

Understanding the Dynamics between Vaping and Cannabis Legalization Using Twitter Opinions

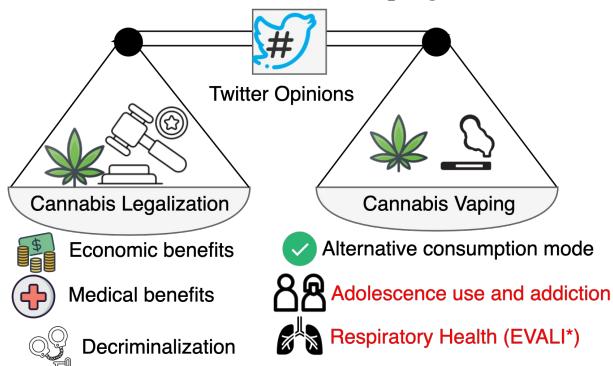
Shishir Adhikari¹, Akshay Uppal¹, Robin Mermelstein¹, Tanya Berger-Wolf^{1,2}, Elena Zheleva¹

¹University of Illinois at Chicago, ²Ohio State University



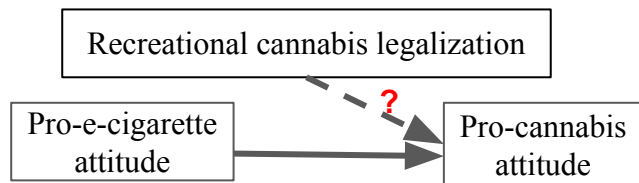
Motivation

Cannabis legalization welcomed by US states but its role in escalation to cannabis vaping is unclear.



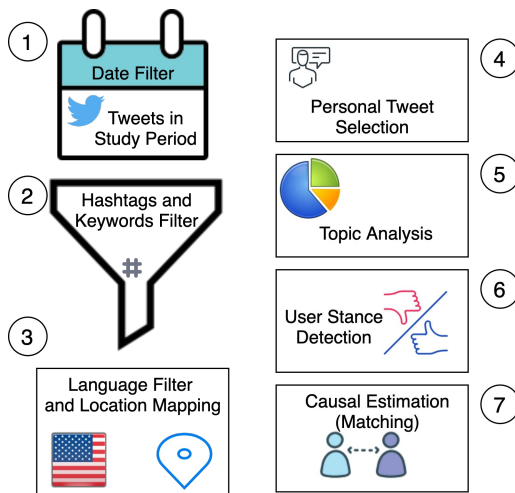
Research Goal

To **understand the impact** of recreational cannabis legalization on the development of **pro-cannabis attitude** for the population with a **positive attitude** toward e-cigarettes by analyzing **public opinions** on Twitter.

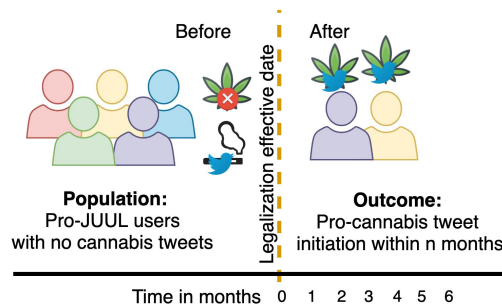


*E-cigarette or Vaping product use—Associated Lung Injury

Data Analysis Pipeline

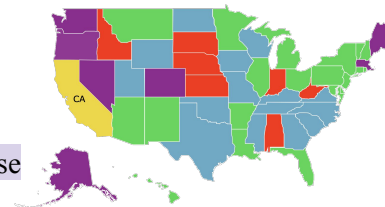


Causal Estimation



Treatment/Control Assignment

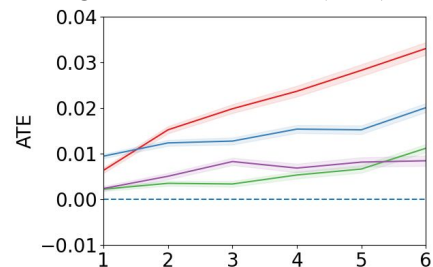
- **Treatment (T)**: Users from state with newly legalized recreational cannabis (E.g., California on Jan 01, 2018)
- **Four control groups** of users from all other US states separated based on their cannabis legalization policy on the treatment state's legalization effective date:
 - C1: Illegal to use
 - C2: Legal for medical use with limited THC
 - C3: Legal for medical use
 - C4: Legal for recreational use



Matching Inverse probability of treatment weighting (IPTW)

Experimental Results

Average Treatment Effect (ATE) for California



Treatment users are more likely to initiate pro-cannabis tweets than control users, especially from states where cannabis is illegal (C1).