



# The social media impact on patient and public perspectives

Presented by:

Alessandro Marcon, M.A., Research Associate  
at the University of Alberta's Health Law  
Institute (HLI)



[sogc.org](http://sogc.org)



## Speaker disclosure

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- I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.
- I do not intend to make therapeutic recommendations for medications that have not received regulatory approval (i.e. “off-label” use of medication).

## Presentation disclosure

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- No financial or in-kind support was received from a commercial organization to develop this presentation
- The speaker has not received any payment, funding or in-kind support from a commercial organization to present at this event

## Mitigating potential bias

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The planning committee for this conference has reviewed all available presentations to be given at the conference to ensure the scientific validity and objectivity of the content and therefore has deemed there to be little potential for bias or conflict of interest in relation to the speaker(s) declaration(s) and the event content.

# Learning objectives

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After this session, participants will:

- be able to identify the functional characteristics and corresponding issues related to different types of social media sites
- be able to review, interpret, and evaluate social media research projects in science and health related contexts
- be able to assess how social media might be influencing their particular field
- plan and develop strategies to tackle social media issues as they apply to their particular contexts

# Organization of the workshop

## 1) What are social media?

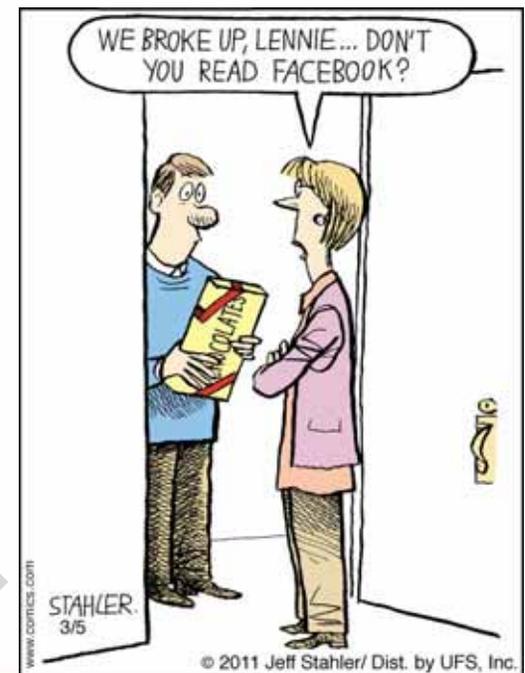
- Definitions
- Most popular types and some characteristics
- Benefits and issues

## 2) Social media research in the health context

- Influence and use
- Clusters and communities
- Examples

## 3) Suggestions, ideas and discussions

- Which actions can be taken?
- What lies ahead



## **This short workshop**

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- Lots of studies and data
- A few stories and anecdotes
- Some participation from you

# What is “social media”?

A story about the **INTERNET!...** and **ICQ**



## What are social media?

“Internet-based tools that allow individuals and communities to gather and communicate; to share information, ideas, personal messages, images, and other content; and, in some cases, to collaborate with other users in real time. Social media are also referred to as “Web 2.0” or “social networking.”<sup>1</sup>

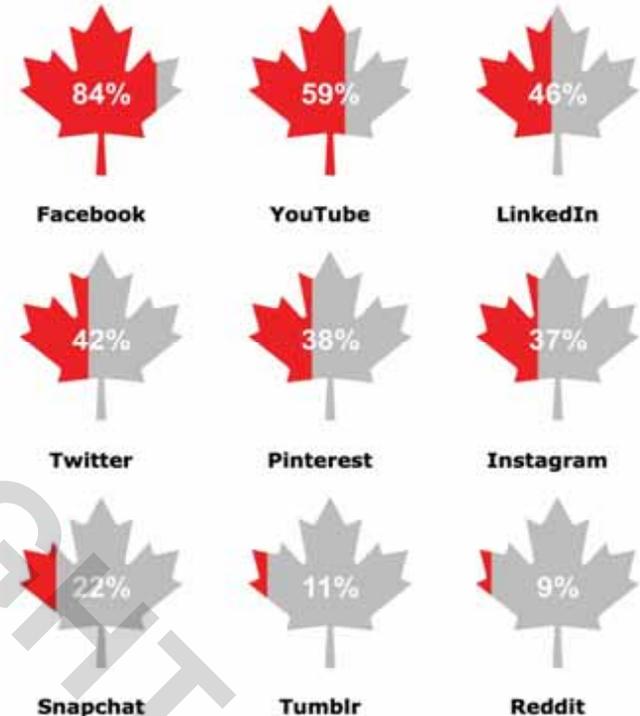
- Interactional logistics that both *enable* and *restrict*
- Platform control (top-down) and user control (bottom-up)
- Communication ecosystems

# Who is using social media?

- Almost everyone...in some capacity.
- Over 2 billion people use Facebook (25% of the world)
- Canadian stats on adults:

## Social Media Use

Percentage of online Canadian adults with an account on the following platforms:



Gruzd, Jacobson, Mai, & Dubois (2018). The State of Social Media in Canada 2017. Version: 1.0. Ryerson University Social Media Lab. DOI: 10.5683/SP/AL8Z6R

# How are social media used?

**Social media creates dynamic interactive networks for...**

*Social networking.*

*Professional networking.*

*Sharing media.*

*Producing content.*

*Social play.*

*Professional play.*



# Social media creates dynamic interactive networks for...

*Raising funds.*

*Making profits.*

*Knowledge/Information aggregation.*

*Building communities of support.*

*Virtual reality creation for play and education.*

*Waging communication wars.*



WIKIPEDIA  
Die freie Enzyklopädie



PATIENTS CONDITIONS TREATMENTS SYMPTOMS RESEARCH



Donald J. Trump  
@realDonaldTrump

Follow

My use of social media is not Presidential - it's MODERN DAY PRESIDENTIAL. Make America Great Again!

3:41 PM - 1 Jul 2017



Second Life VR



## Popular social media sites in China

WeChat



Similar to Facebook but with purchasing food, services, products, etc.

Weibo



Similar to Twitter

Douban



Entertainment-based site mixing sites similar to IMDB, reddit and Spotify

## Social Media: Key characteristics, quirks and concerns:

- Data (management, control, privacy, profits, advertising, obsessive tracking...)
- Algorithms (The computational rules governing or managing the interactions in the particular ecosystem) \*the goal is to increase interactions\*
- Authenticity (Bots and “fake news”)
- THE BIG Q... Influence: How are we and our environments affected?

## Authenticity (Bots and “fake news”)

Bots – Internet robots that perform automated tasks (Fake accounts that “like” and “share”)

- Prominent on Twitter (approx. a minimum of 10%)<sup>2</sup>
- Fun, interesting, dangerous...



Taken from:

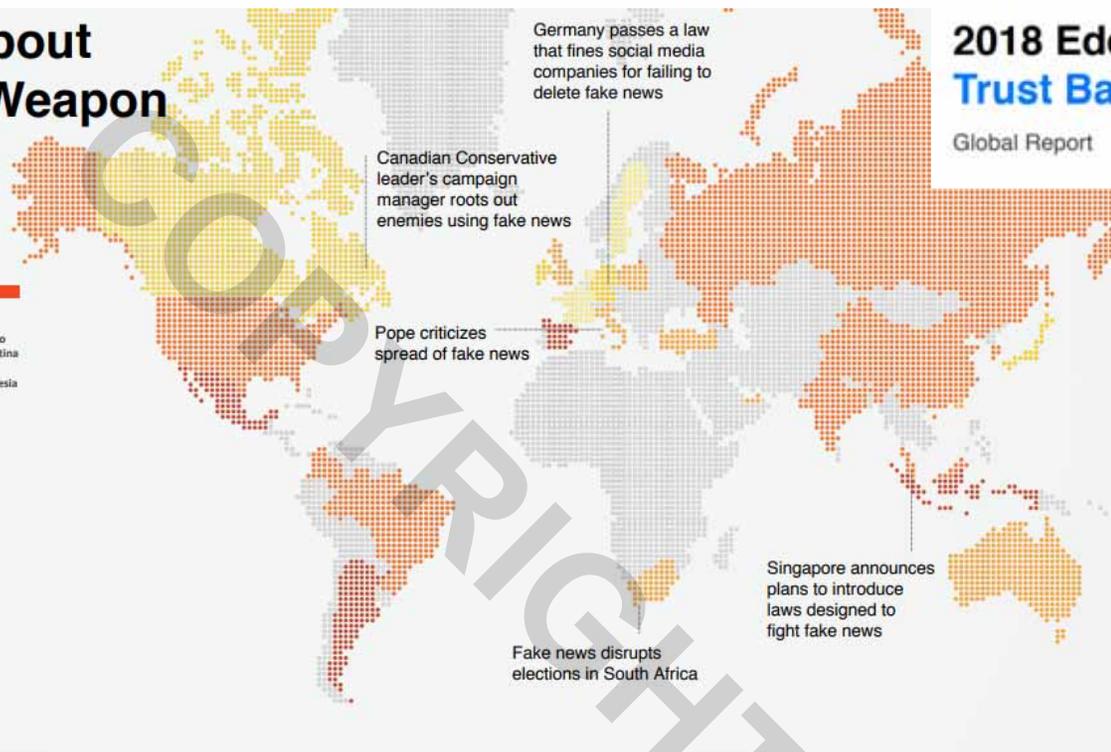
<http://www.newnationalist.net/2017/02/13/fbi-insider-exclusive-california-pizzagate-pedo-rings-under-investigation-hollywoodnapa-valley-and-more/>

# World Worried About Fake News as a Weapon

Percent who worry about false information or fake news being used as a weapon



Nearly  
**7 in 10**  
worry about false information or fake news being used as a weapon



## 2018 Edelman Trust Barometer

Global Report

Source: 2018 Edelman Trust Barometer. ATT\_MED\_AGR. Below is a list of statements. For each one, please rate how much you agree or disagree with that statement using a nine-point scale where one means "strongly disagree" and nine means "strongly agree". (Top 4 Box, Agree), question asked of half of the sample. General population, 28-market global total.

## Authenticity (Bots and “fake news”)

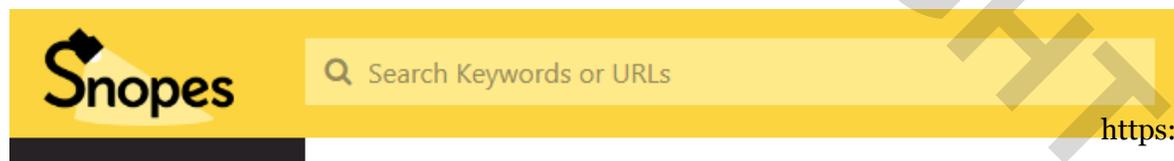
New methods are being developed and experimented with to combat it



<http://www.fakenewschallenge.org/>



<http://www.opensources.co/>



<https://www.snopes.com/>

## Influence and Impact: Theories, cases and studies

- Concerns of Echo Chamber, Personalization, or My Net
- The idea of “Homophily”



“Similarity breeds connection...personal networks are homogeneous with regard to many sociodemographic, behavioral, and intrapersonal characteristics. Homophily limits people's social worlds in a way that has powerful implications for the information they receive, the attitudes they form, and the interactions they experience. Homophily in race and ethnicity creates the strongest divides in our personal environments, with age, religion, education, occupation, and gender following in roughly that order.”<sup>3</sup>

## Concerns of Echo Chambers and Internet Personalization

- Like-minded people are speaking predominantly to one another (“liking” and “sharing”)
- New – *and correct!* – information is not being seen...or constructively taken into account
- People are not being exposed to diverse viewpoints
- Social media and internet technologies are exacerbating this dynamic
- Idea proponents: Eli Pariser, creator of Upworthy, and Harvard Law professor Cass Sunstein, author #republic

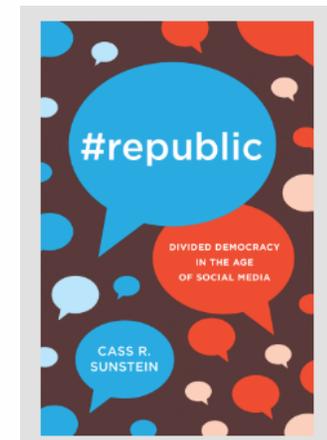


Image taken from:  
<https://press.princeton.edu/titles/10935.html>

# Evidence and explanations of echo chambers and polarization

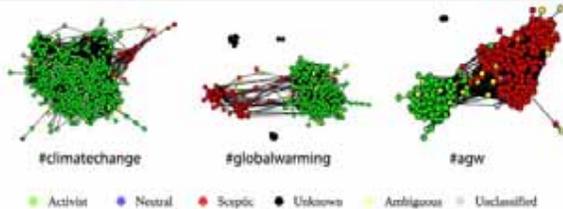
Global Environmental Change

Volume 32, May 2015, Pages 126-138

## Network analysis reveals open forums and echo chambers in social media discussions of climate change

Hywel T.P. Williams <sup>a,\*,</sup>, James R. McMurray <sup>b,</sup>, Tim Kurz <sup>c,</sup>, F. Hugo Lambert <sup>d,</sup>

- Interactions show strong homophily between polarised “activist” and “sceptic” groups.
- Users are commonly segregated within like-minded communities (echo chambers).
- Less frequent mixed-attitude communities with reduced polarisation (open forums).
- Partisan negative sentiment is widespread in user interactions.



4

## Dynamic Debates: An Analysis of Group Polarization Over Time on Twitter

Journal of Science, Technology & Society  
30(3) 316-327  
© 2010 SAGE Publications  
Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>  
DOI: 10.1177/1073704610388811  
<http://jstn.sagepub.com>  
SAGE

Sarita Yardi<sup>1</sup> and Danah Boyd<sup>2</sup>

Assassination of late-term abortion doctor George Tiller spurred PRO CHOICE vs PRO LIFE debates

“...replies between like-minded individuals strengthen group identity, whereas replies between different-minded individuals reinforce in-group and out-group affiliation. Their results show that people are exposed to broader viewpoints than they were before but are limited in their ability to engage in meaningful discussion.”

5

## Echo chambers in the age of misinformation

Michela Del Vicario <sup>\*,</sup>, Alessandro Bessi <sup>†,</sup>, Fabiana Zollo <sup>\*,</sup>, Fabio Petroni <sup>‡,</sup>, Antonio Scala <sup>\*, §,</sup>, Guido Caldarelli <sup>\*, §,</sup>, H. Eugene Stanley <sup>¶,</sup>, Walter Quattrociocchi <sup>\*, §</sup>

<sup>\*</sup>Laboratory of Computational Social Science, Network Dept (M.T. AN) Studi Lucca, 55100 Lucca, Italy, <sup>†</sup>IUSS Institute for Advanced Study, 27100 Pavia, Italy, <sup>‡</sup>Sapienza University, Rome, Italy, <sup>§</sup>ISC-CNR Uos “Sapienza”, 00185 Roma, Italy, <sup>¶</sup>Boston University, Boston, MA 02115 USA, and <sup>¶</sup>corresponding author [walter.quattrociocchi@imtlucca.it](mailto:walter.quattrociocchi@imtlucca.it)

## Additional considerations for how perspectives are formed

- **Intensified polarization** – polarization of opinions often becomes stronger after deliberation and interaction with opposing perspectives<sup>6</sup>
- **Biases and reasoning** – social and emotional factors impact reasoning – at times overriding rationality (*Confirmation Bias, Information Avoidance, etc.*)<sup>7, 8, 9</sup>

March 13, 2017

Information Avoidance: How People Select Their Own Reality

By Shilo Rea

<https://www.cmu.edu/news/stories/archives/2017/march/information-avoidance.html>

Carnegie Mellon University



- **Group dynamics** (In-group vs out-group) – allegiance to one's group and identity; the role of influencers

**Influencers** impact how people come to think about certain topics and how those perspectives are maintained



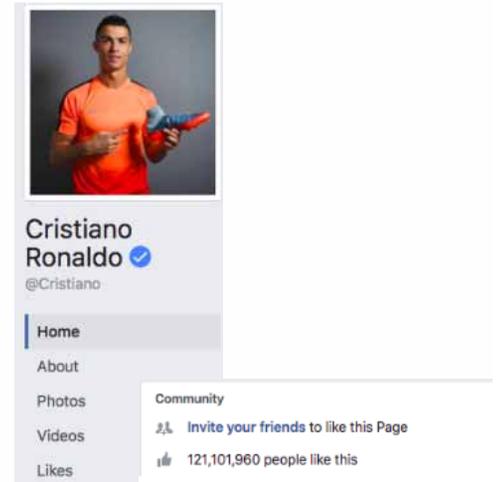
## The Baffling Rise of Goop

How a new-agey website started by an actress became so popular—and what it says about the future of health journalism

OLGA KHAZAN | SEP 12, 2017 | HEALTH

The Atlantic

Image taken from:  
<https://www.theatlantic.com/health/archive/2017/09/goop-popularity/539064/>



# Socio-political influences (Building camps of perspectives and trust)

“Public intellectuals”

Antonio Gramsci

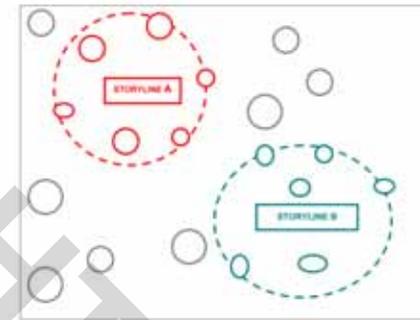


Image taken from: [https://en.wikipedia.org/wiki/Antonio\\_Gramsci](https://en.wikipedia.org/wiki/Antonio_Gramsci)

Discourse Coalitions (Hajer 1993)

“A discourse coalition is the ensemble of a set of story lines, the actors that utters these story lines, and the practices that conform to these story lines, all organized around a discourse.” (Hajer 1993.: 47).

#vaccineswork



#bigpharma

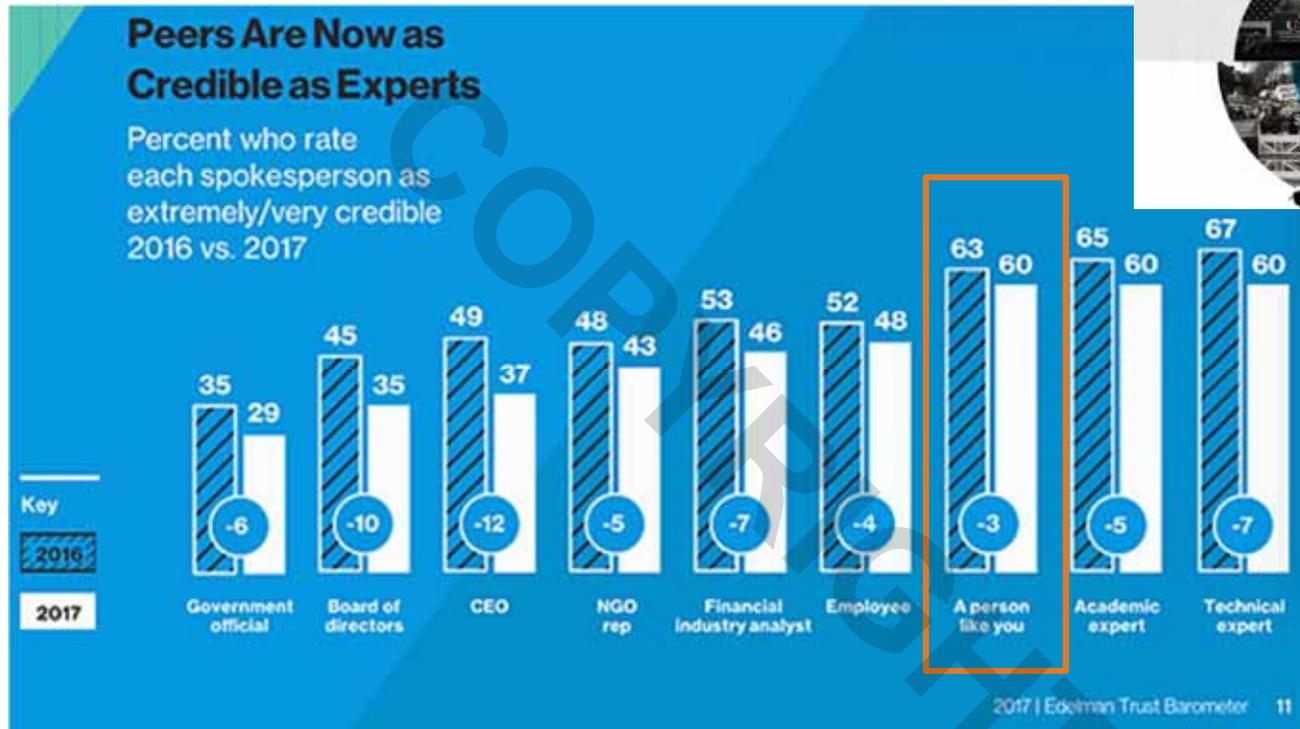


Image taken from: <https://www.ickollectif.com/single-post/2017/01/16/Peers-as-credible-as-experts-and-more-than-CEOs>

Research News

Angelina Jolie's mastectomy triggered sharp rise in gene testing

BMJ 2016 ; 355 doi: <https://doi.org/10.1136/bmj.i6702> (Published 15 December 2016)  
Cite this as: BMJ 2016;355:i6702

- Article
- Related content
- Metrics
- Responses
- Peer review

Zosia Kmiotowicz



To Your Health  
**No, Gwyneth Paltrow, women should not put jade eggs in their vaginas, gynecologist says**

**The Washington Post**  
*Democracy Dies in Darkness*

By Kristine Phillips January 22, 2017 [Email the author](#)

[https://www.washingtonpost.com/news/to-your-health/wp/2017/01/22/no-gwyneth-paltrow-women-should-not-put-jade-eggs-in-their-vaginas-gynecologist-says/?utm\\_term=.c42c6046115b](https://www.washingtonpost.com/news/to-your-health/wp/2017/01/22/no-gwyneth-paltrow-women-should-not-put-jade-eggs-in-their-vaginas-gynecologist-says/?utm_term=.c42c6046115b)

Herd Influence:



Science

## Social Influence Bias: A Randomized Experiment

Lev Muchnik<sup>1</sup>, Sinan Aral<sup>2,\*</sup>, Sean J. Taylor<sup>3</sup>

+ See all authors and affiliations

Science 09 Aug 2013;  
Vol. 341, Issue 6146, pp. 647-651  
DOI: 10.1126/science.1240466



Content that is automatically “liked” is 32% more likely to get another like

## The power of exposure:



### Implausibility and Illusory Truth: Prior Exposure Increases Perceived Accuracy of Fake News but Has No Effect on Entirely Implausible Statements

62 Pages • Posted: 25 Apr 2017 • Last revised: 12 Dec 2017

[Gordon Pennycook](#)  
Yale University

[Tyrone Cannon](#)  
Yale University

[David G. Rand](#)  
Yale University

Date Written: December 11, 2017



Image taken from: <https://www.dga.org/Craft/DGAQ/All-Articles/0903-Fall-2009/Screening-Room-Rob-Zombie.aspx>

“Using actual fake news headlines presented as they were seen on Facebook, we show that even a single exposure increases subsequent perceptions of accuracy, both within the same session and after a week – that is, an illusory truth effect exists for fake news. Moreover, increased perceptions of accuracy for repeated fake news headlines occurs even when the stories are labeled as contested by fact checkers, or are inconsistent with the reader’s political ideology. These results suggest that social media platforms help to incubate blatantly false news stories”<sup>16</sup>

## Health Online

- **In large numbers, people are going online for health information all over the world, using search engines and social media**<sup>10,11,12,13,14,15</sup>
  - Self-diagnosing
  - Getting second opinions after visiting with doctors / Verifying previously-obtained information
  - Looking up treatments and alternative treatments
  - Visiting online health communities to learn and discuss
  - Researching hospitals and health-care practitioners
  
- **Health services also have an increasingly large presence**
  - In the US, 95% of hospitals are on Facebook and 50% are on Twitter<sup>10</sup>
  
- **People in the US are becoming open to sharing personal health information online**
  - 80% of individuals aged 18-24 said they would likely share health information on social media compared to 45% of adults 45-64<sup>12</sup>
  
- **Increase in all kinds of apps and wearable technology**

➤ **Many Americans belong to online patient health groups like “PatientsLikeMe”, and many report numerous benefits from joining such groups**

- In 2015, PatientsLikeMe had 250,000 unique users with over 2,000 conditions<sup>13</sup>
- The parent group Mumsnet generates around 4.8 million monthly visitors primarily discussing breastfeeding and miscarriage<sup>13</sup>
- My Pro Ana – a pro-anorexia online community – had some 115,000 members in 2014<sup>13</sup>

**Reported Benefits**

- Learning new information<sup>10,11,12,13</sup>
- Connecting with other individuals (getting support and sharing experiences)<sup>10,11, 12,13</sup>

**On PatientsLikeMe - 30% of Epilepsy patients did not know someone with epilepsy prior to using the site<sup>12</sup>**

- Building trust (more learned peer experts become authority figures)<sup>11,12</sup>
- Overcoming social stigma<sup>11,13</sup>
- Helps cope with some depression<sup>12</sup>

# Information quality?

On one hand...

... but on the other hand



Images taken from: <https://celebmix.com/childish-gambino-release-awaited-album-awaken-love/> and <http://metro.co.uk/2015/09/10/27-things-only-people-who-dont-like-babies-understand-5385741/>

So.... what are the impacts?



A wide, wide range...



**PNAS** Proceedings of the National Academy of Sciences of the United States of America Social Sciences

## Experimental evidence of massive-scale emotional contagion through social networks

Adam D. I. Kramer, Jamie E. Guillory and Jeffrey T. Hancock

PNAS 2014 June, 111 (24) 8788-8790. <https://doi.org/10.1073/pnas.1320040111>

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 25, 2014 (received for review October 23, 2013)



Telematics and Informatics  
Volume 34, Issue 4, July 2017, Pages 274-283

## Let me take a selfie: Exploring the psychological effects of posting and viewing selfies and groupies on social media

Ruxu Wang, X. W. Fan, Yang R., Michel M. Heughe

<https://doi.org/10.1016/j.teli.2016.07.004> Get rights and content

**Highlights**

- Selfie viewing was negatively associated with self-esteem.
- Groupie viewing was positively associated with self-esteem.
- Frequent groupie viewing led to increased life satisfaction.
- Frequent selfie viewing led to decreased life satisfaction.

### Polarization, Partisanship and Junk News Consumption over Social Media in the US

COMPROP DATA MEMO 2018.1 / FEBRUARY 6, 2018

Vidya Narayanan Oxford University <a href="mailto:vidya.narayanan@oi.ox.ac.uk">vidya.narayanan@oi.ox.ac.uk</a> @vidunarayanan	Vlad Barash Graphika <a href="mailto:vlad.barash@graphika.com">vlad.barash@graphika.com</a> @vlad43210	John Kelly Graphika <a href="mailto:john.kelly@graphika.com">john.kelly@graphika.com</a> @apidictionist
Bence Kollanyi Oxford University <a href="mailto:bence.kollanyi@oi.ox.ac.uk">bence.kollanyi@oi.ox.ac.uk</a> @bencekollanyi	Lisa-Maria Neudert Oxford University <a href="mailto:lisa-maria.neudert@oi.ox.ac.uk">lisa-maria.neudert@oi.ox.ac.uk</a> @lmneudert	Philip N. Howard Oxford University <a href="mailto:philip.howard@oi.ox.ac.uk">philip.howard@oi.ox.ac.uk</a> @pnhoward

**ABSTRACT**  
*What kinds of social media users read junk news? We examine the distribution of the most significant sources of junk news in the three months before President Donald Trump's first State of the Union Address. Drawing on a list of sources that consistently publish political news and information that is extremist, sensationalist, conspiratorial, masked commentary, fake news and other forms of junk news, we find that the distribution of such content is unevenly spread across the ideological spectrum. We demonstrate that (1) on Twitter, a network of Trump supporters shares the widest range of known junk news sources and circulates more junk news than all the other groups put together; (2) on Facebook, extreme hard right pages—distinct from Republican pages—share the widest range of known junk news sources and circulate more junk news than all the other audiences put together; (3) on average, the audiences for junk news on Twitter share a wider range of known junk news sources than audiences on Facebook's public pages.*



**JCEM** THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM All The Journal of Clinical I

## Exposure to Room Light before Bedtime Suppresses Melatonin Onset and Shortens Melatonin Duration in Humans

Joshua J. Gooley, Kyle Chamberlain, Kurt A. Smith, Sat Bir S. Khalsa, Shantha M. W. Rajaratnam, Eliza Van Reen, Jamie M. Zeitzer, Charles A. Czeisler, Steven W. Lockley

The Journal of Clinical Endocrinology & Metabolism, Volume 96, Issue 3, 1 March 2011, Pages E463-E472, <https://doi.org/10.1210/jc.2010-2098>

Published: 01 March 2011 Article history

## Selfie face distortion is driving people to get nose jobs

Selfies make our noses look 30 percent larger than they really are, plastic surgeons warn.



By Julia Beluz | @juliasoftoronto | julia.beluz@voxmedia.com | Updated Mar 1, 2018, 2:17pm EST

The [American Academy of Facial Plastic and Reconstructive Surgeons](#) has noticed the trend too. According to a 2017 poll, 55 percent of facial plastic surgeons reported seeing patients who wanted surgeries to help them look better in selfies, up from 13 percent in 2016.



Image taken from: <https://www.vox.com/science-and-health/2018/3/1/17059566/plastic-surgery-selfie-distortion>

Share my daddy's picture please



1:54 PM - 27 Feb 2018

417,912 Retweets 299,224 Likes

418K 299K

## General influence:

- 45% of consumers said information found via social media would affect their decisions to seek a second opinion
- More than 40% said that information found via social media would affect the way they coped with a chronic condition or their approach to diet and exercise
- Approximately 33% said that social media would affect their decisions regarding taking certain medications and undergoing specific procedures or tests<sup>12</sup>





WHOA HORSEY!

## Research: Topic #1: “Alternative” therapies (CAM) – Chiropractic

Mass Media/Social Media Communication and Campaigns

Article Cited By (4) Tweetations (66) Metrics

Original Paper



### Chiropractic and Spinal Manipulation Therapy on Twitter: Case Study Examining the Presence of Critiques and Debates

Alessandro R Marcon<sup>1</sup>, MA (AppLing) ; Philip Klostermann<sup>2</sup> ; Timothy Caulfield<sup>1</sup>, LLM

<sup>1</sup>Health Law Institute, Department of Law, University of Alberta, Edmonton, AB, Canada

<sup>2</sup>The School of Computer Science, Carleton University, Ottawa, ON, Canada

Q: What presence do critical voices of Chiropractic have on Twitter?

A: Scant. Very Scant. AND BOTS!

**Methods:** An initial corpus of 31,339 tweets was compiled through Twitter’s Search Application Programming Interface using the query terms “chiropractic,” “chiropractor,” and “spinal manipulation therapy.” Tweets were collected for the month of December 2015. Post removal of tweets made by bots and spam, the corpus totaled 20,695 tweets, of which a sample (n=1267) was analyzed for skeptical or critical tweets. Additional criteria were also assessed.

**Results:** There were 34 tweets explicitly containing skepticism or critique of SMT, representing 2.68% of the sample (n=1267). As such, there is a presence of 2.68% of tweets in the total corpus, 95% CI 0-6.58% displaying explicitly skeptical or critical perspectives of SMT. In addition, there are numerous tweets highlighting the health benefits of SMT for health issues such as attention deficit hyperactivity disorder (ADHD), immune system, and blood pressure that receive scant critical attention. The presence of tweets in the corpus highlighting the risks of “stroke” and “vertebral artery dissection” is also minute (0.1%).

## Topic #1 : “Alternative” therapies (CAM) – Chiropractic



Evidence-Based Medicine & Medical Informatics  
Research Article

### Commenting on chiropractic: A YouTube analysis

Authors (2)

Alessandro B. Marcon | Timothy Caulfield

About the author(s) v

Published: 5 January 2017, <https://doi.org/10.1080/2331205X.2016.1227450>

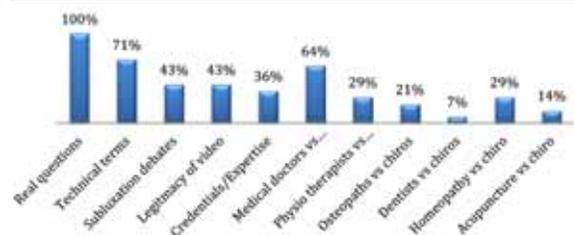


Q: Are people debating Chiropractic’s benefits or risks on popular chiropractic YouTube videos? If so, how are they doing so?

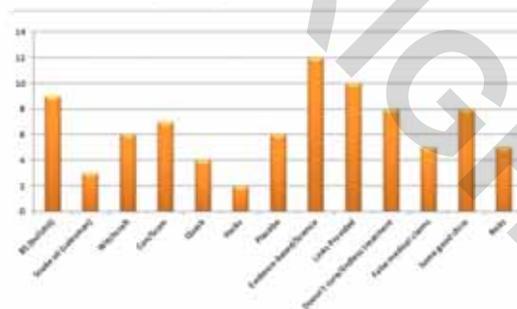
A: Yes, they are.

Diverse methods of argumentation. Some constructive discourse.

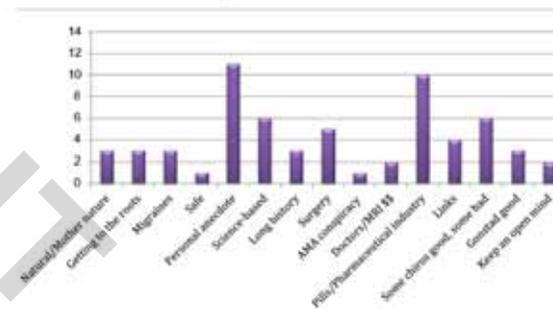
Percentage of discussions containing the “key elements”:



Number of discussions with “against chiro” arguments and tactics:



Number of discussions with “for chiro” arguments and tactics:



## Topic #2 – Stem cell therapies



JMIR Public Health Surveill. 2016 Jan-Jun; 2(1): e8.  
Published online 2016 Mar 9. doi: [10.2196/publichealth.5264](https://doi.org/10.2196/publichealth.5264)

PMCID: PMC4869214

### Gordie Howe's "Miraculous Treatment": Case Study of Twitter Users' Reactions to a Sport Celebrity's Stem Cell Treatment

Monitoring Editor: Gunther Eysenbach

Reviewed by John Rasko, Margaret Ozan-Rafferty, and Julie Robillard

[Li Du](#), MB, PhD,<sup>1</sup> [Christen Rachul](#), MA (AppLing),<sup>2</sup> [Zhaochen Guo](#), M.Sc. (Tech.),<sup>3</sup> and [Timothy Caulfield](#), LL.M.<sup>3,4</sup>

#### Results

78.87% (2195/2783) of tweets mentioned improvements to Howe's health. Only one tweet explicitly mentioned that Howe's SC treatment was unproven, and 3 tweets warned that direct-to-consumer SC treatments lacked scientific evidence. In addition, 10.31% (287/2783) of tweets mentioned challenges with SC treatment that have been raised by scientists and researchers, and 3.70% (103/2783) of tweets either defined Howe as a "stem cell tourist" or claimed that his treatment was part of "stem cell tourism". In general, 71.79% (1998/2783) of tweets portrayed a positive attitude towards Howe's SC treatment.



## Topic #2 – Stem cell therapies

REGENERATIVE MEDICINE, VOL. 12, NO. 7 | RESEARCH ARTICLE



### Fake news portrayals of stem cells and stem cell research

Alessandro R Marcon, Blake Murdoch & Timothy Caulfield

Published Online: 8 Nov 2017 | <https://doi.org/10.2217/rme-2017-0060>

Highly extreme representation of the science around stem cell therapies: Both hyperbolic cures and fears

healthimpactnews.com Yeast Is a cause of cancer And turmeric can kill both, research confirms

healthimpactnews.com Forbidden cures: avocados and purple potatoes kill cancer cells

healthnutnews.com Grow new teeth with stem-cell dental implants!



March 5, 2018 - Lance D Johnson

Teenage boy dies from meningitis only MONTHS after receiving the vaccine

Invite your friends to like this Page

2,696,131 people like this

2,590,533 people follow this



#WCCME

### Topic #3: Vaccines – Distinguishing clusters of communities and rhetoric



“It is common for the vaccinating mainstream to present vaccine hesitant and rejecting parents as a group subject to epistemic closure, groupthink, confirmation bias and over-confidence in their own expertise. However, vaccine hesitant and rejecting parents also see mainstream society as a group—a much larger one—subject to the same problems. We suggest the need to mitigate the 'groupness' of vaccination and non-vaccination by extending the practice of vaccination to recognisable practitioners of holistic health.”<sup>17</sup>

“...provaccine websites analyzed concentrate on the accurate transmission of evidence-based scientific research about vaccines and government-endorsed vaccination-related practices, whereas the vaccine-skeptical websites focus on creating communities of people affected by vaccines and vaccine-related practices”<sup>18</sup>

## Topic #3: Vaccines – Distinguishing clusters of communities and rhetoric

### Injecting doubt: responding to the naturopathic anti-vaccination rhetoric

Timothy Caulfield , Alessandro R Marcon, Blake Murdoch

*Journal of Law and the Biosciences*, Volume 4, Issue 2, 1 August 2017, Pages 229–249,

<https://doi.org/10.1093/jlb/lxx017>

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“Of the 330 naturopath websites we analysed, 40 included vaccine hesitancy discourse and 26 offered vaccine or flu shot alternatives....

We concluded that tightening advertising law, reducing CAM practitioners’ ability to self-regulate, and improving enforcement of existing common and criminal law standards would help limit naturopaths’ ability to spread inaccurate and science-free anti-vaccination and vaccine-hesitant perspectives.”<sup>19</sup>

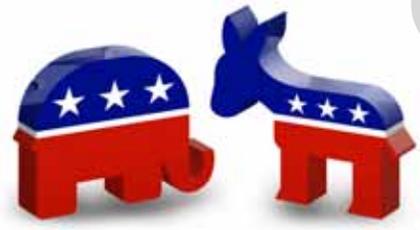
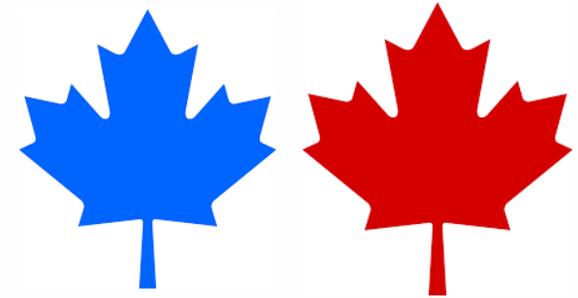
## Distinguishing clusters of communities and rhetoric

### Wellness culture and wellness industry // The power of Twitter



Sources: <http://www.cbc.ca/news/canada/calgary/lethbridge-meningitis-trial-sentence-parents-toddler-died-1.3650653>;  
<https://www.thestar.com/news/canada/2018/02/11/wellness-expo-drops-speaker-convicted-in-sons-2012-death-from-lineup-after-losing-sponsors.html>

## The curious case of GMOs, climate change and selective science





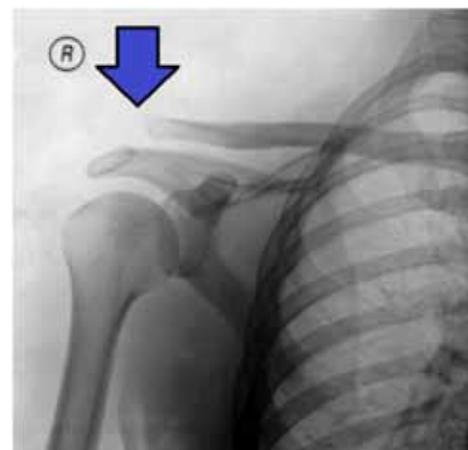
## Research challenges and what makes/will make good research:

- Difficult to build datasets (More work is needed on Facebook, Instagram, and other sites like reddit)

[Forthcoming work on breastfeeding images on Instagram with Dr. Azad in Winnipeg]

- Privacy is an issue
- More intensive work on *interactions* inside the data
- Research needs to examine a social health phenomena across various applications and using mixed-methods
- Continual and increased focus on context (acknowledging science, health science, social sciences, culture...)
- Interdisciplinary efforts especially involving computer scientists

# A story of a recent injury...



## Some idea & suggestions:

### ➤ Be aware...

- People ARE GOING ONLINE and get information
- Of different clustered communities with varying beliefs and perspectives
  - Of rhetoric used
  - Of the speed and power of social media
    - Of what's trending

### ➤ Be active and be involved...

- In engaging – or supporting the engagement of –public education
  - In building trust
  - In defending truth

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#WCCME

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