TRENDING TICKS

Using Google Trends Data to Understand Tick Prevention

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BACKGROUND & AIM

- Tick-borne disease requires regular forecasting and monitoring
- Cause health problems, such as Lyme disease or red meat allergy

- Online health information seeking
- **Google Trends**: How frequently a term was searched for on Google in a specific location/time

Health belief model

Explain the health behavior change process

susceptibility seriousness	benefit barrier	cues to action

This study forecasted potential tick-borne disease risks through online health information-seeking behavior and identified outdoor activities with risks and suggested communication strategies.

METHODS

$$\text{Google Trends search volume} = \frac{\text{Searches for the specific term}}{\text{ALL searches}}$$

- **Relative search volume:** Data normalize from 0 to 100
- **Data collection:** In the U.S. from April 2022 to March 2023
- **10 Analysis Terms:** 4 about outdoor activities (u-pick, hunting, corn maze, and park) and 6 about tick risks (ticks, tick bite, tick repellent, Lyme disease, meat allergy, lone star tick)
- Each term's search volume is calculated independently

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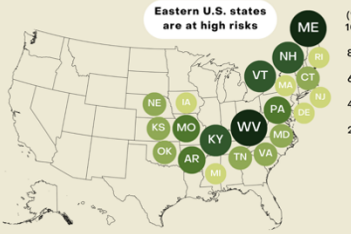
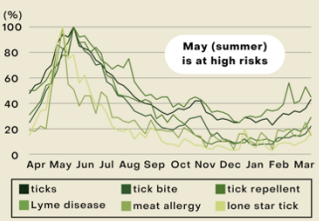
RESULTS

RQ1: HIGHER RELATIVE SEARCH VOLUME ABOUT TICK RISKS IN DIFFERENT STATES AND TIME





→ People in high-risk environments or periods are more likely to seek information to acquire knowledge to deal with risks, causing higher search volume.

RQ2 & RQ3: CORRELATIONS BETWEEN OUTDOOR ACTIVITIES & TICK RISKS

"corn maze" is moderately related to "meat allergy" (.45)

"hunting" is moderately related to "ticks" (.34)

→ A positive correlation can be explained that people are more likely to be exposed to tick-borne diseases when they engage in that outdoor activity.

u-pick park	**positively** related to tick risk terms (.50 to .83)
corn maze	no significant correlations
hunting	**negatively** related to tick risk terms (-.52 to -.61) due to hunting seasons

CONCLUSIONS

Results can help predict when to provide more helpful information to make people aware of tick risks and take prevention. An example is when people search for outdoor activities, a pop-up window can be designed as a cue to action to warn them of risks and educate preventions.

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