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# Impact of ENDS Non-Tobacco Flavors on Adult Cigarette Smoking Cessation: A Longitudinal Analysis of PATH Study Data



## Background

Electronic nicotine delivery systems (ENDS) use has been shown to be associated with cigarette smoking cessation in randomized trials and some observational studies. However, it is unclear if ENDS flavors play a role in facilitating cigarette smoking cessation.

## Methods

**Data:** Population Assessment of Tobacco and Health (PATH) Study Waves 3-5 (2016-2019).

**Analysis:** Discrete-time survival models to examine the association between flavored ENDS use and smoking cessation among established cigarette smokers aged 25+.

**ENDS use categorization:** Time-varying covariate lagged by one wave with the following groupings:

- 1) never or non-current use,
- 2) exclusive unflavored or tobacco-flavored ENDS use, and
- 3) non-tobacco flavored ENDS use

**Cessation outcome:** Current established smokers at baseline were classified as having quit in subsequent waves if they reported not currently smoking every day or some days and having completely quit cigarette smoking.

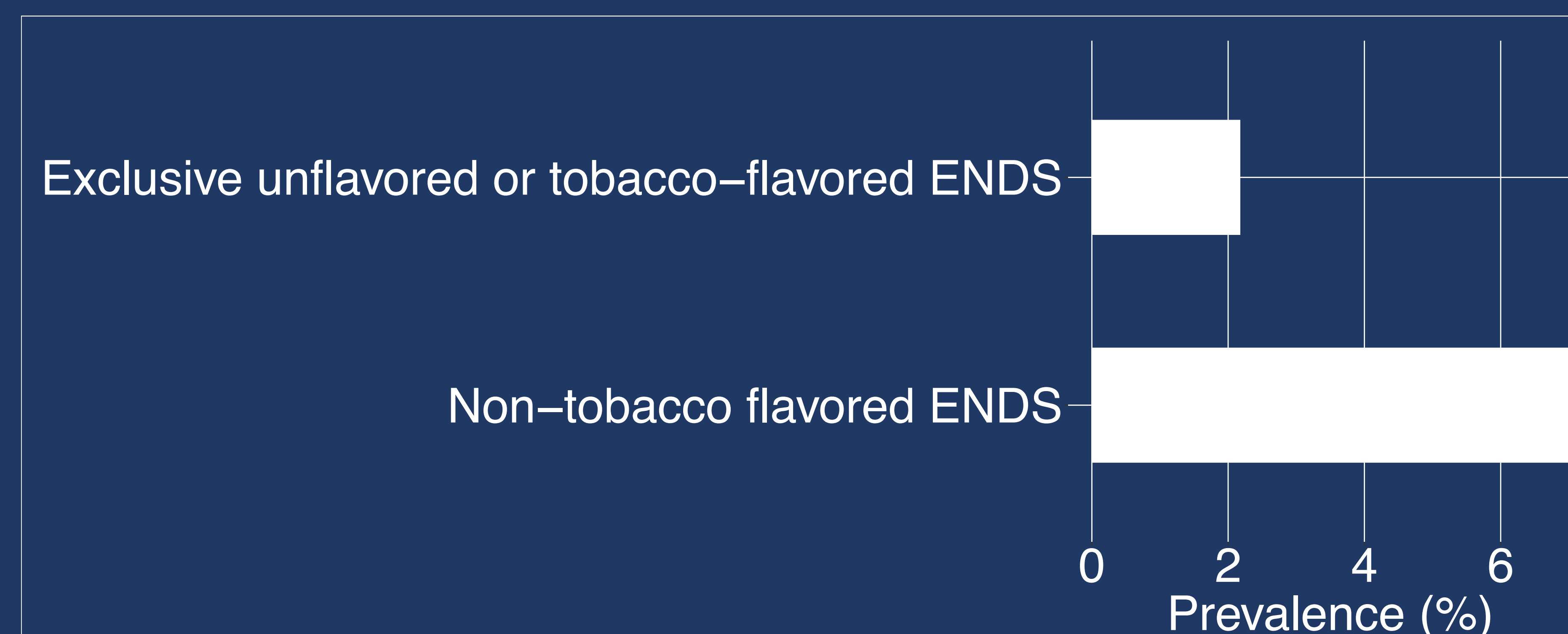
**Covariates:** Baseline demographics (age, sex, race/ethnicity, education), tobacco dependence score (TDS), and menthol cigarette smoking.

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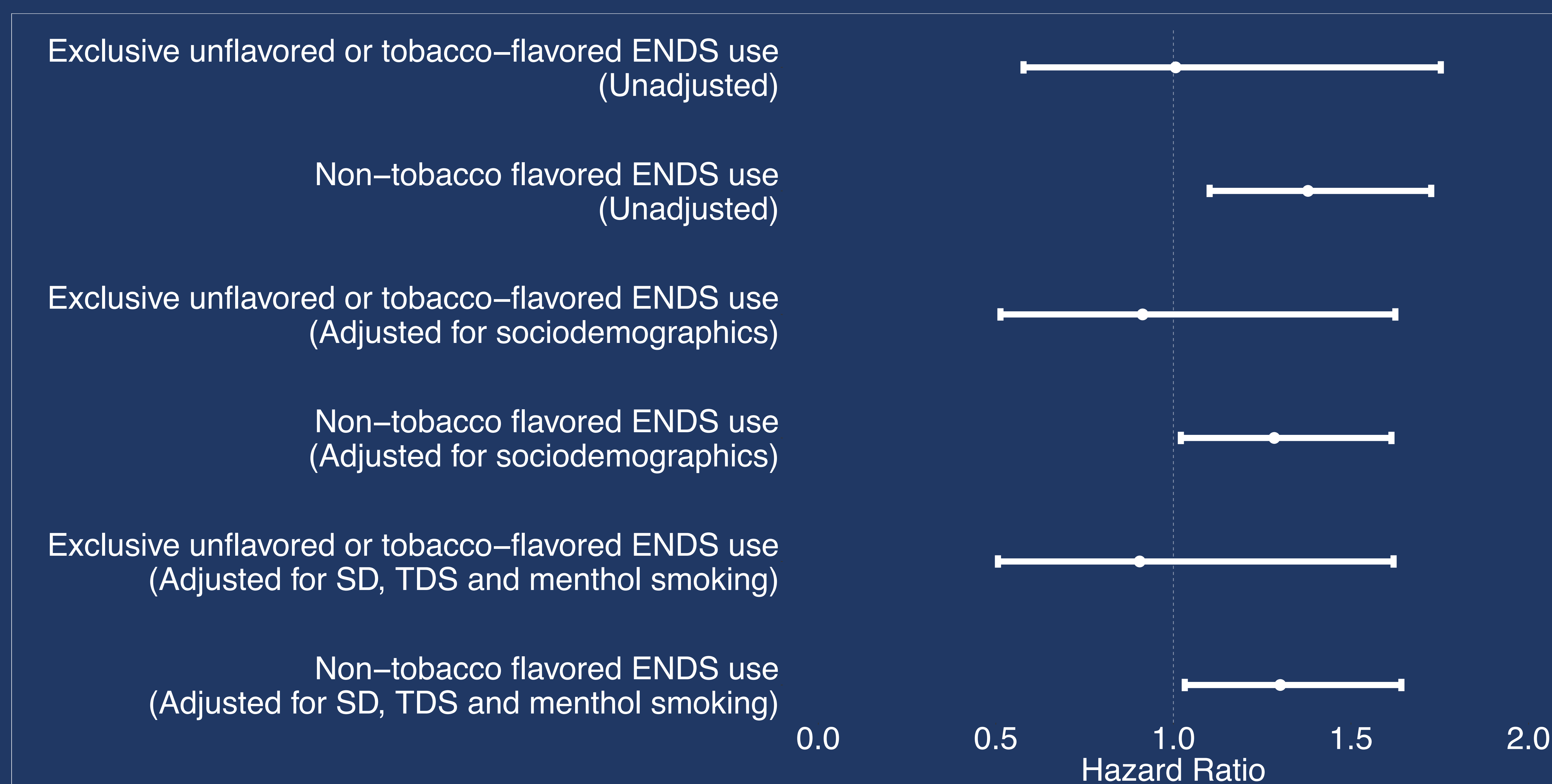
## Results

### Prevalence of flavored-ENDS use among established smokers at Wave 3



Note: Non-regular ENDS use = 90.8 %

### Hazard Ratios predicting smoking cessation among flavored-ENDS users



## Results

- Of the 6,603 established smokers at Wave 3, 1,048 (15.9%) reported smoking cessation by Wave 5. Any flavors were reported by about 75% of ENDS users.
- Non-tobacco flavored ENDS use was significantly associated with smoking cessation (adjusted hazard ratio [aHR] **1.30, 95% CI 1.03-1.64**), but exclusive unflavored or tobacco-flavored was not (aHR 0.90, 95% CI 0.51-1.62).
- When restricted to more frequent use (10+ of the past 30 days), the aHRs increased for both non-tobacco flavored (aHR **1.56, 95% CI 1.17-2.09**) and exclusive unflavored or tobacco-flavored ENDS use (aHR 1.89, 95% CI 0.95-3.77).

## Conclusions

- Non-tobacco flavored ENDS use was associated with adult smoking cessation in PATH Waves 3-5.
- Unflavored or tobacco-flavored ENDS use was not associated with smoking cessation, but stronger, non-statistically significant effects were seen for more frequent use.
- Further research is needed to understand the role of ENDS and flavored ENDS in adult cigarette smoking cessation.

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