Temporal Trends in Online Posts About Vaping of Cannabis Products

Steven A. Sumner, MD, MSc,

Office of Strategy and Innovation, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA

Tamara M. Haegerich, PhD,

Division of Overdose Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA

Christopher M. Jones, DrPH, PharmD

Office of Strategy and Innovation, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA

To the Editor:

Cannabis is the most widely used illicit drug in the U.S. In 2018, 16% of Americans aged 12 years or older reported using cannabis.[1] Vaping, or e-cigarette product use, is an emerging mode of cannabis use because of perceptions that it is less harmful than smoking and with better taste and a stronger "high."[2] Along with a range of health effects associated with cannabis use, chemicals, such as vitamin E acetate, present in some tetrahydrocannabinol (THC)-containing vaping products can be harmful, as demonstrated by the recent national outbreak of lung injury.[3] Data are limited on vaping as a mode of use of cannabis as traditional public health data systems typically do not capture these behaviors.[4]

We conducted a retrospective observational study across 245 vaping and substance-use related message boards from 2015 to June 30th, 2019 (prior to the lung injury outbreak) on Reddit, the largest online forum site, having over an estimated 400 million users. Users make anonymous public posts, known as "submissions," on topics of interest. Vaping and substance use are topics that have active online discussion communities and the prevalence of substance-related mentions correlates with public health indicators.[5] We hypothesized that increases in discussions about vaping of THC-containing products were evident preceding the lung injury outbreak.

We calculated the percentage of messages in 6-month time periods discussing vaping and cannabis, sub-categorizing posts into those addressing (1) THC/marijuana and (2) cannabidiol (CBD). We also assessed messages discussing synthetic cannabinoid-related

compounds, a class of drugs distinct from cannabis that also interact with the human endocannabinoid system. Keywords used to identify posts related to these substances are provided in the Supplemental Digital Content, http://links.lww.com/JAM/A202.

We identified 476,189 public posts about vaping across all message boards over the study time period. The percentage of vaping posts mentioning THC/marijuana, CBD, and/or synthetic cannabinoids increased from 14.5% in January–June 2015 to 24.6% in January–June 2019; increases were largely due to discussions around THC-containing products, increasing from 13.9% to 22.8% of vaping posts during this time period (Fig. 1). Vaping posts discussing CBD increased at a lesser rate, 0.6% to 3.5%. Few vaping posts were related to synthetic cannabinoids.

Our findings highlight the growing interest in cannabis vaping, primarily THC-containing substances, an underappreciated practice prior to the lung injury outbreak. Although information on vaping of nicotine, flavored substances, and marijuana has recently been added to one youth survey,[6] there is considerable need for monitoring trends more broadly.

Future work is also needed to develop advanced analytic approaches such as machine learning, natural language processing, or topic modeling-based strategies to prospectively detect emerging trends with high fidelity from background noise, including identifying specific adverse drug reactions. Although information gathered from large convenience samples requires confirmation with official public health data, better use of novel data may ultimately help to more rapidly identify trends and avert future health harms.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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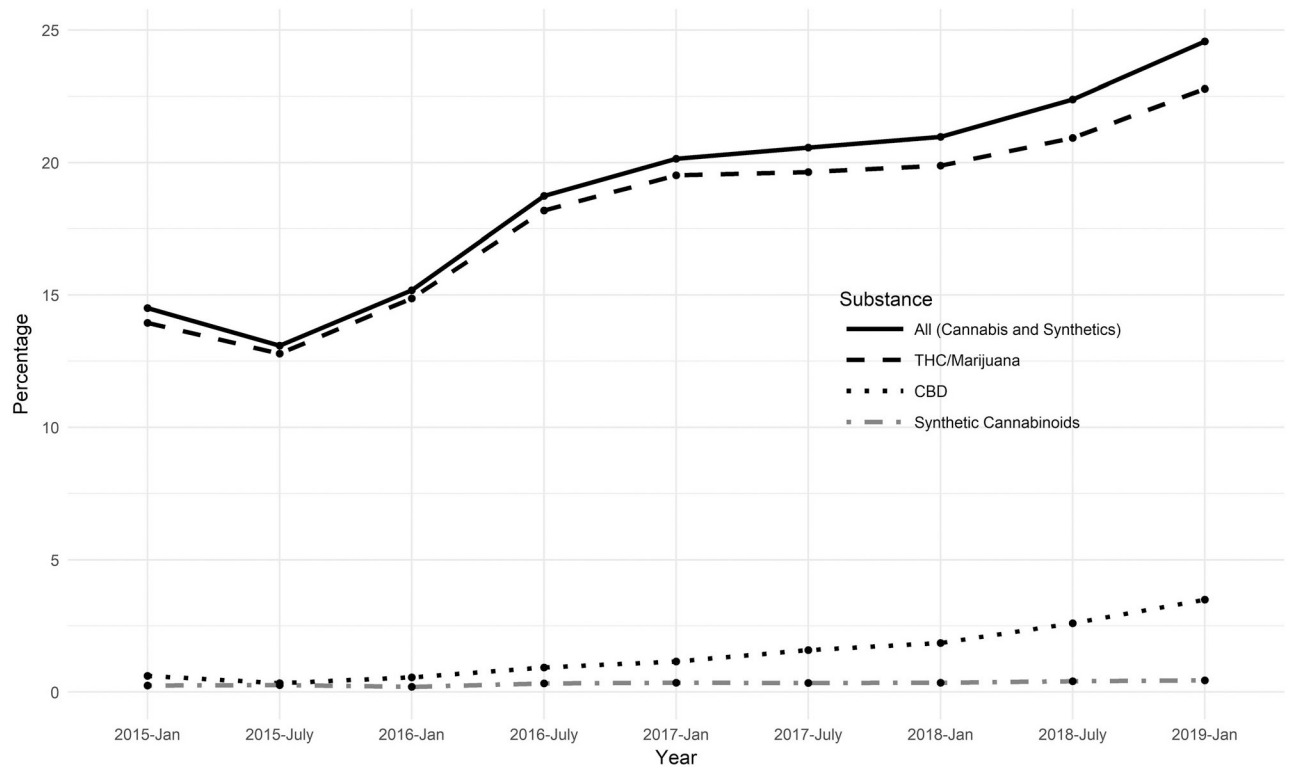
FIGURE 1.

Percentage of Online Vaping Posts Discussing Cannabis, 2015-2019. Note: All (Cannabis and Synthetics) category includes mention of any substance (marijuana/THC, CBD, or synthetic cannabinoids). Categories are not mutually exclusive as more than one substance could be mentioned. X-axis labels indicate the starting month and year of a 6-month time period. Data from 245 message boards on Reddit.