https://www.meps.ahrq.gov/data_files/publications/mr1/mr1.pdf

Cohen, S. *Sample Design of the 1996 Medical Expenditure Panel Survey Household Component*. MEPS

Methodology Report No. 2. AHCPR Pub. No. 97-0027. July 1997. Agency for Health Care Policy and Research (AHCPR), Rockville, MD. https://www.meps.ahrq.gov/data_files/publications/mr2/mr2.pdf

References

[1] Vallone, D. M., Cuccia, A. F., & Briggs, J. (2020). Electronic cigarette and JUUL use among adolescents and young adults. *JAMA Pediatrics, 174*(3), 277–286.

[2] Walley, S. C., Wilson, K. M., Winickoff, J. P., & Groner, J. (2019). A public health crisis: Electronic cigarettes, vape, and JUUL. *Pediatrics, 143*(6), 1–11.

[3] U.S. Surgeon General. (2018). *Surgeon General's advisory on e-cigarette use among youth*. https://e-cigarettes.surgeongeneral.gov/documents/surgeon-generals-advisory-on-e-cigarette-use-among-youth-2018.pdf

[4] Office of Disease Prevention and Health Promotion. (n.d.). *Healthy People 2030.* U.S. Department of Health and Human Services. https://health.gov/healthypeople

[5] Kistler, A., Decker, S. L, Steiger, D., & Novik, J. (2024, May 1). A multimode strategy to contact participants and collect responses in a supplement to a longitudinal household survey. *Survey Methods: Insights from the Field.* https://surveyinsights.org/?p=18357

Suggested Citation

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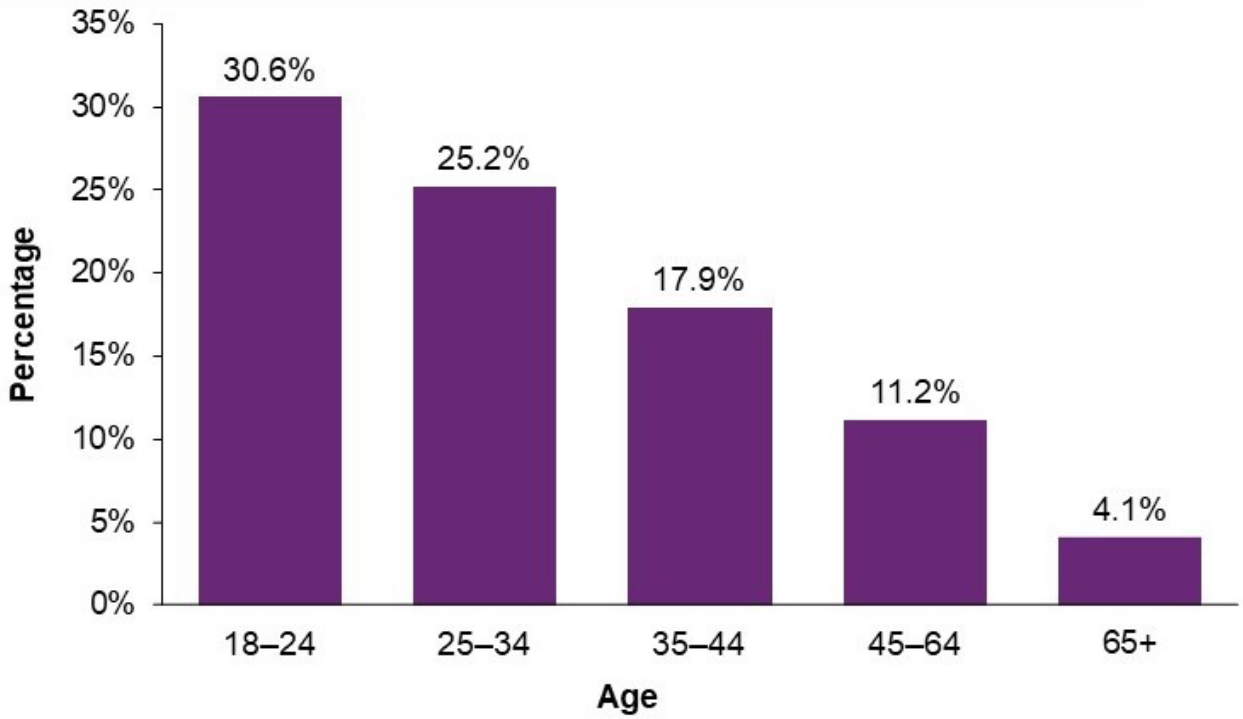
AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of healthcare in the United States. We also invite you to tell us how you are using this Statistical Brief and other MEPS data and tools and to share suggestions on how MEPS products might be enhanced to further meet your needs. Please email us at MEPSProjectDirector@ahrq.hhs.gov or send a letter to the address below:

Joel W. Cohen, PhD, Director
Center for Financing, Access, and Cost Trends
Agency for Healthcare Research and Quality
5600 Fishers Lane, Mailstop 07W41A
Rockville, MD 20857

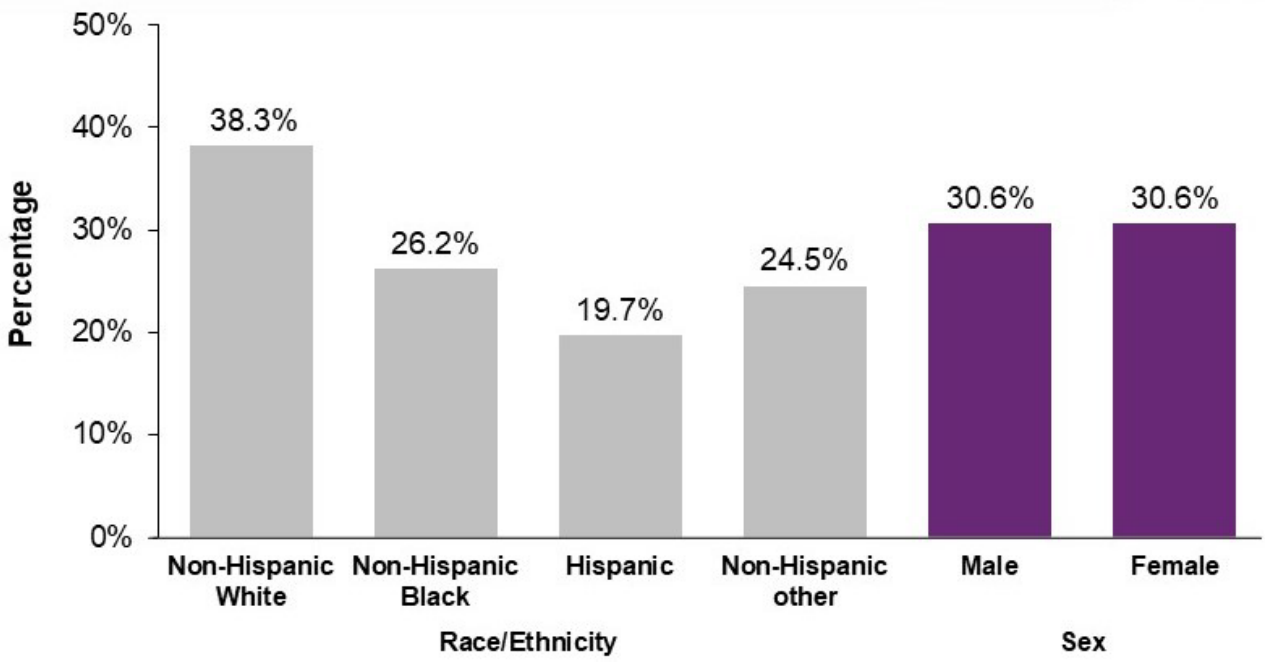
Figure 1. Percentage of adults (aged 18 and older) who had ever used an electronic nicotine product, by age, 2021



Age	Percentage of adults (aged 18 and older) who had ever used an electronic nicotine product
18–24	30.6%
25–34	25.2%
35–44	17.9%
45–64	11.2%
65+	4.1%

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, Household Component, 2021.

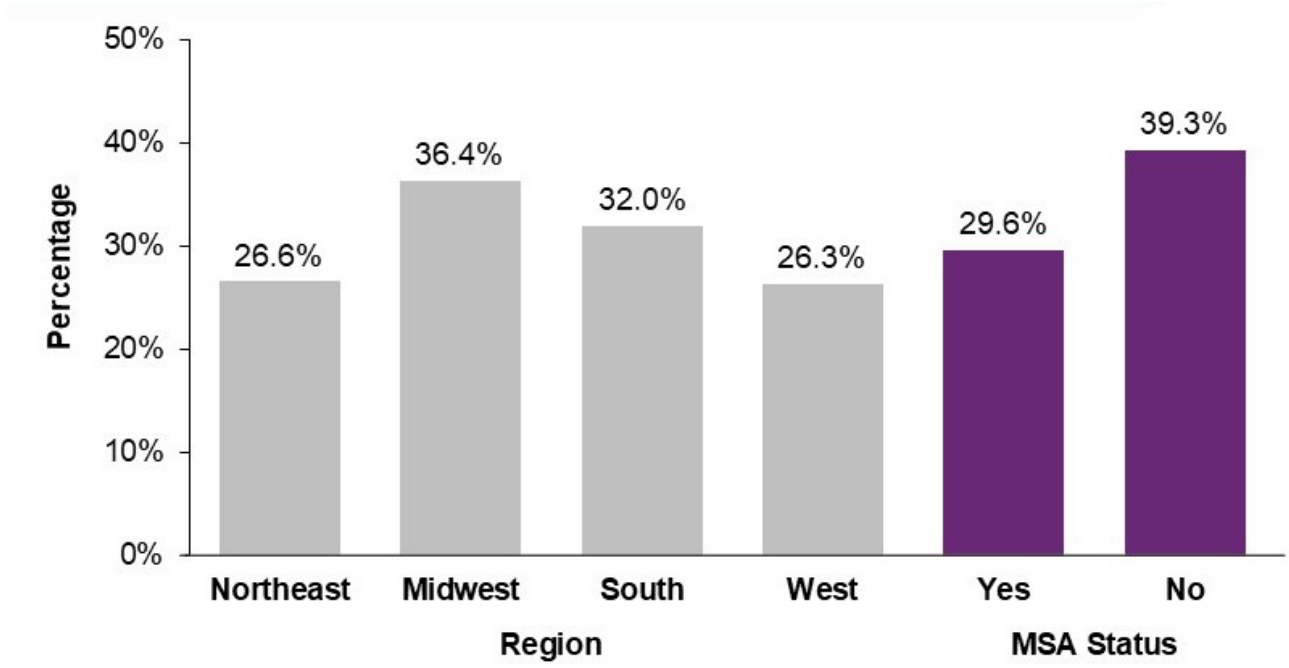
Figure 2. Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product, by race/ethnicity and sex, 2021



Sociodemographic group	Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product
Race/Ethnicity	
Non-Hispanic White	38.3%
Non-Hispanic Black	26.2%
Hispanic	19.7%
Non-Hispanic other	24.5%
Sex	
Male	30.6%
Female	30.6%

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, Household Component, 2021.

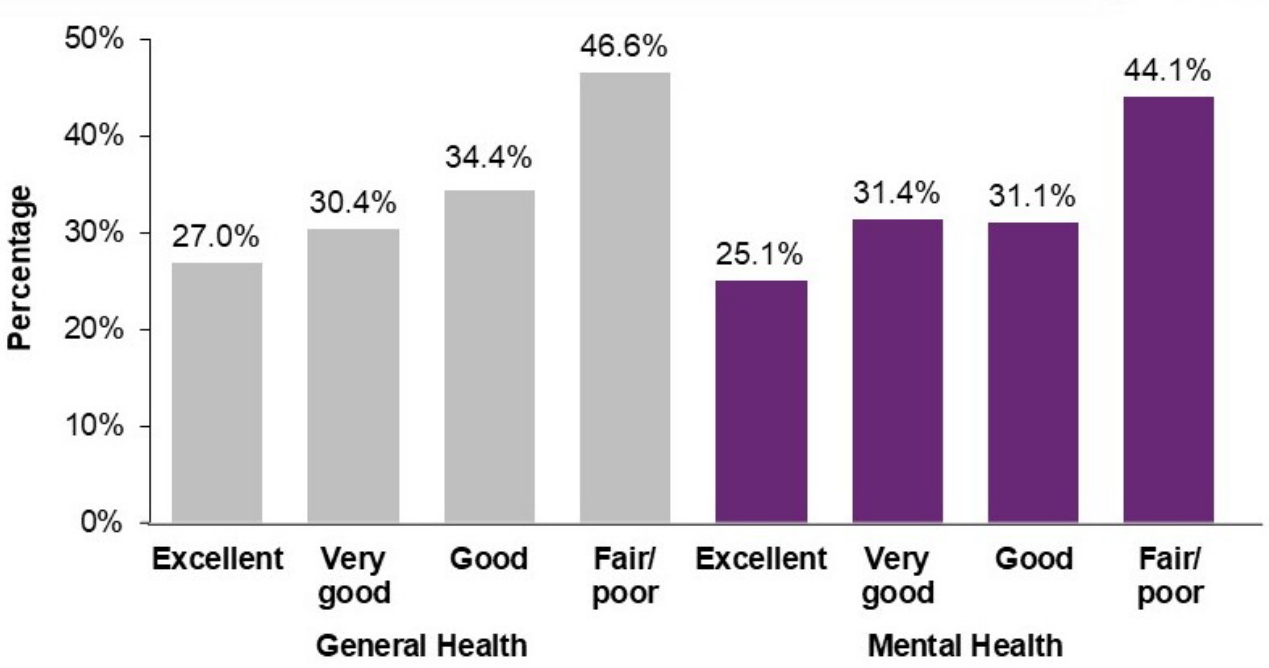
Figure 3. Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product, by region and MSA status, 2021



Residence	Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product
Region	
Northeast	26.6%
Midwest	36.4%
South	32.0%
West	26.3%
MSA Status	
Yes	29.6%
No	39.3%

Note: MSA = metropolitan statistical area.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, Household Component, 2021.

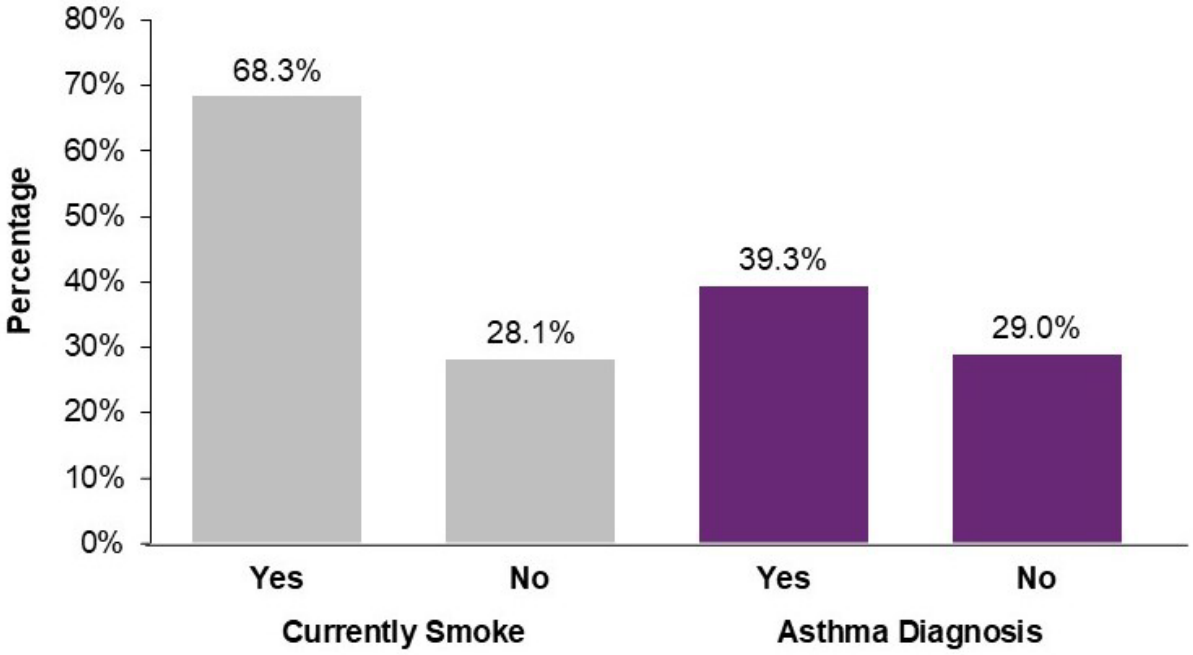
Figure 4. Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product, by general health and mental health status, 2021



Health status	Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product
General Health	
Excellent	27.0%
Very good	30.4%
Good	34.4%
Fair/poor	46.6%
Mental Health	
Excellent	25.1%
Very good	31.4%
Good	31.1%
Fair/poor	44.1%

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, Household Component, 2021.

Figure 5. Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product, by current smoking status and asthma diagnoses, 2021



Measure	Percentage of young adults (aged 18–24) who had ever used an electronic nicotine product
Currently Smoke	
Yes	68.3%
No	28.1%
Asthma Diagnosis	
Yes	39.3%
No	29.0%

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, Household Component, 2021.