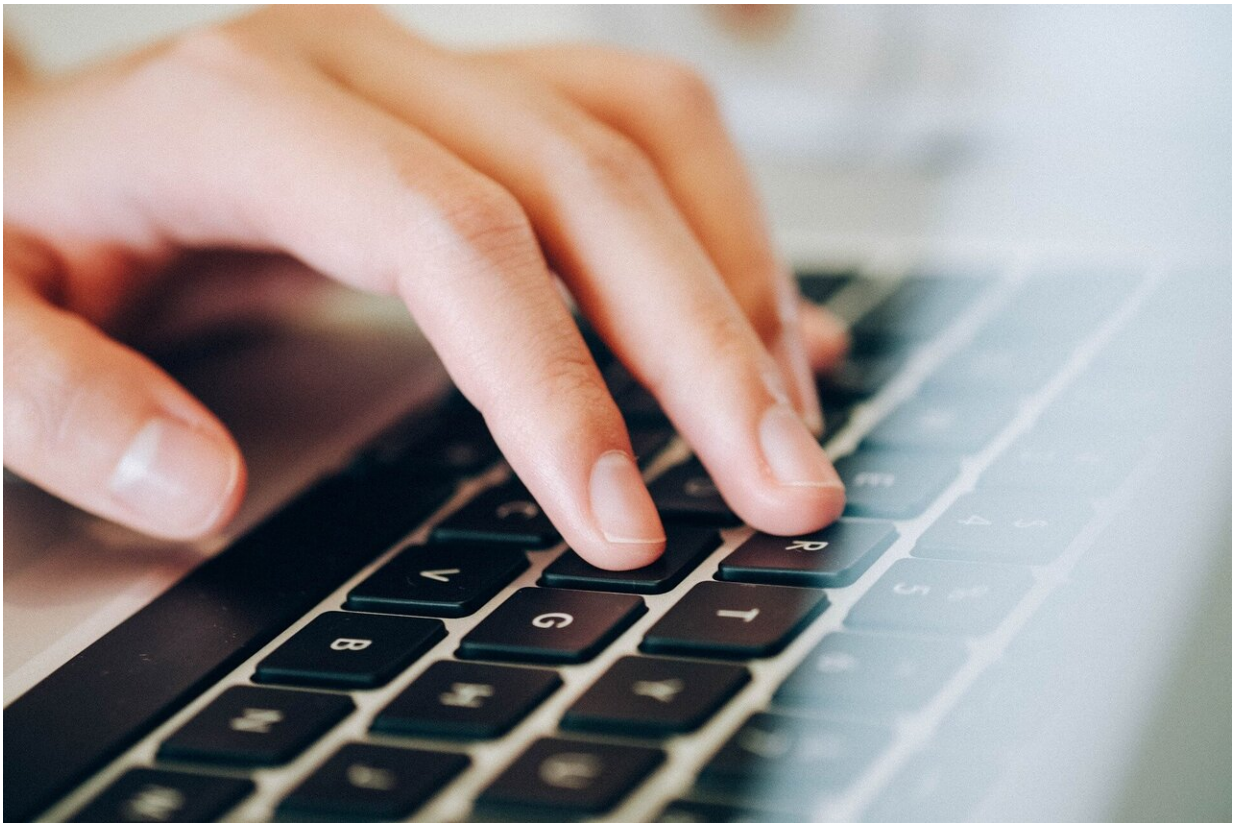# New research: Monitoring online posts by consumers could help improve food safety

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Credit: CC0 Public Domain

An estimated 48 million cases of foodborne illness are contracted in the United States every year, causing about 128,000 hospitalizations and 3,000 deaths, according to the Centers for Disease Control (CDC). In

some instances, the source is well known, such as a batch of tainted ground beef that infected 209 people with E. Coli in 2019. But 80 percent of food poisoning cases are of unknown origin, making it impossible to inform consumers of hazardous food items.

David Goldberg, assistant professor of management information systems at San Diego State University, wants to improve the traceability and communication of risky [food](link) products. In a new study published by the journal *Risk Analysis*, his research team proposes a new Food Safety Monitoring System (FSMS) that utilizes consumer comments posted on websites to identify products associated with food-related illnesses.

The researchers utilized an AI technology called text mining to analyze comments and reviews from two websites: Amazon.com, the world's largest e-commerce retailer, and IWasPoisoned.com, a site where consumers alert others to cases of food poisoning. The database consisted of 11,190 randomly selected Amazon reviews of "grocery and canned food" items purchased between 2000 and 2018, along with 8,596 reviews of food products posted on IWasPoisoned.com. These two datasets allowed the researchers to test the text mining tools before analyzing 4.4 million more Amazon reviews.

The computers were programmed to recognize words associated with foodborne illness such as "sick," "vomiting," "diarrhea," "fever," and "nausea." This resulted in a list of flagged products that included specific brands of protein bars, herbal teas, and protein powder. Two of the products flagged by the computers had already been recalled.

An important final step in the monitoring system was a manual [review](link) by a panel of 21 food safety experts. Their job was to verify the risk level of a product and suggest a remediation strategy for the manufacturer. For example, in the case of an allergic reaction, experts would recommend investigating alternative ingredients or revising

product packaging to include a consumer warning.

In future work, Goldberg hopes to create a way of alerting consumers to food product risks when they are shopping online. Amazon reviewers can give products a star rating and post comments, but it is difficult and time consuming to sort through those reviews looking for health risks. "If there were a panel that popped up on their screen, it would make them more informed as a consumer and allow them to make a purchasing decision that may ultimately make them feel safer," says Goldberg.

  More information: David M. Goldberg et al, Text Mining Approaches for Postmarket Food Safety Surveillance Using Online Media, *Risk Analysis* (2020). DOI: 10.1111/risa.13651

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