Misinformation Versus Factchecks: Comparative Analysis of COVID-19 Vaccine-related Retweet Networks

Merriah Croston, MPH, Jenine Harris, PhD INSNA Sunbelt Conference July 14, 2022





Acknowledgment



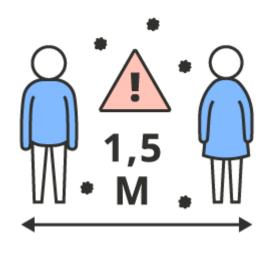
Thank you to the organizers of INSNA Sunbelt Conference for their generous scholarship support.



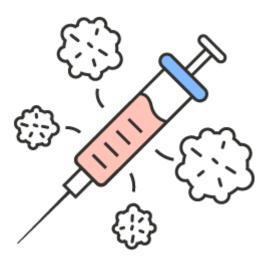
Health Misinformation on Social Media (SM)

Why do we care about health misinformation on social media?



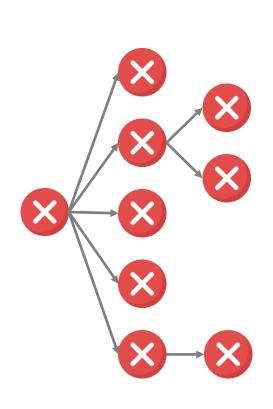


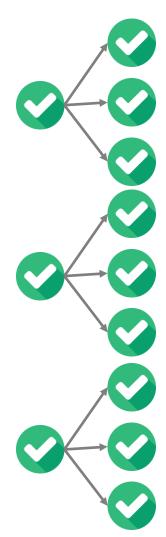




How prevalent is it? Scale, depth, speed?

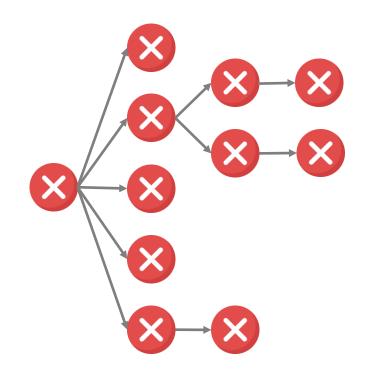






Does fact-checking work?





Graphene oxide case



STEW PETERS SHOW

BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED!

The Stew Peters Show

BY STEW PETERS SHOW JULY 5, 2021



STEW PETERS SHOW

DEADLY SHOTS! Former Pfizer Employee Confirms Poison in COVID 'Vaccine'

The Stew Peters Show

BY STEW PETERS SHOW JULY 28, 2021





Methods & Results

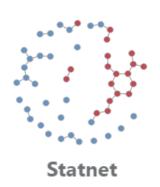
Data & network construction



- Twitter Academic Research API used to retrieve English-language tweets
- AcademicTwitter R package used to query v2 endpoints
 - June 1 November 30, 2021
 - 69 URLs (21 fact-check articles; 48 misinformation)
 - Original tweets, replies, quotes and retweets
- 13,566 unique tweets
- Directed networks constructed using igraph and statnet
 - Whole, fact-check, misinformation RT/quote networks
 - Isolates and loops excluded from network visualization and analysis
 - Unique user dyads by URL type



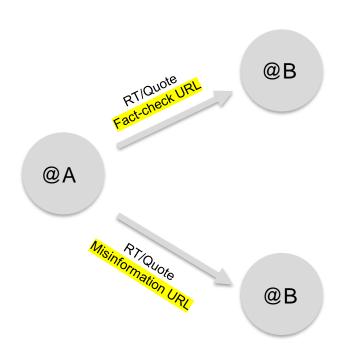




Data & network construction

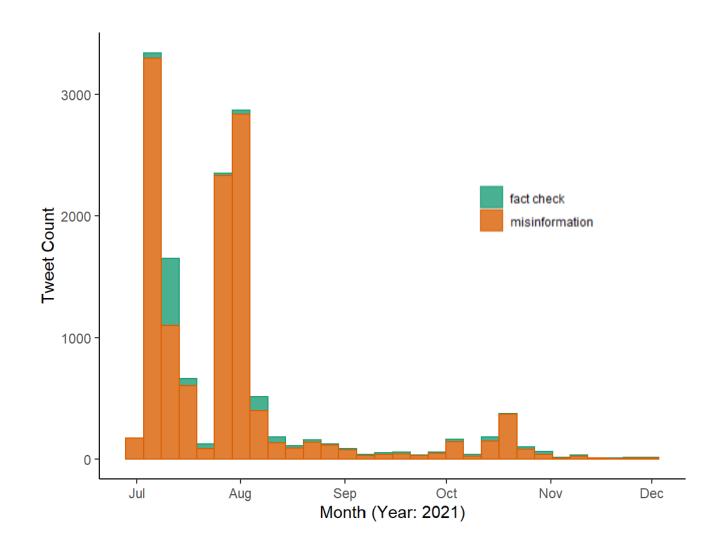


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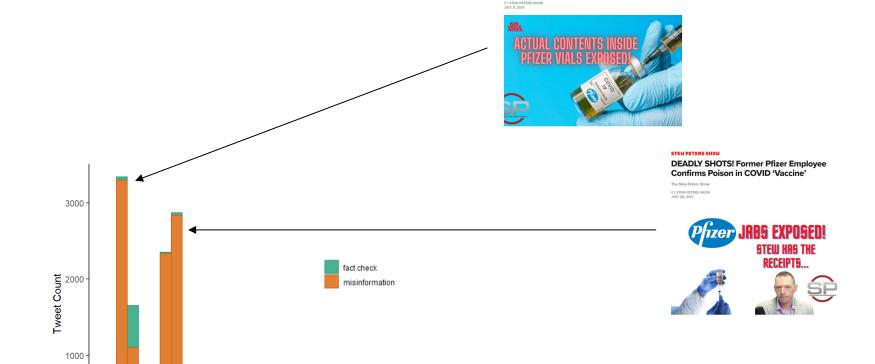
RQ1. Misinformation far more prevalent than fact-checks





RQ1. Misinformation far more prevalent than fact-checks





Dec

Nov

Month (Year: 2021)

BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED!

Research questions



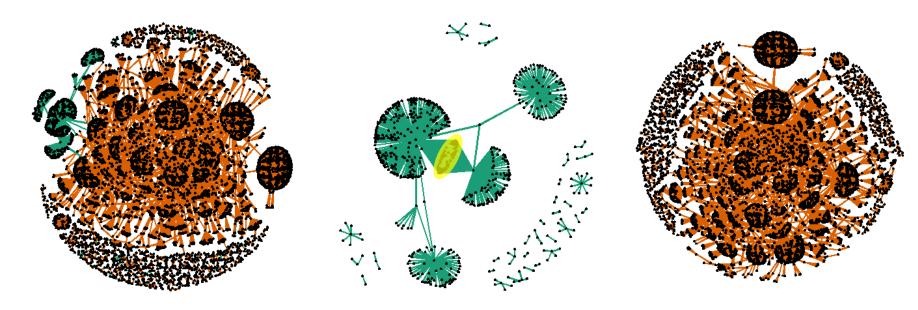
RQ1: How are the networks that form around fact-checks and misinformation structured?

RQ2: What information sources are most popular within these networks?

RQ3: Which network members are most influential?

RQ1. Misinformation network is larger in size & greater in complexity

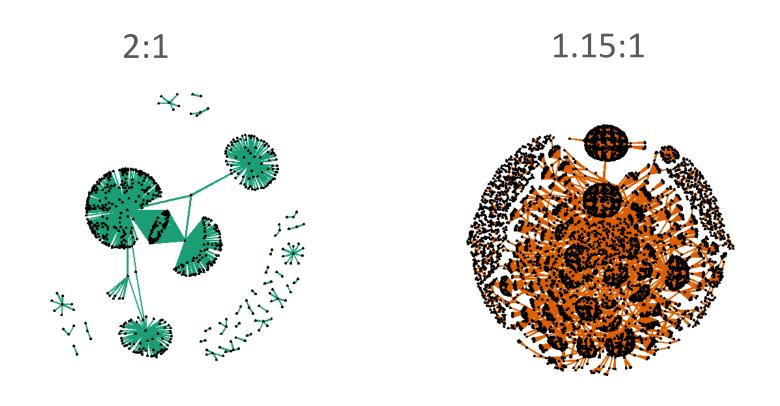




	Whole	Fact-check	Misinformation
Nodes	6,929	693	6,241
Ties	7,082	733	6,349
Density	1.48e-04	1.53e-03	1.63e-04
Out-degree centralization	0.08	0.49	0.09

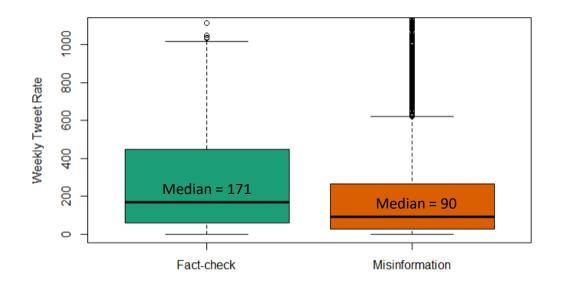
RQ1. Fact-check network has greater scale

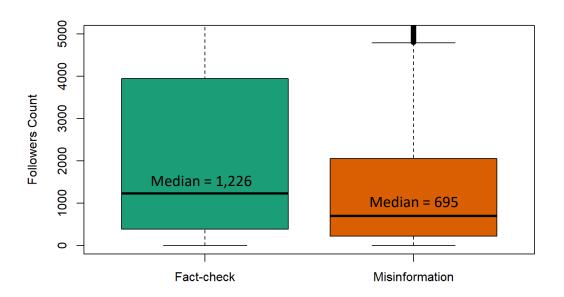






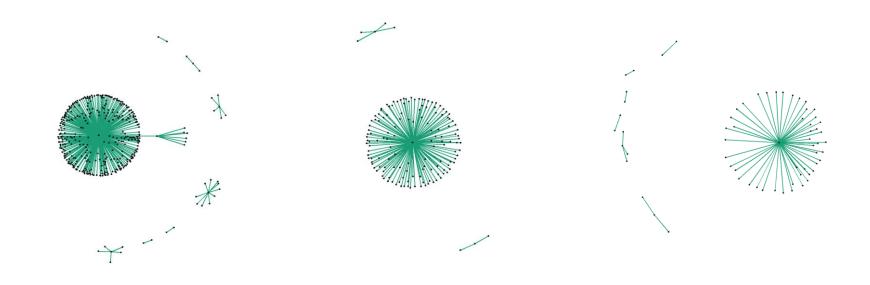






RQ2-3. Fact-checking organizations most influential in fact-check networks

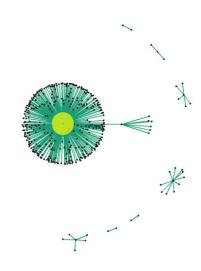




	PolitiFact	Lead Stories	Full Fact
Nodes	380	148	64
Ties	372	145	57

RQ2-3. PolitiFact network







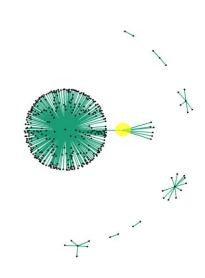
There's no evidence of graphene oxide that's "toxic" to the body in Pfizer's COVID-19 vaccine.

bit.ly/3wpquOM

3:34 PM · Jul 8, 2021 · TweetDeck

RQ2-3. PolitiFact network







Here's a related fact check by @PolitiFact published today:

No evidence of 'graphene oxide' that's 'toxic' in Pfizer COVID-19 vaccine



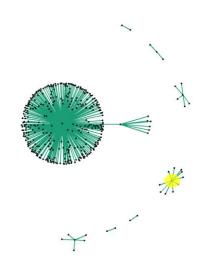
politifact.com

PolitiFact - No evidence of 'graphene oxide' that's 'toxic' in ... There's no evidence of graphene oxide that's "toxic" to the body in Pfizer's COVID-19 vaccine

12:23 PM · Jul 8, 2021 · Twitter for iPad

RQ2-3. PolitiFact network







Bad COVID-19 Takes @BadCOVID19Takes · Jul 9, 2021

Replying to @BadCOVID19Takes

Context: The video doesn't contain "proof," it's just Jane Ruby breathlessly describing a document that doesn't actually measure graphene oxide, while calling it "murder" and "genocide."

Bunk.



politifact.com

PolitiFact - No evidence of 'graphene oxide' that's ... There's no evidence of graphene oxide that's "toxic" to the body in Pfizer's COVID-19 vaccine

RQ2-3. Lead Stories network

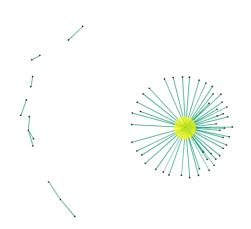






RQ2-3. Full Fact network



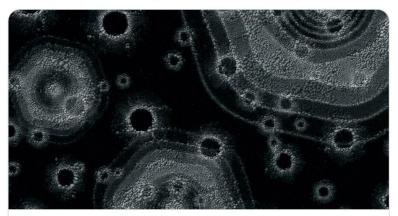




Full Fact 🐶 @FullFact · Aug 5, 2021

A post on social media says that the Covid-19 vaccines contain graphene oxide nanoparticles, amongst other false claims.

The Covid vaccines currently in use do not contain graphene oxide.

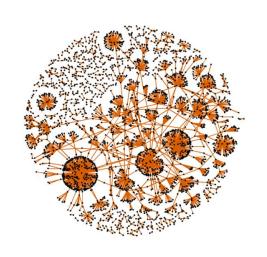


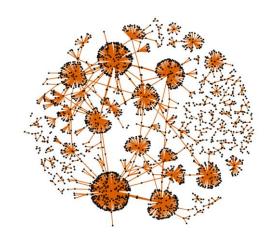
fullfact.org

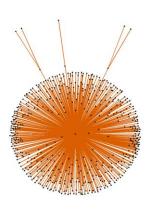
There is no graphene oxide in the Covid-19 vaccines - Full Fact
The nanoparticles used in some of the vaccines are lipid nanoparticles.
They are not made of graphene oxide.

RQ2-3. Individuals most influential in misinformation networks



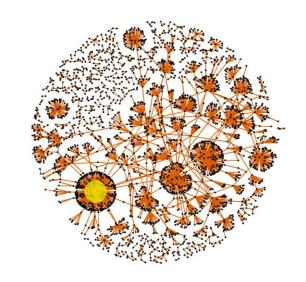






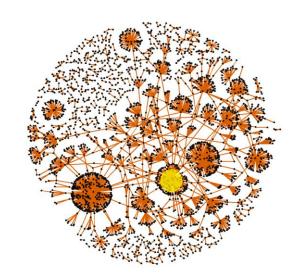
	clif (@clif_high)	Slappy K (@Slappy_Kincaid)	Truthjacobs3 (@truthjacobs3)		
Nodes	2,860	2,121	558		
Ties	2,726	2,055	558		





This Tweet is from a suspended account. Learn more







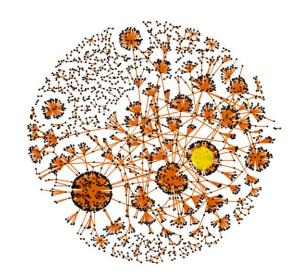
Been saying this a long time, even trying to explain the simplicity of "DO YOUR OWN RESEARCH" to NBC in an interview some time ago. WTP can't count on big media to tell the truth. We must dig, use skills to expose. People in industry must RISE, be brave.



rumble.com

DEADLY SHOTS! Former Pfizer Employee Confirms Poison in COVID 'Vaccine' EXCLUSIVE! Karen Kingston, a former Pfizer employee and current analyst for the pharmaceutical and medical device industries, came forward with ...







"creating an interface between humans and the internet"

full interview below

"How did I find this out"

@DrNoMask

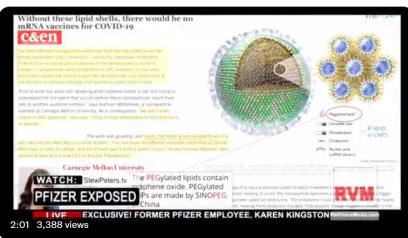
rumble.com/vkgdq7-deadly



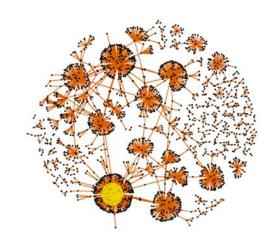
9:26 PM · Jul 28, 2021 · Twitter Web App

Full interview below

rumble.com/vkgdq7-deadly-...









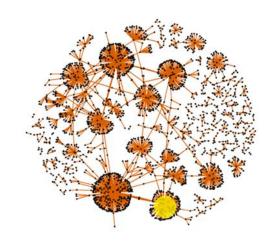
BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED!



rumble.com

BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED! Scientists have examined the Pfizer 'vaccine', and what they found was HORRIFIC...It's Poison! www.StewPeters.tv | www.DrJaneRuby.com





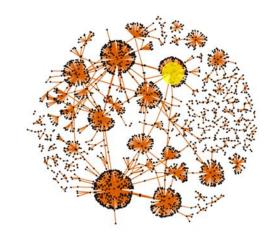


BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED!



7:45 PM · Jul 8, 2021 · Twitter for iPad



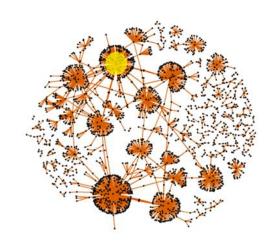




I strongly suggest you watch this and show it to anyone you know contemplating having the shot from hell.







It's not a vaccine Noearthnolife @towhee48992837

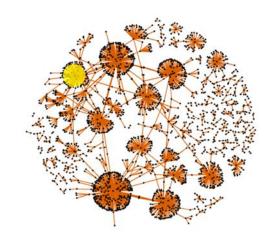
Replying to @AdamKaraNO

Take a staycation that you choose. Get the best food, plan some adventures close by. Spoil yourself. Don't communicate with anyone you don't want to. I'll staycation any day b4 the test or shot ... You see what's in it and on the swab??



1:45 PM · Jul 10, 2021 · Twitter for iPhone







I knew there was a reason my intuition told me not to go anywhere near these $\sqrt{}$



rumble.com

BREAKING DISCOVERY! The ACTUAL CONTENTS Inside Pfizer Vials EXPOSED!
Scientists have examined the Pfizer 'vaccine', and what they found was
HORRIFIC...It's Poison! www.StewPeters.tv | www.DrJaneRuby.com

RQ2-3. Tweet from truthjacobs3





BREAKING NEWS

Is 99% of ur 'vaccine' pure poison?

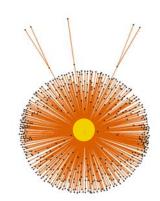
Dr. José Luis Sevillano claims up to 99% of 'vaccine' is GRAPHENE OXIDE

Its a toxin tht generates blood clotting & thrombi

Graphene hs bn detected in PCR swbs & face masks

#VaccineRollOutSA #CyrilMustResign #PhoenixMassacre





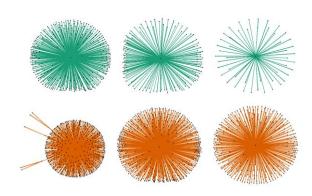


Discussion

Implications



- Better promote fact-checks by using tactics seen in the misinformation network
- Penetrate misinformation silo w/fact-checks by engaging network members who are less central and/or less invested in propagating misinformation
- Intervention @ the URL-level vs. tweet-level or account-level



What's next?



- Examine additional URL/tweet sub-networks and aggregate findings
- Quantify the scale, speed, and depth of fact-checks and misinformation
- Identify communities
- Examine replies
- Study additional conspiracy theories and compare networks
- Other social media platforms?



Literature & Supplemental Slides

Literature



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Strengths & limitations



- ✓ Access to full Twitter archive
- ✓ Case study allows us to make Big Data small
- ✓ Multiple approaches to sub-setting and examining the network
- ✓ Examine communication network for points of intervention (e.g., bridges like hoaxeye)
- Retrospective data collection (e.g., authorship information incongruent w/post date)
- Excludes other languages
- Insights potentially hidden in replies to tweets

Table 1: Tweet Counts by Information Source (Total Tweets = 13,566)

Information Source	Tweet	Original Tweet	RT/Quote Twee
Information Source	Count	Count	Cour
Fact Check			
https://www.politifact.com/factchecks/2021/jul/08/facebook-posts/no-evidence-graphene-oxide-s-toxic-pfizer-covid-19/	456	83	37
https://leadstories.com/hoax-alert/2021/07/fact-check-covid-19-vaccines-do-not-contain-99-percent-graphene-oxide-to-conduct-a-mass-poisoning.html	164	18	14
https://fullfact.org/health/graphene-oxide-covid-vaccines/	107	50	5
https://www.reuters.com/article/factcheck-grapheneoxide-vaccine/fact-check-covid-19-vaccines-do-not-contain-graphene-oxide-idUSL1N2OZ14F	83	72	1
https://fullfact.org/online/graphene-oxide/	81	49	3:
https://apnews.com/article/fact-checking-430816913228	70	62	
https://fullfact.org/health/graphene-oxide-vaccines-oct-2021/	38	11	2
https://factcheck.afp.com/http%253A%252F%252Fdoc.afp.com%252F9K397Y-1	34	5	2
https://leadstories.com/hoax-alert/2021/08/fact-check-vaccines-do-not-contain-graphene-oxide-as-claimed-by-ex-pfizer-employee.html	29	9	2
https://factcheck.afp.com/http%253A%252F%252Fdoc.afp.com%252F9FE6UH-1	26	3	2
https://factcheck.afp.com/http%253A%252F%252Fdoc.afp.com%252F9QH4BL-1	16	2	1
https://factcheck.afp.com/http%253A%252F%252Fdoc.afp.com%252F9Q68UC-1	13	4	
https://www.usatoday.com/story/news/factcheck/2021/10/29/fact-check-no-pfizer-patent-filed-involving-remote-contact-tracing/8548651002/	8	8	N
https://checkyourfact.com/2021/07/12/fact-check-pfizer-covid-vaccine-graphene-oxide/	7	5	
https://leadstories.com/hoax-alert/2021/08/fact-check-video-does-not-show-what-vaccines-are-doing-inside-peoples-bodies.html	7	5	
https://factcheck.afp.com/http%253A%252F%252Fdoc.afp.com%252F9FM82U-1	6	6	1
https://leadstories.com/hoax-alert/2021/09/fact-check-covid-19-vaccines-do-not-contain-sharp-metal-pieces-or-metal-structure.html	6	3	
https://leadstories.com/hoax-alert/2021/11/fact-check-video-does-not-show-graphene.html	4	3	
https://checkyourfact.com/2021/11/03/fact-check-pfizer-patent-tracking-vaccinated-microwave-graphene-covid/	2	1	
isinformation			
https://rumble.com/vkgdq7-deadly-shots-former-pfizer-employee-confirms-poison-in-covid-vaccine.html	6135	3244	28
https://rumble.com/vigmi9-breaking-discovery-the-actual-contents-inside-pfizer-vials-exposed.html	4005	1893	21
https://twitter.com/truthjacobs3/status/1415550246311112704	566	1	56
https://rumble.com/vnslor-jab-scientist-discovers-hatching-eggs-parasites-birthed-after-injection.html	525	265	20
https://www.docdroid.net/TOPBZJY/microscopia-de-vial-corminaty-dr-campra-firma-e-1-horizontal-pdf	508	20	4
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