

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

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Bright Institute Webinar
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Public Health Lens: The built environment

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

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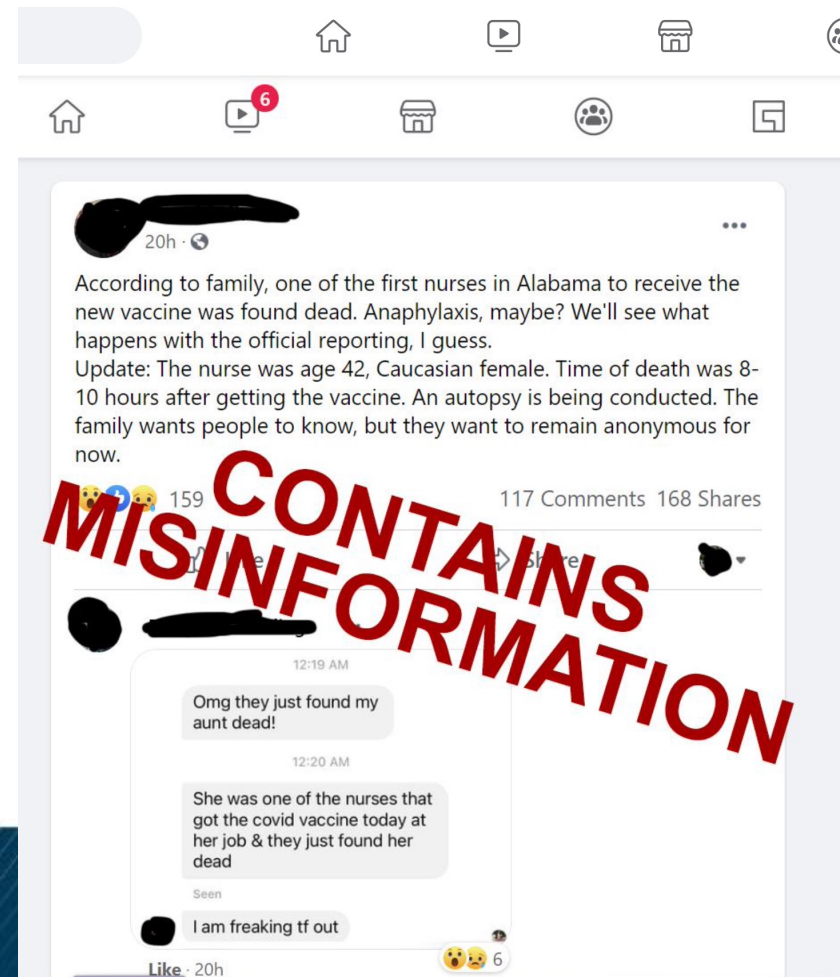
WASHINGTON, DC

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?**

Krishnan, N., Gu, J., Tromble, R., & Abrams, L. C. (2021). Research note: Examining how various social media platforms have responded to COVID-19 misinformation. *Harvard Kennedy School (HKS) Misinformation Review*, 2(6). December 15th, 2021

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

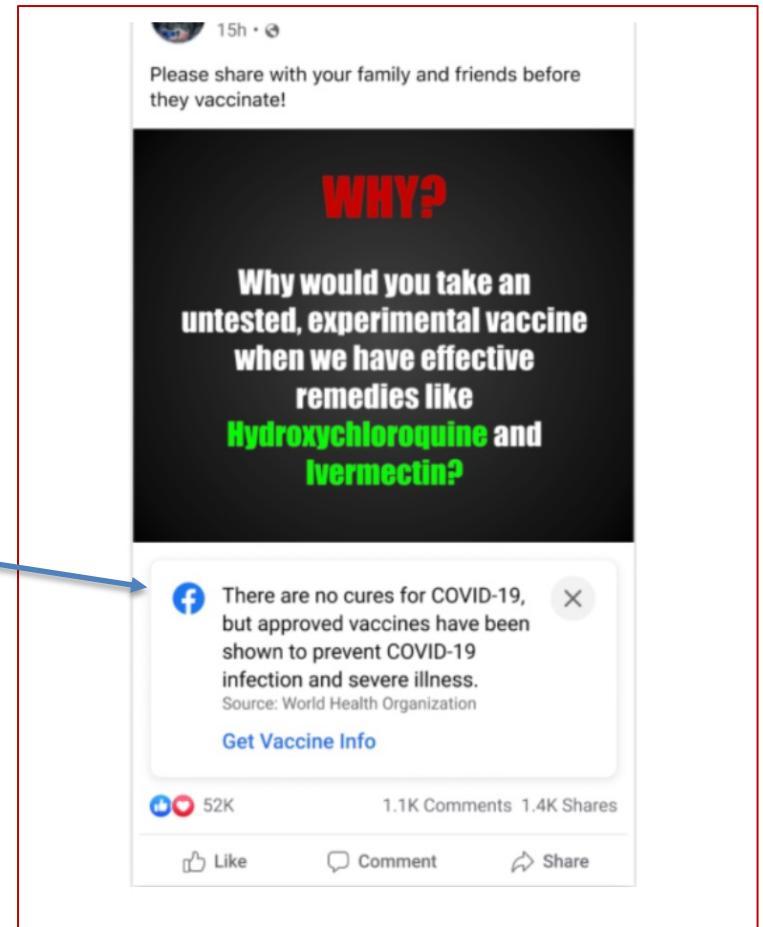
Actions to address misinformation

Soft Moderation

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

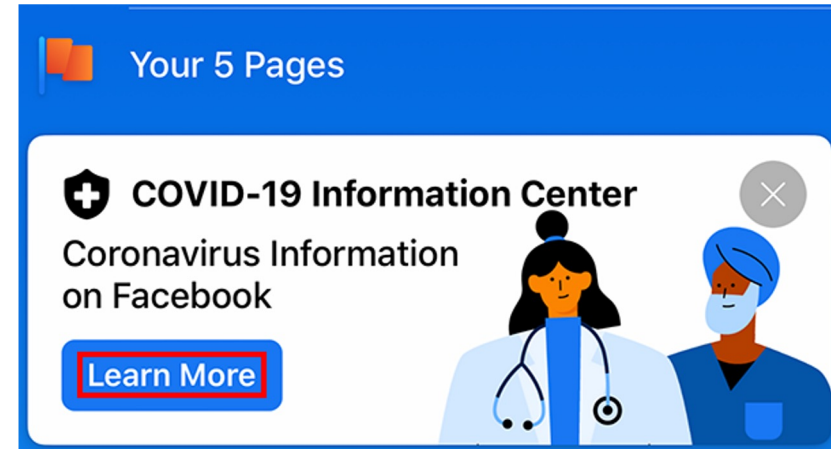
Hard Moderation

- 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)



Krishnan, N., Gu, J., Tromble, R., & Abrams, L. C. (2021). Research note: Examining how various social media platforms have responded to COVID-19 misinformation. *Harvard Kennedy School (HKS) Misinformation Review*, 2(6). December 15th, 2021

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

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Krishnan, N., Gu, J., Tromble, R., & Abrams, L. C. (2021). Research note: Examining how various social media platforms have responded to COVID-19 misinformation. *Harvard Kennedy School (HKS) Misinformation Review*, 2(6).
December 15th, 2021

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?

Broniatowski DA, Simons JR, Gu J, Jamison AM, Abrams LC. The efficacy of Facebook's vaccine misinformation policies and architecture during the COVID-19 pandemic. *Sci Adv.* 2023 Sep 15;9(37):eadh2132. doi: 10.1126/sciadv.adh2132.

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

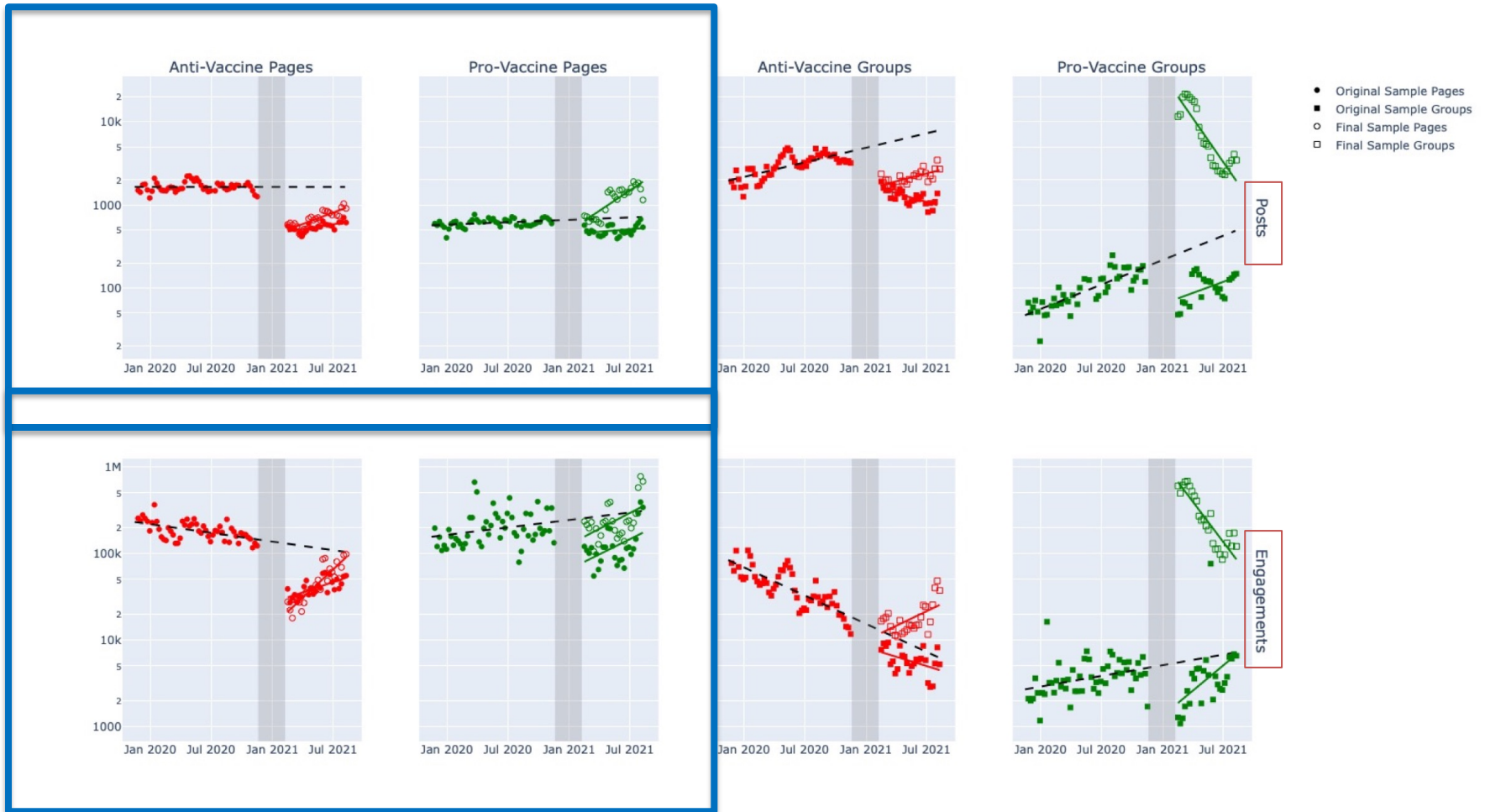


Fig. 1. Weekly posts and engagement counts for anti-vaccine and pro-vaccine assets. Dashed lines have been fit to data from the pre-policy period and are projected forward to the end of the post-policy period. Solid lines indicate average weekly post volumes for data in the post-policy period. All linear 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?

Abroms LC, Koban D, Krishnan N, Napolitano M, Simmens S, Caskey B, Wu TC, Broniatowski DA. Empathic Engagement With the COVID-19 Vaccine Hesitant in Private Facebook Groups: A Randomized Trial. *Health Educ Behav.* 2023 Jul

About Vaccines

Group by GW Health Communication Corps

About vaccines



Discussion Featured Members Media Files Reels

Write something...

Anonymous Post

Photo/video

GW Health Communication Corps shared a link.
Admin · March 8 ·

Some of you expressed concerns about potential long-term side effects of COVID vaccines.

Long-term side effects of COVID vaccines are highly unlikely for several reasons:

- Vaccines only remain in your body for around 72 hours
- Because of this, side effects (if any), usually show up within the first 2 months of vaccination. This has been the case for all vaccines that we routinely use now, such as the polio, MMR and yellow fever vaccines. There is no reason to believe that COVID vaccines will behave differently
- COVID trials were among the largest vaccine trials ever conducted. Over 50% of the world's population has been safely vaccinated. The vaccines have now been around for more than a year and have not shown major safety concerns.

To learn more, click on the link:

https://www.youtube.com/watch?v=pRiMf_CChZs



About

This group is designed to facilitate conversations about COVID-19 vaccines in a non-judgmental space.

Private

Only members can see who's in the group and what they post.

Visible

Anyone can find this group.

Learn more

GW Health Communication Corps created a poll.
Admin · February 25 ·

It's ok to have questions or concerns about the COVID-19 vaccine. What's the main reason you haven't gotten the vaccine yet?

Choose all that apply or enter your own response. Feel free to ask questions or expand on your concerns in the comments. We're here to answer your questions!

- | | |
|---|-----|
| <input type="checkbox"/> Not sure it's effective | 0% |
| <input type="checkbox"/> Not sure it's safe | 30% |
| <input type="checkbox"/> Don't think COVID will affect me | 0% |
| <input type="checkbox"/> Added by [redacted] General Distrust | 61% |

- 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

Moderation Protocols

1. Express empathy & civility

- “Thank you for your comment”
- “That’s a great question”

2. Answer questions

3. End with summary

Why get vaccine if had COVID?

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

I should make a meme of me walking happily through a crowded store with no mask “getting COVID to get immunity” and then a picture of the lottery draw from Hunger Games “ getting vaccinated to get immunity.”

Like Reply 1y

GW Health Communication Corps **Author**
If you do, we think it should be the other way around! Getting COVID is the risky way to get immunity. Immunity from infection also doesn't last as long. We can see this from how large gaps in hospitalizations and deaths between unvaccinated and vaccinated people are, even though almost 2/3rds of Americans have been infected. Vaccination is the safest and most effective way of getting immunity.

Like Reply 1y

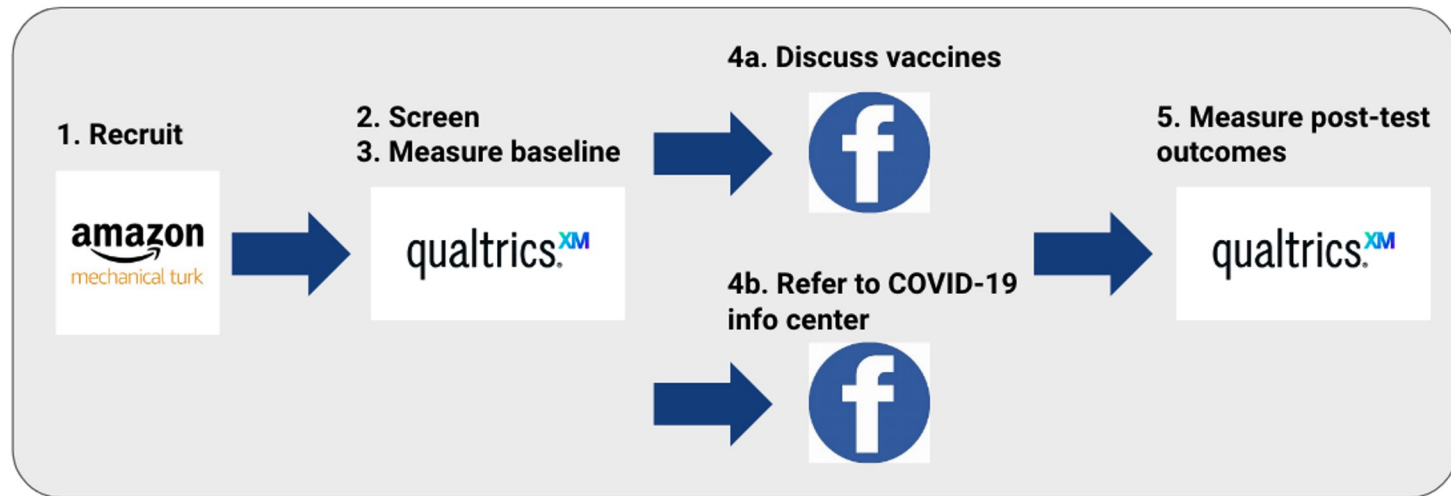
Well, I've had COVID. I did very little to prevent getting it and had a LOT of exposure. It took until Sept 2021, when I shared an inhaler with a (unknowingly) COVID positive friend for me to catch it. It was like a bad cold for me and her. My kids and husband quarantined with me and had such mild symptoms that they never felt sick.

You mentioned that almost 2/3 of Americans have been infected. Did you ever think maybe that's why you can't convince the unvaccinated to risk the vaccine? We've already had COVID. We know how it affects us. We aren't afraid of getting it again. Most of the people that never caught it or that had serious reactions got vaccinated. But the rest of us? We're happy with how our immune systems work.

Like Reply 1y

GW Health Communication Corps **Author**
Thank you for sharing your experience. We are glad to hear that you and your family are safe and healthy! Unfortunately, there is strong evidence that COVID can reinfect people and that it can cause long-term harm. It may be that you were not badly affected the first time, but that is no guarantee that a future infection will be mild. People who remain unvaccinated can both get sick again and spread the disease to others.

Research Design



- 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.

 Following





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




 Bloomberg
How Ho
Prepari

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 the latest version of the Omicron variant. an immune response before gathering fo

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National Institutes of Health (NIH) 
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CDC 
Government organization

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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

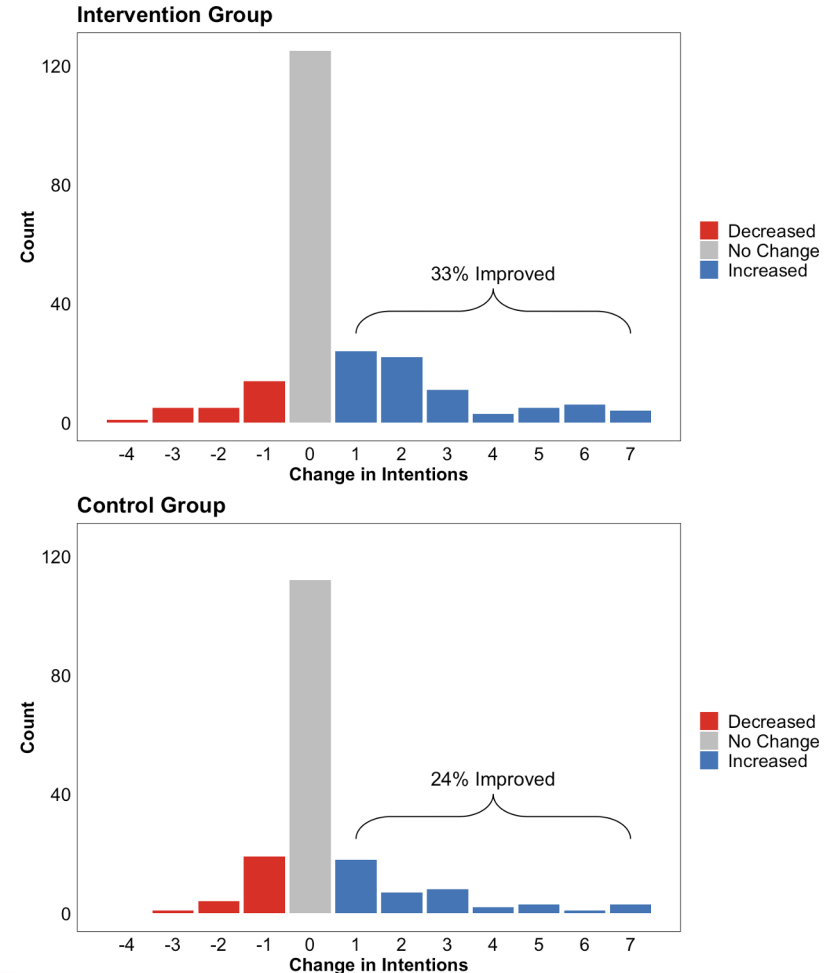
Abroms LC, Koban D, Krishnan N, Napolitano M, Simmens S, Caskey B, Wu TC, Broniatowski DA.
Empathic Engagement With the COVID-19 Vaccine Hesitant in Private Facebook Groups: A Randomized
Trial. Health Educ Behav. 2023 Jul

Engagement of Intervention Group

- 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)



Abroms LC, Koban D, Krishnan N, Napolitano M, Simmens S, Caskey B, Wu TC, Broniatowski DA. Empathic Engagement With the COVID-19 Vaccine Hesitant in Private Facebook Groups: A Randomized Trial. Health Educ Behav. 2023 Jul

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)

Abroms LC, Koban D, Krishnan N, Napolitano M, Simmens S, Caskey B, Wu TC, Broniatowski DA. Empathic Engagement With the COVID-19 Vaccine Hesitant in Private Facebook Groups: A Randomized Trial. Health Educ Behav. 2023 Jul

Conclusions

- Social media present opportunity for policy and educational interventions
 - Internal company driven policy changes have been largely ineffective
 - May needs outside regulation for misinformation and other harms
- Private Facebook groups may represent a promising educational strategy but may not scale

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A decorative graphic at the bottom of the slide consisting of several overlapping, semi-transparent blue geometric shapes, primarily parallelograms and trapezoids, arranged in a rhythmic, staggered pattern.

Challenges of social media

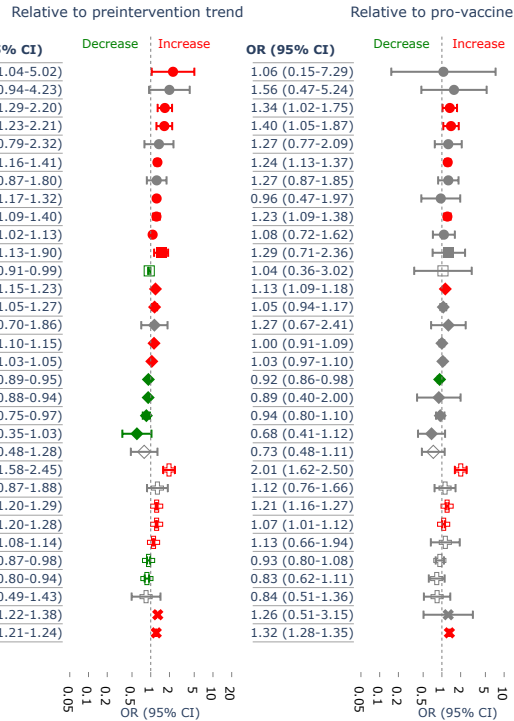
- Platforms are not liable for what is said on their platform; therefore can claim to self-monitor and manage
- Have community guidelines but not held accountable if don't enforce
- Algorithms that promote misinformation (or downgrade) are not public
- Social interactions/communications are mostly not public, making evaluation increasingly difficult (e.g. Crowdtangle)

Remaining content became more, not less, misinformative

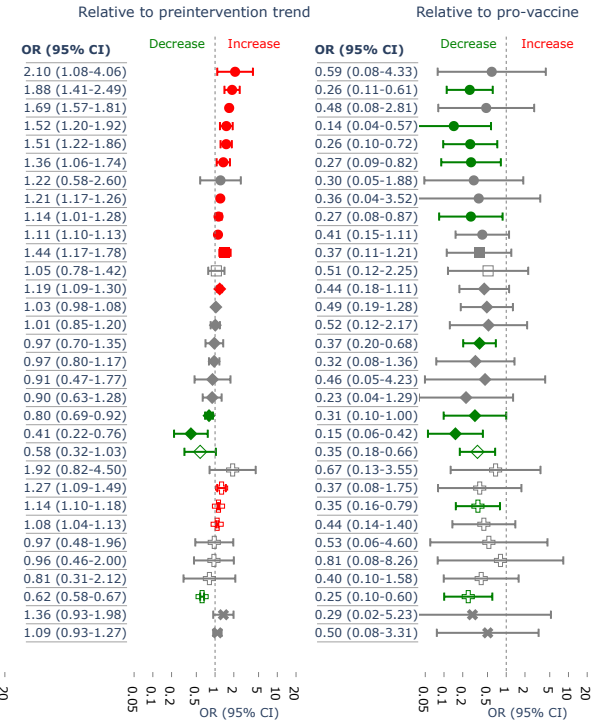
- especially misinformation promoting stories about COVID deaths
- And calling for political action

Topic	OR (95% CI)
Vaccine-preventable illness	2.28 (1.04-5.02)
HPV vaccine	1.99 (0.94-4.23)
Childrens' immunity	1.69 (1.29-2.20)
COVID vaccine adverse reactions	1.65 (1.23-2.21)
Vaccine safety	1.36 (0.79-2.32)
Toxins & immunity	1.28 (1.16-1.41)
Flu shot	1.25 (0.87-1.80)
Autism	1.24 (1.17-1.32)
Vaccination or death of family at home	1.24 (1.09-1.40)
Unexplained symptoms	1.07 (1.02-1.13)
Pregnancy & fetal tissues	1.47 (1.13-1.90)
Religion	0.95 (0.91-0.99)
Medical expert advice	1.19 (1.15-1.23)
"Big Pharma"	1.15 (1.05-1.27)
Public claims from doctors and nurses	1.14 (0.70-1.86)
Conspiracies & clinics	1.13 (1.10-1.15)
(Dis)trust of science	1.04 (1.03-1.05)
"The truth"	0.92 (0.89-0.95)
Conspiracy theorists	0.91 (0.88-0.94)
COVID origins & spread	0.85 (0.75-0.97)
US elections	0.60 (0.35-1.03)
British & Canadian "breaking news"	0.78 (0.48-1.28)
Schools	1.97 (1.58-2.45)
Mandatory vaccination	1.28 (0.87-1.88)
Vaccine mandates	1.25 (1.20-1.29)
Legal action	1.24 (1.20-1.28)
Social media content bans	1.11 (1.08-1.14)
Freedom	0.92 (0.87-0.98)
Rallies & protests	0.87 (0.80-0.94)
Australian government	0.84 (0.49-1.43)
Avoiding and removing toxins	1.30 (1.22-1.38)
Homeopathy	1.23 (1.21-1.24)

Anti-Vaccine Pages



Anti-Vaccine Groups



Potentially Prohibited Under Facebook's Policies	Allowed Under Facebook's Policies
● Safety and effectiveness	□ Morality, religion, and ideology
■ Morality, religion, and ideology	◇ Conspiracy theories/search for truth
◆ Conspiracy theories/search for truth	⊕ Civil liberties
✕ Alternative medicine	

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



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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

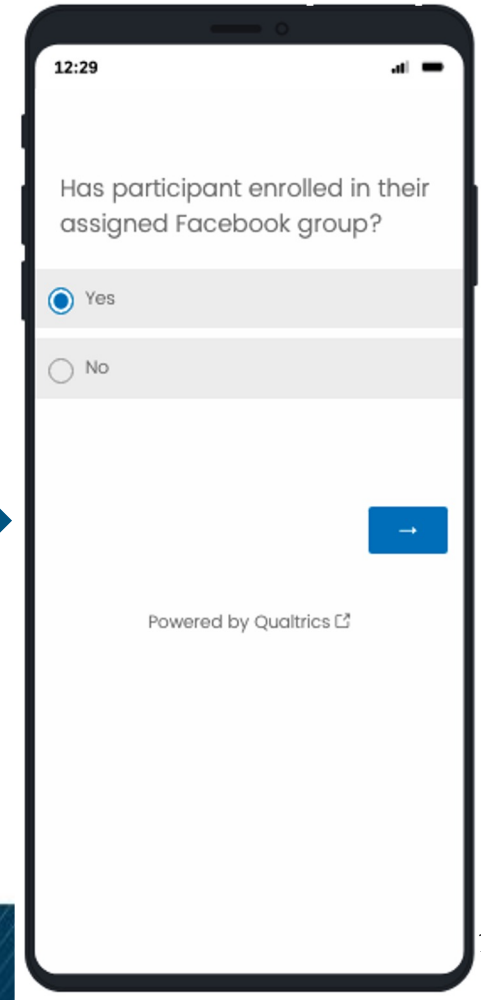
Make sure that everyone feels safe. Bullying of any kind isn't allowed, and degrading comments about things such as race, religion, culture, sexual orientation, gender or identity will not be tolerated.

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.




The image shows a screenshot of a Facebook post from the 'GW Health Communication Corps' group. The post is from an 'Admin' and is dated 'January 6'. The text of the post is a warm welcome to the group, describing it as a non-judgmental space for people interested in COVID-19 vaccines. Below the text is a link to the COVID-19 Information Center for vaccine resources. The post has 14 likes and 44 comments, and it has been seen by 99 people.

GW Health Communication Corps
Admin · January 6 · 🌐

Welcome to the group! 🙌 We are the GW Health Communication Corps, a public health group from George Washington University. We are so glad that you are all here and are looking forward to having some great conversations! This group is a non-judgmental space for people that are curious about COVID-19 vaccines to learn more, share concerns, and have questions answered. Our goal is to help you have accurate information, so you can make an informed decision. To start off, we'd love you to introduce yourself to the group. Let us know your name and where you're currently living.

 Visit the COVID-19 Information Center for vaccine resources.
[Get Vaccine Info](#)

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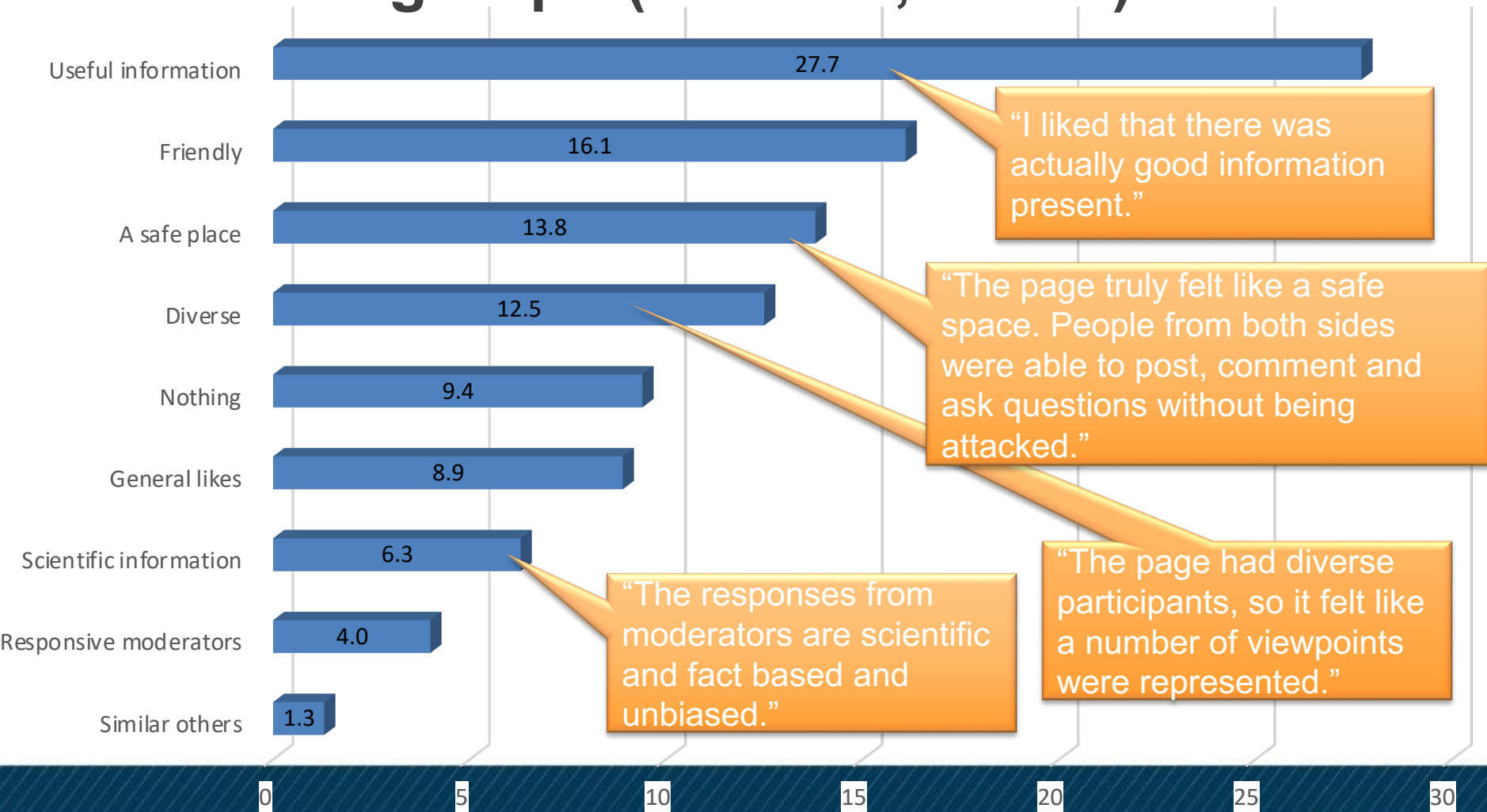
44 Comments Seen by 99

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)



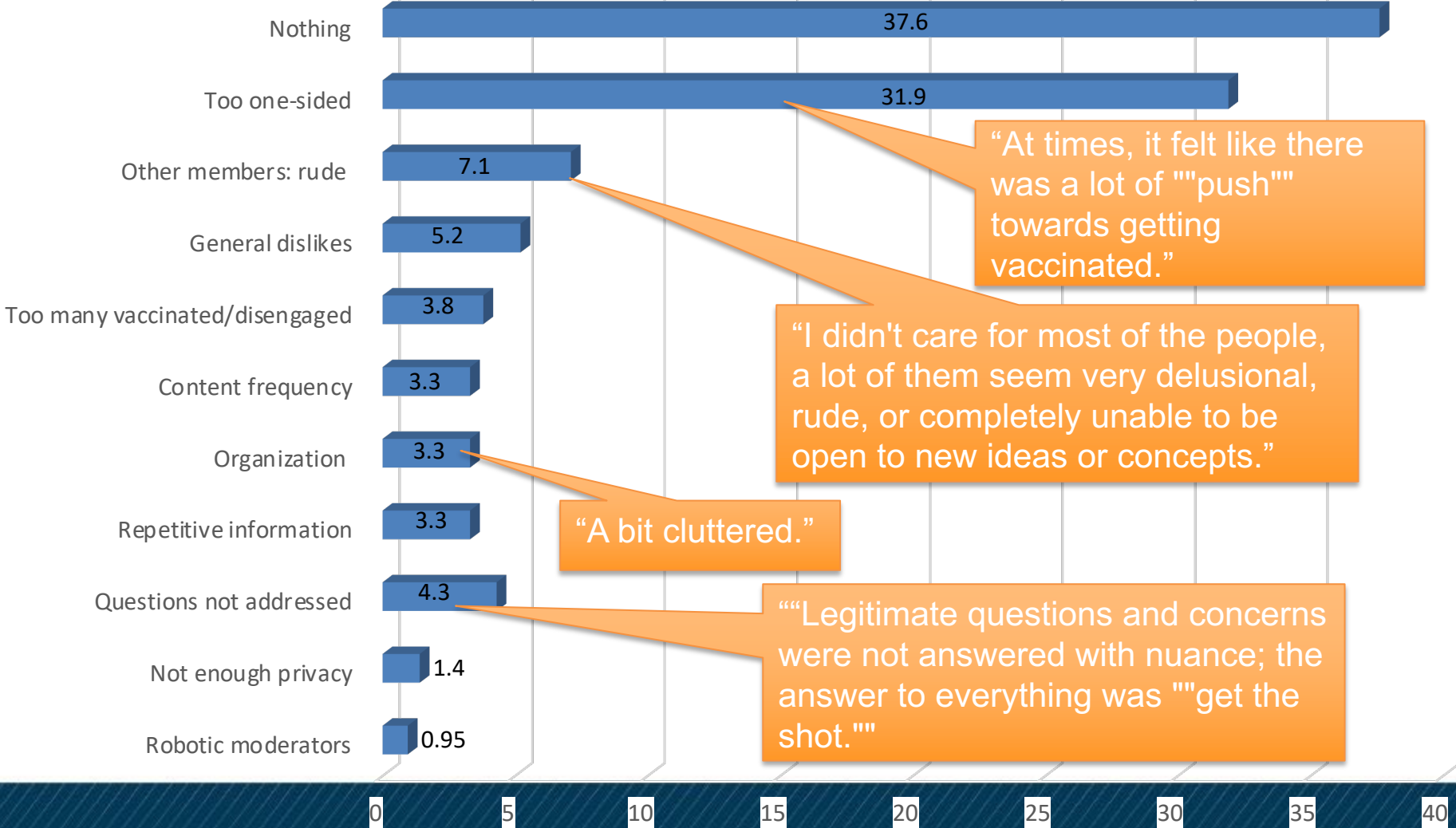
"I liked that there was actually good information present."

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

"The responses from moderators are scientific and fact based and unbiased."

"The page had diverse participants, so it felt like a number of viewpoints were represented."

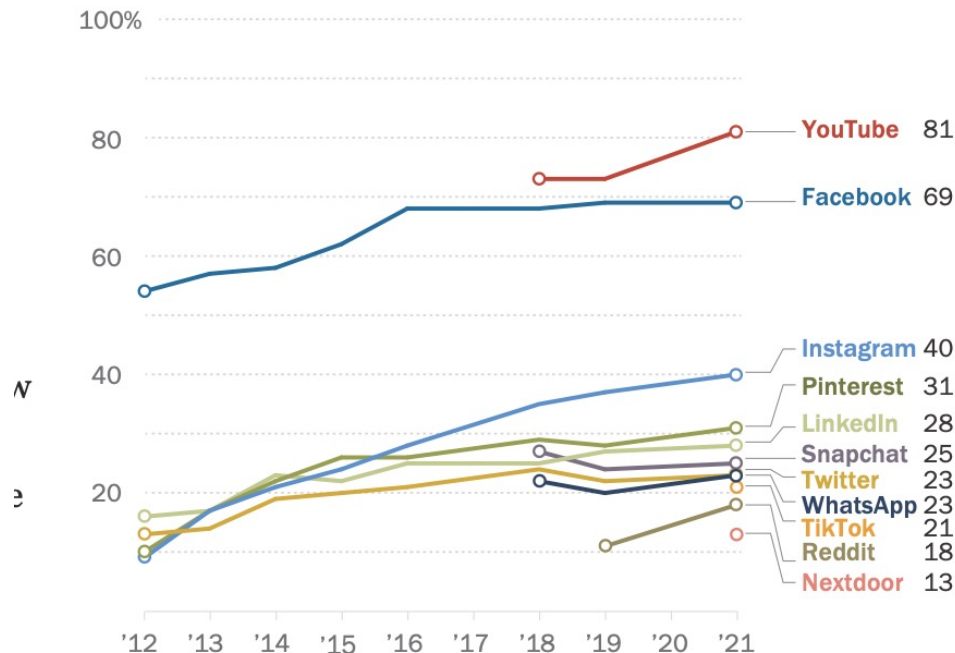
What did you *not* like about the Facebook group? (4-weeks; n=216)



US Adults on Social Media

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 ...



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.

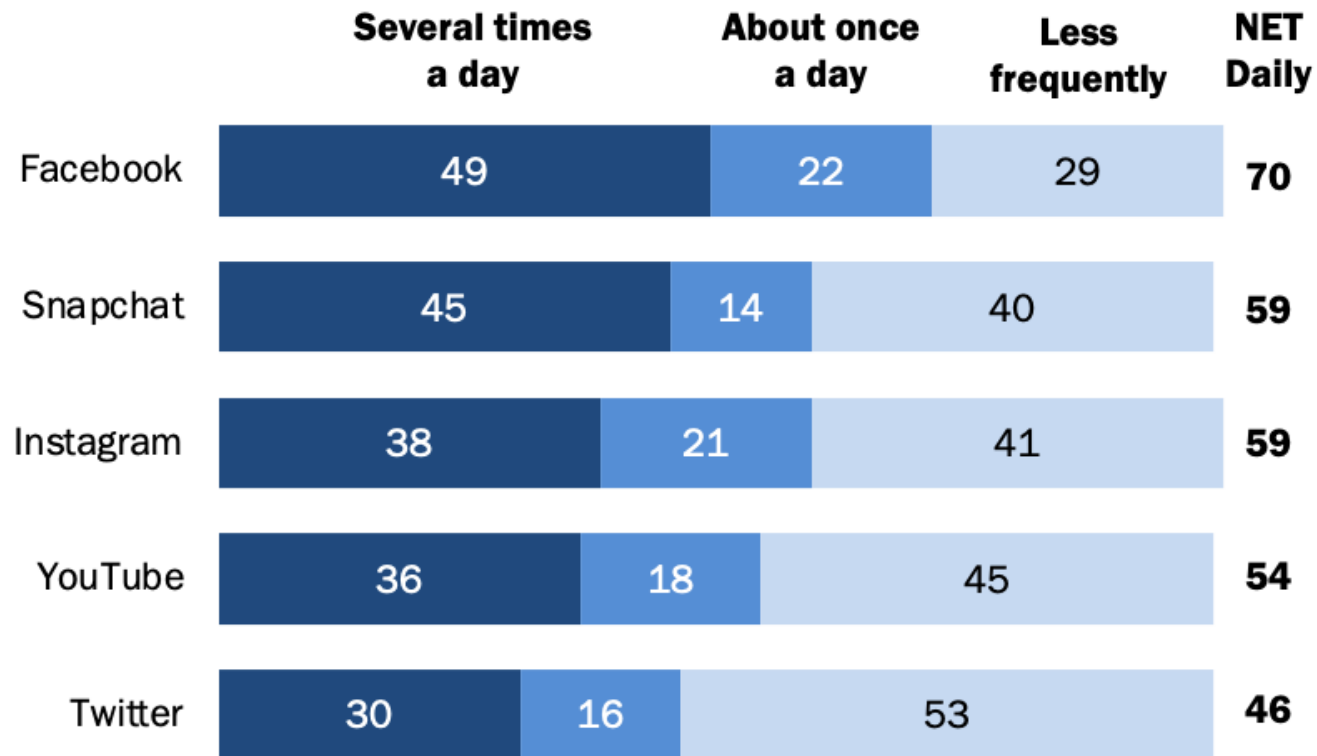
Source: Survey of U.S. adults conducted Jan. 25-Feb. 8, 2021.

"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 ...



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.

Source: Survey of U.S. adults conducted Jan. 25-Feb. 8, 2021.

“Social Media Use in 2021”