Policy and Educational Interventions to Address COVID-19 Vaccine Misinformation on Social Media

Lorien Abroms, ScD
Professor
Milken Institute School of Public Health
George Washington University
1. What structures shape environment?
2. What policies govern their presence or absence?
3. How can we use these structures to reach people with messages?
Public Health Lens: The social media environment
Structures of social media

- Content on
  - Newsfeed
  - Groups/Pages
  - Ads
  - Search
- Community Guidelines or the rules about what content is allowed
- Algorithms that shape how the content surfaces
Social Media structures pattern exposure to health (mis)information

- Learn about a health topic
- Learn about norms and other people's opinion of topic (e.g. and whether friends and family are vaccinating)
- Engage with health programming (e.g. see ads; use an app to find a nearby vaccination center)
3 Key Health Promotion Questions: Social Media & Covid-19 Vaccination

(1) What are the structures in the environment related to health information/misinformation? (study 1)

(2) Can platform’s own informational policies make the platforms more health promoting? (study 2)

(3) Can we use platforms effectively for health education programs? (study 3)
Study 1: What are the structures in the environment related to health information/misinformation?

- Do social media platforms (SMP) prohibit COVID-19 misinformation?
- What types of actions do they take to address COVID-19 misinformation? Promote good information?

Methods & Summary of findings

- Reviewed press releases of leading SMPs: Facebook, YouTube, Twitter, Instagram, Reddit, Snapchat, LinkedIn, TikTok, Tumblr, Twitch, Messenger, WhatsApp
- The majority (8/12) prohibited COVID-19 misinformation
  - 4 SMPs had an independent COVID-19 misinformation policy
Actions to address misinformation

Soft Moderation
- Decreasing visibility and spread of misleading content (8/12)
- Labels, warnings, notifications, links (7/12)
- Advertising restrictions (7/12)

Hard Moderation
- Content removal (8/12)
- Temporary or permanent account bans (7/12)
Actions to promote access to credible information

- Information curation (9/12)
- Labels, banners and links (8/12)
- Q&As with public health experts (7/12)
- Health promotion and communication campaigns (6/12)
- Ad credits to government and public health organizations (6/12)
- Increasing visibility of authoritative content (5/12)

Summary

- Most banned Covid-19 misinformation
- Most stated that would alter environment to address misinformation & promote good health information
- Key questions remain about implementation and efficacy, relative efficacy of different interventions

Study 2: Can platform’s own informational policies make the platforms more health promoting

- **Facebook introduced a series of policies November-Jan, 2020-21**
  - Policy aimed at “hard measures”
    - Remove anti-vaxx content in groups and pages and Covid-19 Misinformation
    - Based on database of false statements about COVID-19/Vaccine
  - Can Facebook control vaccine misinformation?

Methods

- Identified public groups and pages on FB, labeled as pro- or anti-vaxx
- Used Crowdtangle to extract their posts before and after the policy announcement
- Monitor # of posts and # of engagements over time
Fig. 1. Weekly posts and engagement counts for anti-vaccine and pro-vaccine assets. Dashed lines have been fit to data from the pre-policy period and are projected forward to the end of the post-policy period. Solid lines indicate average weekly post volumes for data in the post-policy period. All linear fits have been applied after applying a logarithmic transform.
Summary

- Social media companies can take measures to limit anti-vaccine content by reducing their reach and visibility.
- Content rebounded after removal
- May need external enforcement and not rely on self-regulation
Study 3: Can we use platforms effectively for health education programs?

Can joining a vaccine educational group about the COVID-19 vaccine improve intentions to vaccinate among the unvaccinated?

• Private group; posts show up in feed
• 2 posts/day about threat COVID-19, safety/efficacy of vaccines
• Weekly polls
• Moderator to answer questions daily
• Duration of 4 weeks
• Group size W1=195;W2=66
• Posting disabled in W2
• Spring 2022
1. Express empathy & civility
   - “Thank you for your comment”
   - “That’s a great question”

2. Answer questions

3. End with summary

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**Example response**

Great question, thanks for asking.

Different people’s immune systems may have different reactions. For some people, the immune system doesn’t respond to the infection, so no antibodies are produced. Other people produce antibodies that might target a specific variant but not all strains of COVID.

The bottom line is that COVID infection is no guarantee of immunity.
• Recruited unvaccinated in 2 waves (Jan 17 - Feb 18; Feb 15 - Mar 13, 2022)
• N=508
COVID-19 Information Center
Follow for updates and notifications.

News
- The New York Times • 11 hrs
  Covid, Flu, RSV: Hospitalizations Rise as Wave of Viruses Hits New York
- NPR • Yesterday
  Why pediatricians are worried about the end of the federal COVID emergency

Leading health organizations
- Fairfax County Health Department
  Government organization
  Follow
  Visit website
- Virginia Department of Health
  Government organization
  Follow
  Visit website
- U.S. Department of Health and Human Services
  Government organization
  Follow
  Visit website
- National Institutes of Health (NIH)
  Government organization
  Follow
  Visit website
- CDC
  Government organization
  Follow
  Visit website

What to know about COVID-19 booster shots
- The Wall Street Journal
  October 25 at 4:30 PM
  President Biden received the new bivalent Covid-19 booster shot, as the administration tries to step up its campaign to encourage more
- The New York Times
  October 24 at 3:10 PM
  The CDC greenlit new booster shots that target the latest version of the Omicron variant, an immune response before gathering for
Results: Sample (N=508, Jan-March 2021)

- Mean age: 37 years
- 74% female
- 80% white
- 78% completed at least some college
- Political Affiliation
  - 37% Republican
  - 36% Independent
  - 21% Democrat

76.7% of participants were satisfied with the group.

59% of participants engaged in at least one form during the 4-week intervention:
- 6.49 (SD=15.42) emoji reactions
- 4.12 (SD=12.48) comments
- 1.48 (SD=2.21) poll votes
- 0.19 (SD=0.67) posts
Results

- **Vaccine Uptake** was higher: 19 (7.2%) in intervention vs. 10 (4.7%) in control (NS)

- Participants in the intervention were **1.4x more likely to get vaccinated or improve their intentions to get vaccinated** than participants in the control group (95% CI = 1.02, 1.95; P = .03)

Discussion

- Private Moderated Facebook groups
  - Were feasible with unvaccinated 2 yrs into pandemic and with a politicized topic
  - Majority satisfied with the experience
  - Increased intentions to vaccinate
- Challenges: how address concerns and be “balanced”, deal with unruly group members, keep content from being interesting
- Moderation was very time consuming
- Future studies: group size, framing of messaging, group rules (e.g. posting)

Conclusions

• Social media present opportunity for policy and educational interventions
  – Internal company driven policy changes have been largely ineffective
  – May need outside regulation for misinformation and other harms

• Private Facebook groups may represent a promising educational strategy but may not scale
Challenges of social media

– Platforms are not liable for what is said on their platform; therefore can claim to self-monitor and manage

– Have community guidelines but not held accountable if don’t enforce

– Algorithms that promote misinformation (or downgrade) are not public

– Social interactions/communications are mostly not public, making evaluation increasingly difficult (e.g. Crowdtangle)
Remaining content became more, not less, misinformative

- especially misinformation promoting stories about COVID deaths
- And calling for political action

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Summary

• Important understand social media platform structures around health misinformation and their effects
  – Lots to learn quickly
  – Need consider for AI

• Future work to consider best interventions through policy and education
Educational efforts to promote vaccination on social media

- Outreach with ads to unvaccinated
- Media literacy training
- Get health care workers onto social media
- Provide educational groups about vaccination
Group rules from the admin

1. Be kind and courteous
   We're all in this together to create a welcoming environment. Let's treat everyone with respect. Healthy debates are natural, but kindness is required.

2. No hate speech or bullying
   Make sure that everyone feels safe. Bullying of any kind isn't allowed, and degrading comments about things such as race, religion, culture, sexual orientation, gender or identity will not be tolerated.

3. Respect everyone's privacy
   Being part of this group requires mutual trust. Authentic, expressive discussions make groups great, but may also be sensitive and private. What's shared in the group should stay in the group.

4. Don't spread misinformation
   There's a lot of information out there, and not all of it is accurate. Please refrain from sharing information from unverified sources, such as individual Facebook accounts, other social media accounts, and blog posts. Moderators will remove misleading or unverified content. Group members who repeatedly share misleading information will be removed.
Welcome to the group!

This is a non-judgemental space

We want to hear from you
What did you like about the Facebook group? (4-weeks; n=216)

- Useful information: 27.7%
  - "I liked that there was actually good information present."

- Friendly: 16.1%
  - "The page truly felt like a safe space. People from both sides were able to post, comment and ask questions without being attacked."

- A safe place: 13.8%

- Diverse: 12.5%
  - "The responses from moderators are scientific and fact based and unbiased."

- Nothing: 9.4%
  - "The page had diverse participants, so it felt like a number of viewpoints were represented."

- General likes: 8.9%

- Scientific information: 6.3%

- Responsive moderators: 4.0%

- Similar others: 1.3%

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Wysota et al. *Health Promotion & Practice*. under review
What did you not like about the Facebook group? (4-weeks; n=216)

- Too many vaccinated/disengaged: 0.95%
- Other members: rude: 1.4%
- Too one-sided: 4.3%
- Nothing: 3.3%
- Organization: 3.3%
- Content frequency: 3.3%
- Repetitive information: 3.8%
- Questions not addressed: 5.2%
- Not enough privacy: 7.1%
- Too cluttered: 31.9%
- 5.2%

Legitimate questions and concerns were not answered with nuance, the answer to everything was "get the shot."

"A bit cluttered."

"It didn't care for most of the people, a lot of them seem very delusional, rude, or completely unable to be open to new ideas or concepts."

"At times, it felt like there was a lot of "push" towards getting vaccinated."
Growing share of Americans say they use YouTube; Facebook remains one of the most widely used online platforms among U.S. adults

% of U.S. adults who say they ever use...

- YouTube: 81%
- Facebook: 69%
- Instagram: 40%
- Pinterest: 31%
- LinkedIn: 28%
- Snapchat: 25%
- Twitter: 23%
- WhatsApp: 23%
- TikTok: 21%
- Reddit: 18%
- Nextdoor: 13%

Note: Respondents who did not give an answer are not shown. Pre-2018 telephone poll data is not available for YouTube, Snapchat and WhatsApp; pre-2019 telephone poll data is not available for Reddit. Pre-2021 telephone poll data is not available for TikTok. Trend data is not available for Nextdoor.


“Social Media Use in 2021”

PEW RESEARCH CENTER
Seven-in-ten Facebook users say they visit site daily

Among U.S. adults who say they use ..., % who use that site ...

<table>
<thead>
<tr>
<th>Platform</th>
<th>Several times a day</th>
<th>About once a day</th>
<th>Less frequently</th>
<th>NET Daily</th>
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Note: Respondents who did not give an answer are not shown. “Less frequently” category includes users who visit these sites a few times a week, every few weeks or less often.


“Social Media Use in 2021”

PEW RESEARCH CENTER