

U.S. Adolescents’ Interest in Using E-Cigarette Flavors Marketed and Not Marketed by JUUL

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Background

The ability to inhale e-cigarette vapor aerosol in a vast and growing variety of characterizing flavors – a distinguishable taste or aroma, other than the taste or aroma of tobacco – is thought to be a major feature accounting for the appeal of e-cigarettes to adult smokers as an alternative to continuing to smoke cigarettes.

However, the U.S. Food and Drug Administration (FDA) has also identified flavors as the “core of the epidemic” of youth use of e-cigarettes that emerged in 2018.

The FDA has also asserted that much of the rise in youth e-cigarette use observed between 2017 and 2018 was driven by one brand – JUUL.

In 2018, JUUL became the fastest growing and highest selling brand of e-cigarette/ vapor products in the United States.

Understanding the youth appeal of flavors marketed by JUUL is therefore critically important.

Methods

A non-probabilistic sample of U.S. adolescents aged 13-17 years (n = 9,872) was recruited from an internet research panel to complete an online survey between 23 November and 13 December 2018. Individuals were excluded if they had not seen or heard of JUUL e-cigarettes before this study. Parental consent and youth assent were obtained.

Participants were asked “How interested would you be in using a [FLAVOR NAME] flavored e-cigarette?”

Participants rated their interest (0-10 scale) in using e-cigarettes in each of 30 flavors, including four tobacco flavors – Virginia Tobacco, Classic Tobacco, Mint and Menthol – and four non-tobacco flavors – Mango, Crème, Fruit and Cucumber – currently offered in JUUL refill pods, known as ‘JUULpods’.

The other 22 flavors represented fruit, sweet, dessert/pastry and drink flavors that are not offered in JUULpods and were expected to have the greatest appeal to youth (e.g. Cotton Candy. Bubblegum, Chocolate Chip Cookie). No images of e-cigarettes, e-liquids or pod refills or packaging were shown.

Analyses examined:

- Interest in using an e-cigarette in each of 30 flavors.
- Interest in using e-cigarettes in flavors offered in JUULpods versus flavors not offered in JUULpods.
- Interest in each flavor within and across current users (n = 1,952), former users (n = 1,965) and never users (n = 5,946) of e-cigarettes.

Data were weighted to be nationally representative of the U.S. adolescent population on age, gender and census region.

Results

Never e-cigarette users reported very low interest in using an e-cigarette in each of the 30 tested flavors, with median ratings ranging from 0.3 (“Virginia Tobacco”, IQR: 0.0-1.1) to 1.1 out of 10 (“Cotton Candy”, IQR: 0.1-5.7).

For each flavor, current e-cigarette users reported significantly higher use interest than former users, and former e-cigarette users reported significantly higher use interest than never e-cigarette users (*ps*<0.001).

Of the eight flavors offered in JUULpods, “Fruit” appealed most to each e-cigarette use group. Absolute interest in using a Fruit-flavored e-cigarette was low among never e-cigarette users (ranked 6th/30; Med. = 0.9, IQR: 0.1-5.1), but high among e-cigarette users (ranked 6th/30; Med. = 5.7, IQR: 1.7-8.2).

Never e-cigarette users’ interest in using an e-cigarette in flavors not offered in JUULpods was low (Grouped Med. = 0.9, IQR: 0.1-4.5), but higher than their interest in the characterizing flavors (Grouped Med. = 0.7, IQR: 0.1-3.3) and tobacco/mint/ menthol flavors (Grouped Med. = 0.4, IQR: 0.1-1.2) offered in JUULpods.

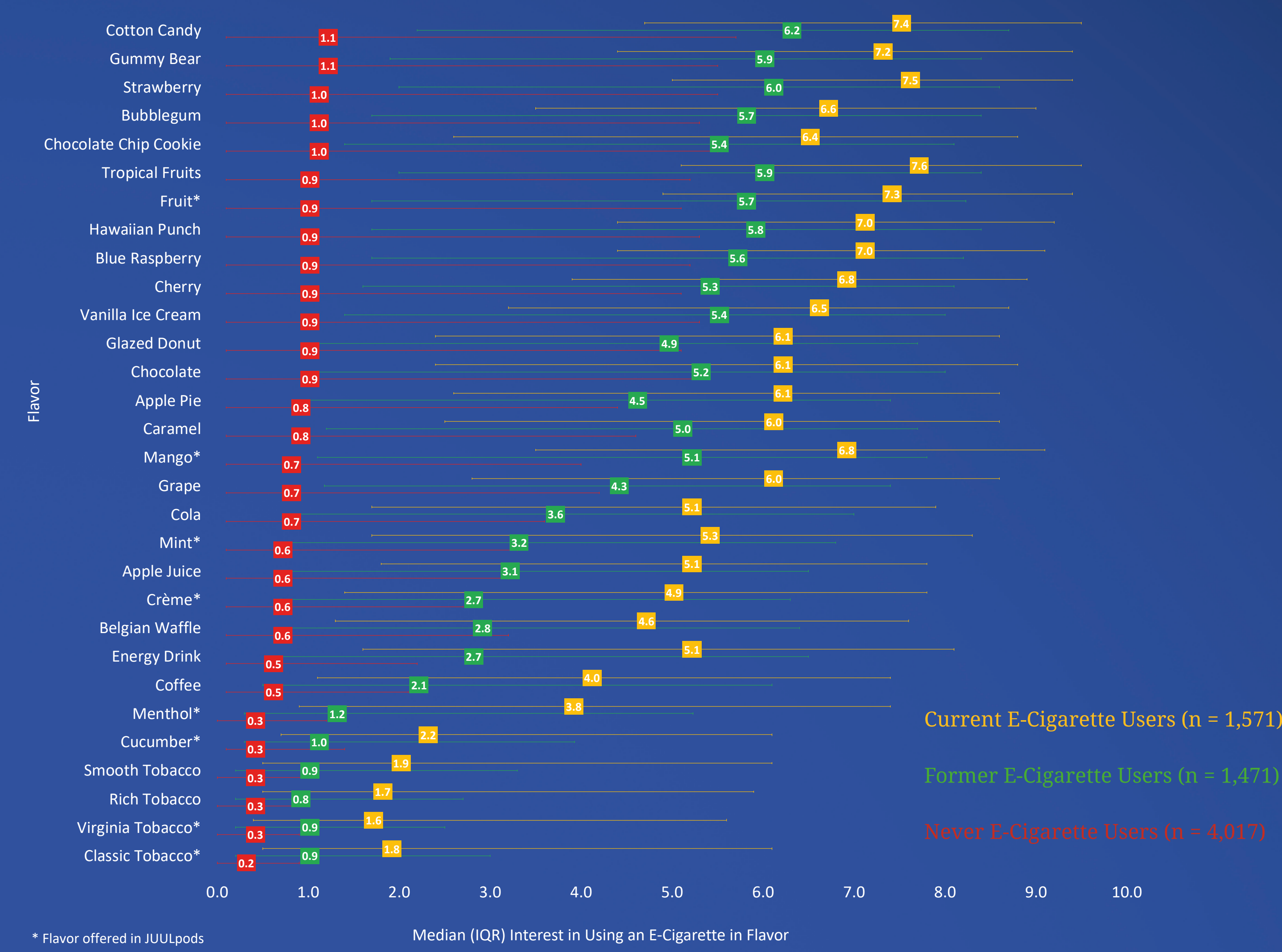


Figure 1. Interest in using e-cigarettes in flavors offered and not offered in JUULpods among U.S. adolescents aged 13-17 years (unweighted n complete cases = 7,059) by e-cigarette use status.

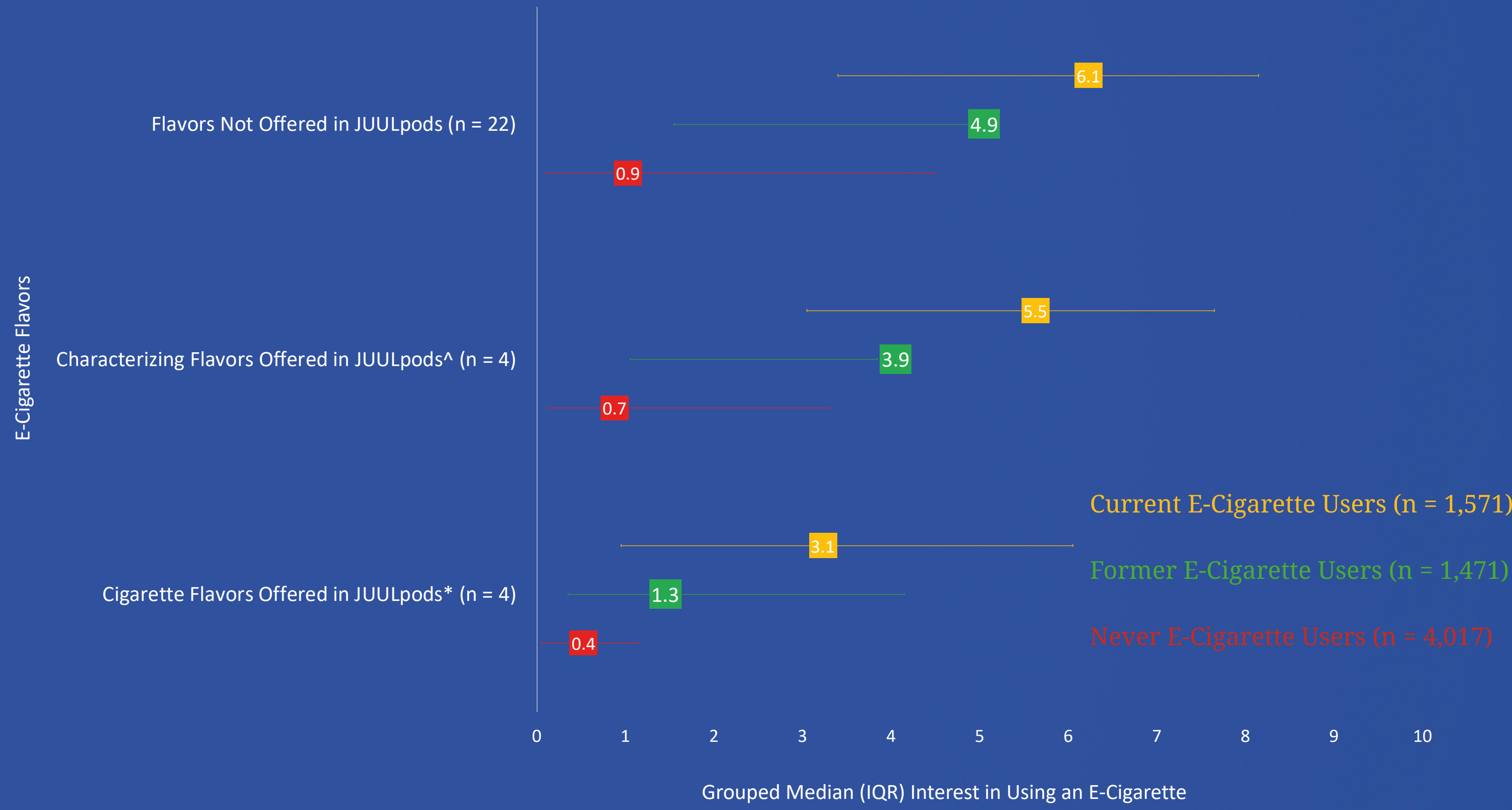


Figure 2. Interest in using e-cigarettes in flavors offered and not offered in JUULpods among U.S. adolescents aged 13-17 years by e-cigarette use status.

Conclusions

Adolescents who had never used an e-cigarette had very low interest in using an e-cigarette in the eight flavors offered in JUULpods.

The availability of these flavors in JUULpods is therefore unlikely to have been a significant driver of recent increases in youth use of e-cigarettes.

The availability of several highly appealing flavors not offered in JUULpods (e.g. Cotton Candy, Strawberry), and one of eight flavors offered in JUULpods (Fruit), however, may encourage adolescents to continue or re-initiate e-cigarette use.

Federal and state efforts to prevent and reduce youth use of e-cigarettes will require a greater understanding of the roles played by product features other than flavors (e.g. design. marketing) and by external factors (e.g. peer/social influences) in enhancing the youth appeal and experience of using JUUL and other e-cigarette brands.

Ethics Approval

This study was approved by Advarra Institutional Review Board (Approval no. 00030080, (2 October 2018).

Declaration of Funding

Funding for this study was provided by JUUL Labs Inc. JUUL Labs Inc. had no input to or control over the study design, contents of the survey instrument, sample recruitment, data analysis, interpretation, or reporting of findings. The authors alone are responsible for the contents, production and decision to report this study.