

# ENDS flavor use by age group in the U.S.: A longitudinal analysis

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## Background

This study investigated how the use of flavored ENDS liquid varies for youth (12–17 years old), young adults (18–24 years old), and older adults (25+ years old) over time.

## Methods

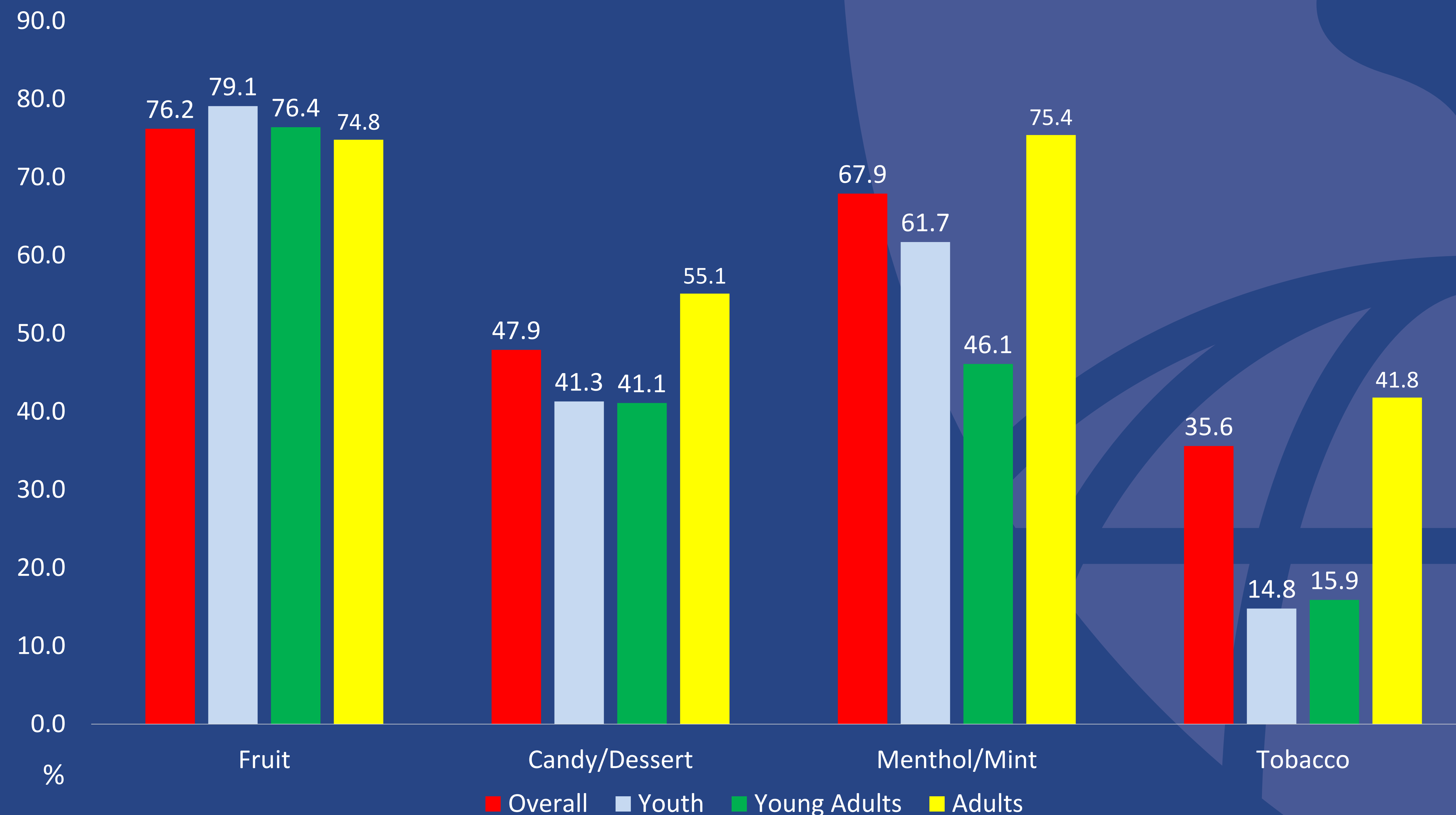
We used the Population Assessment of Tobacco and Health (PATH) Study wave 2 (2014-2015), wave 3 (2015-2016), wave 4 (2016-2017), and wave 5 (2018-2019) youth and adult data. Current ENDS users who had an answer to the ENDS flavor use question in at least two waves (consecutive or not) were included. “Maintenance” defined as using same flavor category in at least two waves. Flavor use across waves was modeled with logistic mixed effects regression.

## Results

- Overall, 76.2% of fruit users, 47.9% of candy/dessert users, 67.9% of menthol/mint users, and 35.6% of tobacco flavor users in wave 2 maintained use of the same flavor category in waves 3, 4, or 5.

- The most used flavor category was fruit among all age groups in all waves.

# A majority of fruit and menthol/mint users maintained use of the same flavor between 2014 and 2019.



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Competing Interests: Dr. Eissenberg is a paid consultant in litigation against the tobacco industry and also the electronic cigarette industry and is named on one patent for a device that measures the puffing behavior of electronic cigarette users and on another patent for a smartphone app that determines electronic cigarette device and liquid characteristics

## Results (cont'd)

- Candy/dessert flavor was the most currently used flavor after fruit for all age groups in waves 2, 3, and 4.
- Menthol/mint flavor, however, was the second most used flavor category in wave 5 among all age groups.
- Among youth, menthol/mint use percentages were between 20.7% and 26.0% in wave 2, 3, and 4, however, this percentage increased to 65.1% in wave 5 ( $p < 0.001$ ).

## Discussion

- The most used ENDS flavor categories were fruit and candy/desserts.
- There was substantial increase in menthol/mint use in wave 5, especially among youth.
- Because of consistent flavor use among youth and young adults in particular, a ban on flavors might reduce ENDS use in these groups.

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