

Health Misinformation in Search and Social Media

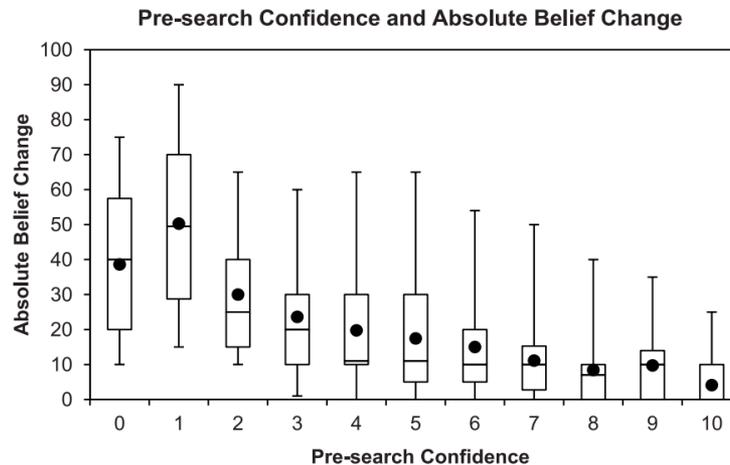
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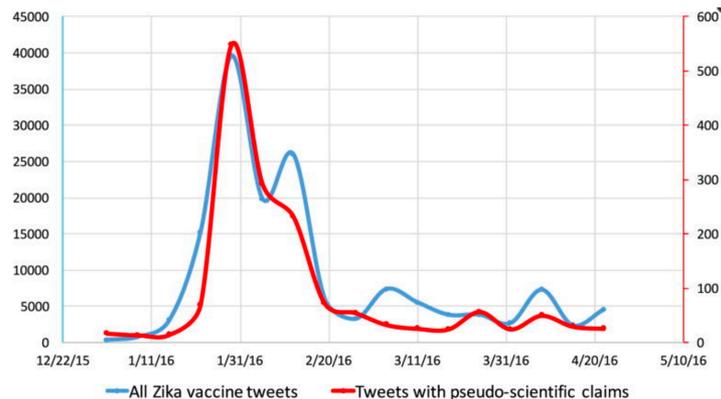
Problem

- How does online health misinformation in web search and social media effect people's health?
- Web search:
 - [White et al] found that web search engines have an uncontrolled bias towards medical treatments ``help''
 - People are biased towards ``help'' belief



Problem

- How does online health misinformation in web search and social media effect people's health?
- Social media:
 - [Dredze et al] analyzed misleading theories about Zika vaccination in Twitter using supervised machine learning techniques
 - Observed the effect of vaccine-skeptic communities over other users' vaccination opinion



Solution

- Use mixed-methods approach:
 1. Controlled laboratory studies:
 - Measure the influence and reasons of search results on people's health decisions
 2. Observational studies:
 - Analyze the effect of health misinformation in social media on people's behavior

Progress

1. *The Positive and Negative Influence of Search Results on People's Decisions about the Efficacy of Medical Treatments (ICTIR'17)*
 - Measure the influence of health misinformation in search results about 10 medical treatments on people's decisions (60 participants)

Result Bias	Correct rate	Harmful rate
Incorrect	23	38
Control	43	20
Correct	64.5	0.1

Table 1: user study main results (%)

Progress

2. Tracking Zika Health Misinformation on Twitter (IEEE ICHI'17)

- Understand the behavior of rumor-related topics in social media
- Can we automatically detect tweets containing rumors about a health condition?

Plan

1. More controlled laboratory studies
 - Investigate influence of readability/source reliability/personal relevance/ sentiment (hope vs. fear) on people health treatment decisions
 - Better user studies with people having experience with medical conditions
2. Understand rumor susceptible cohorts behavior
 - Online behavior can be measured from platform signals (retweets, shares, etc.). However, it is cheap!
 - Offline behavior is hard!