

COVID-19, (MIS)INFORMATION AND  
MENTAL HEALTH.  
A COMPARATIVE APPROACH

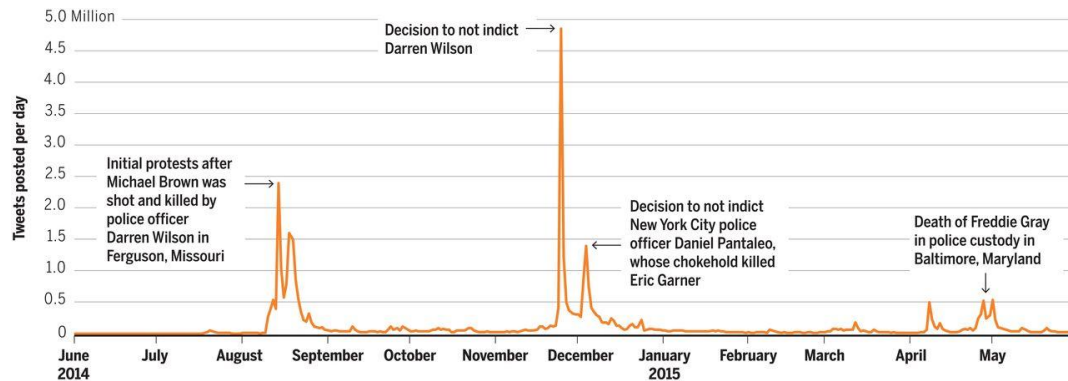
SEBASTIEN SALERNO (UNIGE) & NATHALIE PIGNARD-CHEYNEL (UNINE)

SPSA 2022 UNIL 3-4 FEBRUARY 2022

# Intro

# Hastag heroes and misinformation dystopia

Daily tweets about police violence and Black Lives Matter, June 2014 to May 2015



% of U.S. adults who say completely made-up news has caused ..... about the basic facts of current events

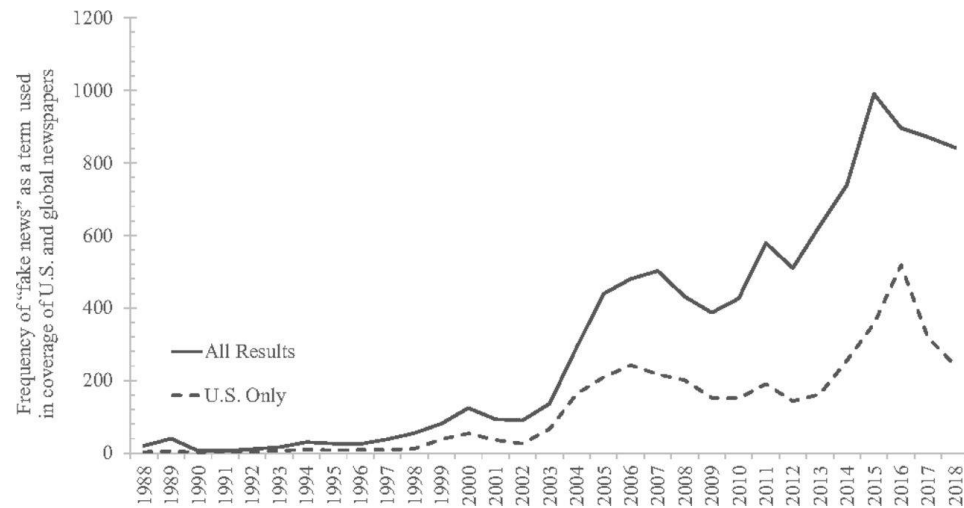
	<b>A great deal</b>	<b>Some</b>	<b>Not much</b>	<b>No</b>
	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
<b>Total</b>	64	24	6	4
<b>Men</b>	61	25	8	5
<b>Women</b>	68	23	5	4
<b>Ages 18-29</b>	67	26	4	2
<b>30-49</b>	66	21	9	4
<b>50-64</b>	64	23	6	6
<b>65+</b>	58	29	6	5
<b>High school or less</b>	61	23	8	7
<b>Some college</b>	67	24	5	3
<b>College+</b>	67	26	5	1
<b>&lt;\$30,000</b>	58	26	8	7
<b>\$30,000- \$74,999</b>	65	27	5	2
<b>\$75,000+</b>	73	19	5	2

[Freelon, Marwick & Kreiss \(2020\)](#)

[Barthel, Mitchell & Holcomb \(2016\)](#)

# "Fake news". A buzzword and a polysemic term

Lexis Nexis appearances of "fake news" in newspaper coverage show an increase in the yearly frequency with which newspapers have used this specific term



[Scheufele & Krause \(2019\)](#)

From *don't believe that, trust me* to an attack on journalism. The multiple meanings of "fake news" among political elites



[Jones \(2017\)](#)

# Towards a clarification of terms

Using the dimensions of harm and falseness, Wardle and Derakhshan (2017) describe the differences between these types of information

- Misinformation is when false information is shared, but no harm is meant
- Disinformation is when false information is knowingly shared to cause harm
- Malinformation is when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere

Glossary of the Bronner et al. report (2022)

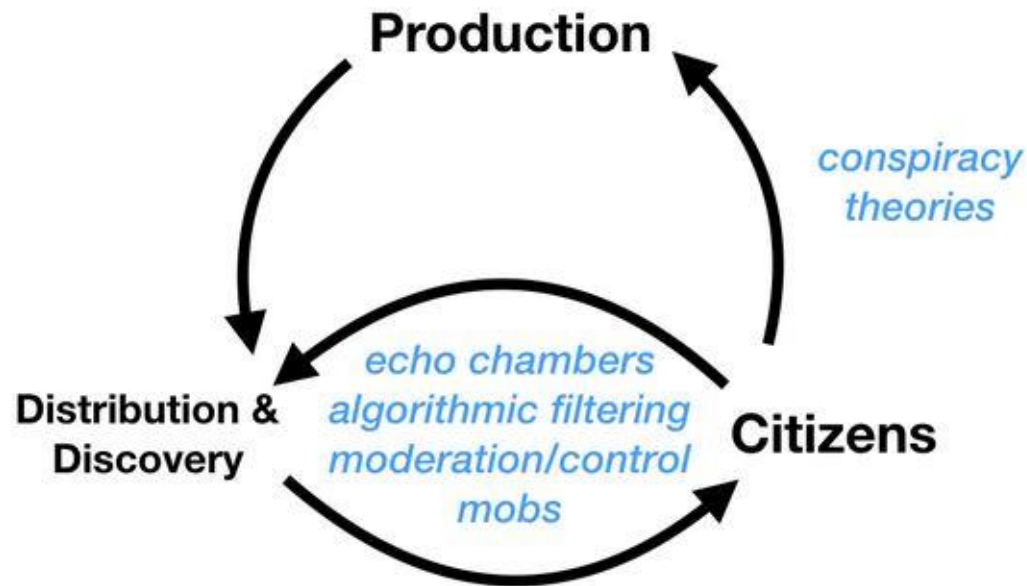
- Conspiracy theory: a narrative that tends to attribute the origin of an event or phenomenon to the occult action of a generally small group of individuals pursuing a legally or morally reprehensible goal, to the detriment of a more plausible explanation. (...) A conspiracy theory is most often characterized by challenging without real evidence the commonly accepted explanation of a given circumstance and accusing those who have a real or supposed interest in it
- Clickbait: sensationalist news content, often false, inaccurate or misleading, created for the purpose of attracting the attention of Internet users to generate traffic
- False information or misinformation: false or inaccurate information content, whether or not deliberately created and disseminated to mislead people
- Foreign digital influence: informational operation conducted in the digital space by a foreign actor or group of actors for the purpose of influence

[Wardle & Derakhshan \(2017\)](#)

[Bronner et al. \(2022\)](#)

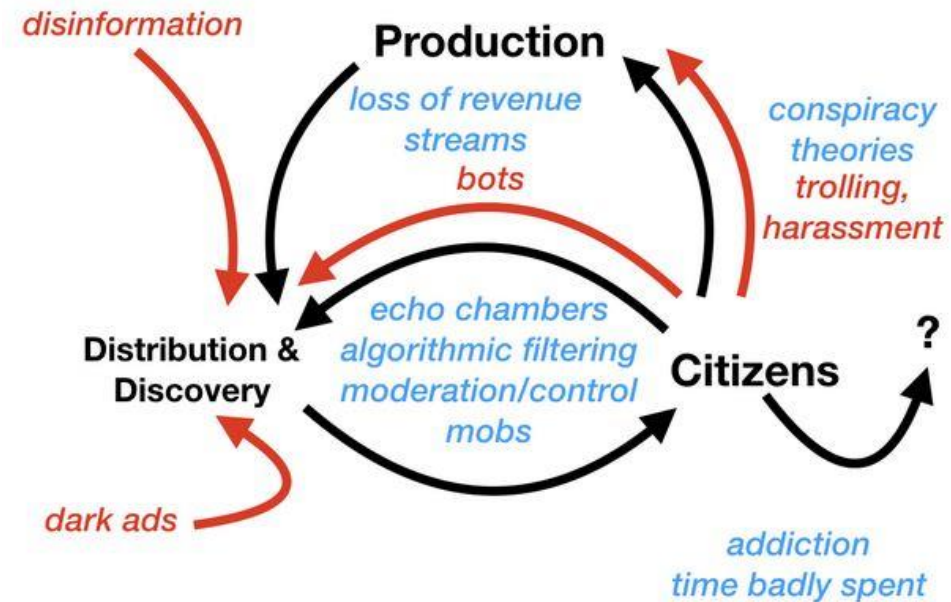
# Misinformation in the age of platforms

"Citizens create content that reacts to what's been presented to them, entering the cycle as producers. (...) Bad actors are finding ways to inject ideas into the conversation by targeting vulnerable points in the system." (Zuckerman 2018)



[Zuckerman \(2018\)](#)

"While bots are bad for Twitter and Facebook, polarization turns out to be a great business model-it leads to engaged and passionate users, who are good for profits and bad for democracy." (Ibid.)



[Zuckerman \(2018\)](#)

# Misinformation

Exposure, reception and use

# A small primary impact

SCIENCE ADVANCES | RESEARCH ARTICLE

SOCIAL SCIENCES

## Evaluating the fake news problem at the scale of the information ecosystem

Jennifer Allen<sup>1\*</sup>, Baird Howland<sup>2†</sup>, Markus Mobius<sup>3</sup>, David Rothschild<sup>4</sup>, Duncan J. Watts<sup>5†</sup>

"Fake news," broadly defined as false or misleading information masquerading as legitimate news, is frequently asserted to be pervasive online with serious consequences for democracy. Using a unique multimode dataset that comprises a nationally representative sample of mobile, desktop, and television consumption, we refute this conventional wisdom on three levels. First, news consumption of any sort is heavily outweighed by other forms of media consumption, comprising at most 14.2% of Americans' daily media diets. Second, to the extent that Americans do consume news, it is overwhelmingly from television, which accounts for roughly five times as much as news consumption as online. Third, fake news comprises only 0.15% of Americans' daily media diet. Our results suggest that the origins of public misinformation and polarization are more likely to lie in the content of ordinary news or the avoidance of news altogether as they are in overt fakery.

INTRODUCTION

Since the 2016 U.S. presidential election, the deliberate spread of online misinformation, in particular on social media platforms such as Twitter and Facebook, has generated extraordinary interest across several disciplines (1–10). In large part, this interest reflects a deeper concern that the prevalence of "fake news" has increased political polarization, decreased trust in public institutions, and undermined democracy (11–14). Recently, a handful of papers have attempted to measure the prevalence of fake news on social media (1, 8, 9), finding that exposure is rare compared with other types of news content and generally concentrated among older, politically conservative Americans. Despite these findings, many researchers and other observers continue to advocate that deliberately engineered misinformation disseminated on social media is sufficiently prevalent to constitute an urgent crisis (15, 16). Disagreements over the prevalence and importance of misinformation are difficult to evaluate empirically for three reasons. First, Americans consume news online via desktop computers and, increasingly, mobile devices as well as on television (TV); yet, no single source of data covers all three modes. As a result, researchers select data sources on the basis of their availability, which may not correspond with either representativeness or comprehensiveness. For example, many studies rely exclusively on Twitter, whose users are highly unrepresentative of the general population (17), while even studies that rely on representative online panels omit TV consumption (18). Second, analyses of fake news often fail to account for how much of it is consumed relative to other types of news or non-news-related content. Because the volume of online content is so vast, even a very large numerator may constitute only a tiny fraction of the total (19). Third, even if its prevalence is low relative to other types of content, fake news could be important either because it is disproportionately impactful or because it is concentrated on small subpopulations. While comprehensive measures of prevalence are intrinsically interesting and can indicate how much

relative impact different types of content would have to have to dominate, they cannot on their own resolve questions about influence.

Here, we address the first two of three challenges, leaving the third for future research. We assembled a unique dataset that drew on three different sources to capture consumption across the two principal modes of news production, TV and online, where we integrate total consumption across the modes by demographic bucket (see Materials and Methods and the Supplementary Methods for a more detailed description of the datasets, definitions of key terms, and estimation methods). Content is defined by the mode on which it is consumed not produced; thus, for example, video consumed on desktop or a mobile device is categorized as online consumption even when it is produced by mainstream TV stations.

MATERIALS AND METHODS

First, we measure national TV programming using Nielsen's nationally representative TV panel ( $N \approx 100,000$ ). In addition, we measure local programming using a subset of the national panel ( $N \approx 50,000$ ) sampled from the 25 largest local markets. TV news consumption is defined as time devoted to watching any of the roughly 400 programs that are classified by Nielsen as "news"—a category that includes "hard news" (e.g., evening cable and network news), magazine news (e.g., Inside Edition and Dateline), morning shows (e.g., Good Morning America and Today Show), and entertainment news (e.g., TMZ, Access Hollywood)—and late-night comedy shows (e.g., The Daily Show With Trevor Noah and The Late Show With Stephen Colbert), which are frequently viewed as a source of news-related information, especially for younger viewers (20).

Second, we measure desktop and mobile media consumption (including media consumed through mobile applications) using Comscore's nationally representative desktop and mobile panel, which breaks out total time spent on different types of media sites including news, search, and social media by demographic bucket. Online (mobile and desktop) news consumption is defined as time spent on any article published on one of more than 800 websites, adapted from (21), that primarily cover "hard" news topics like politics, business, and U.S. and international affairs. Correspondingly, fake news consumption is the time spent on 1 of 48 websites represent-

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SCIENCE ADVANCES | RESEARCH ARTICLE

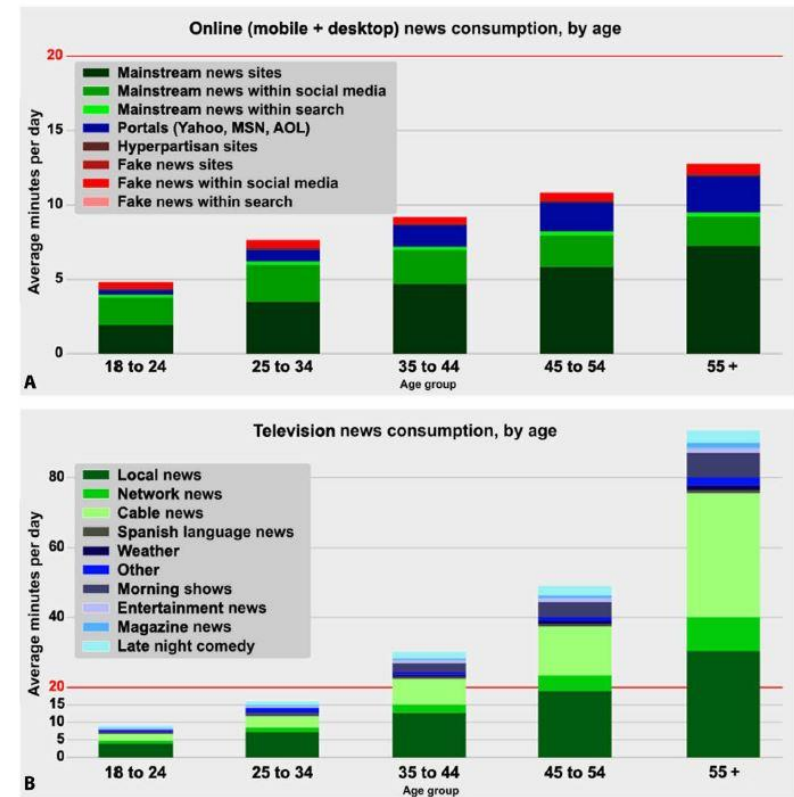


Fig. 4. News-only consumption by age. Detailed breakdown of news-only consumption by age group for (A) online (including mobile and desktop) and (B) television. See fig. S4 (A and B) for results plotted over time from January 2016 to December 2018. See table S11 for numerical values.

Allen et al. (2020)

Allen et al. (2020)

# People's beliefs may not be as partisan as it seems based on their social media feeds

## Shifting attention to accuracy can reduce misinformation online

[Gordon Pennycook](#) , [Ziv Epstein](#), [Mohsen Mosleh](#), [Antonio A. Arechar](#), [Dean Eckles](#) & [David G. Rand](#) 

*Nature* 592, 590–595 (2021) | [Cite this article](#)

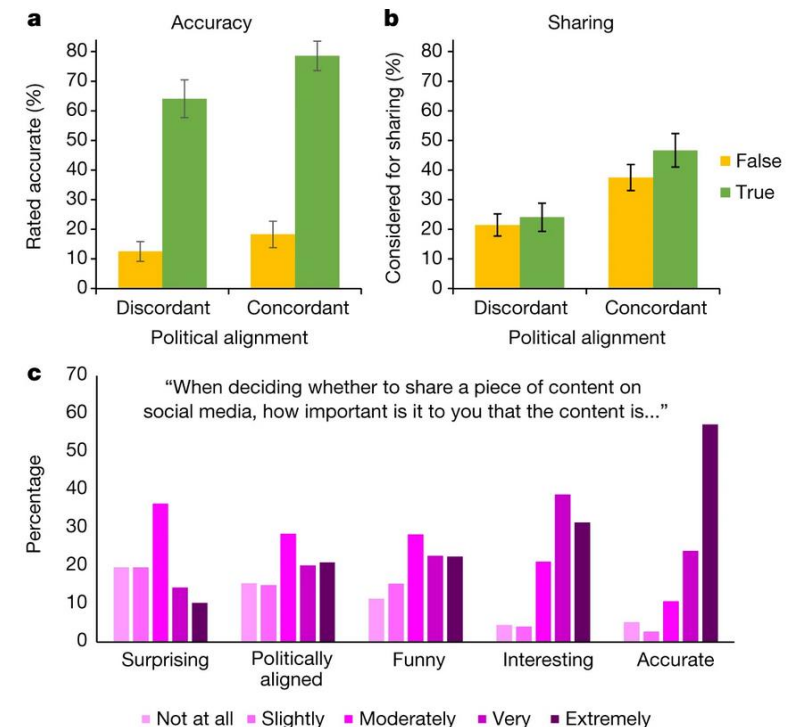
62k Accesses | 46 Citations | 1549 Altmetric | [Metrics](#)

### Abstract

In recent years, there has been a great deal of concern about the proliferation of false and misleading news on social media<sup>1,2,3,4</sup>. Academics and practitioners alike have asked why people share such misinformation, and sought solutions to reduce the sharing of misinformation<sup>5,6,7</sup>. Here, we attempt to address both of these questions. First, we find that the veracity of headlines has little effect on sharing intentions, despite having a large effect on judgments of accuracy. This dissociation suggests that sharing does not necessarily indicate belief. Nonetheless, most participants say it is important to share only accurate news. To shed light on this apparent contradiction, we carried out four survey experiments and a field experiment on Twitter; the results show that subtly shifting attention to accuracy increases the quality of news that people subsequently share. Together with additional computational analyses, these findings indicate that people often share misinformation because their attention is focused on factors other than accuracy—and therefore they fail to implement a strongly held preference for accurate sharing. Our results challenge the popular claim that people value partisanship over accuracy<sup>8,9</sup>, and provide evidence for scalable attention-based interventions that social media platforms could easily implement to counter misinformation online.

[Pennycook et al. \(2021\)](#)

"Sharing intentions are much less discerning than accuracy judgements - despite an overall desire to share only accurate content"



[Pennycook et al. \(2021\)](#)

# Fact-checking can reduce misperceptions but often has minimal effect

## Taking Fact-Checks Literally But Not Seriously? The Effects of Journalistic Fact-Checking on Factual Beliefs and Candidate Favorability

[Brendan Nyhan](#), [Ethan Porter](#), [Jason Reifler](#) & [Thomas J. Wood](#) 

*Political Behavior* 42, 939–960 (2020) | [Cite this article](#)

5147 Accesses | 65 Citations | 218 Altmetric | [Metrics](#)

### Abstract

Are citizens willing to accept journalistic fact-checks of misleading claims from candidates they support and to update their attitudes about those candidates? Previous studies have reached conflicting conclusions about the effects of exposure to counter-attitudinal information. As fact-checking has become more prominent, it is therefore worth examining how respondents respond to fact-checks of politicians—a question with important implications for understanding the effects of this journalistic format on elections. We present results to two experiments conducted during the 2016 campaign that test the effects of exposure to realistic journalistic fact-checks of claims made by Donald Trump during his convention speech and a general election debate. These messages improved the accuracy of respondents' factual beliefs, even among his supporters, but had no measurable effect on attitudes toward Trump. These results suggest that journalistic fact-checks can reduce misperceptions but often have minimal effects on candidate evaluations or vote choice.

[Nyhan et al. \(2020\)](#)

"we find that people express more factually accurate beliefs after exposure to fact-checks. These effects hold even when fact-checks target their preferred candidate. (...)

However, exposure to journalistic fact-checks did not affect attitudes toward him in either study. Ultimately, we find no evidence that changes in factual beliefs in a claim made by a candidate affect voter preferences during a presidential election." Nyhan et al. (2020:956)

# Misinformation, science audiences and Covid-19

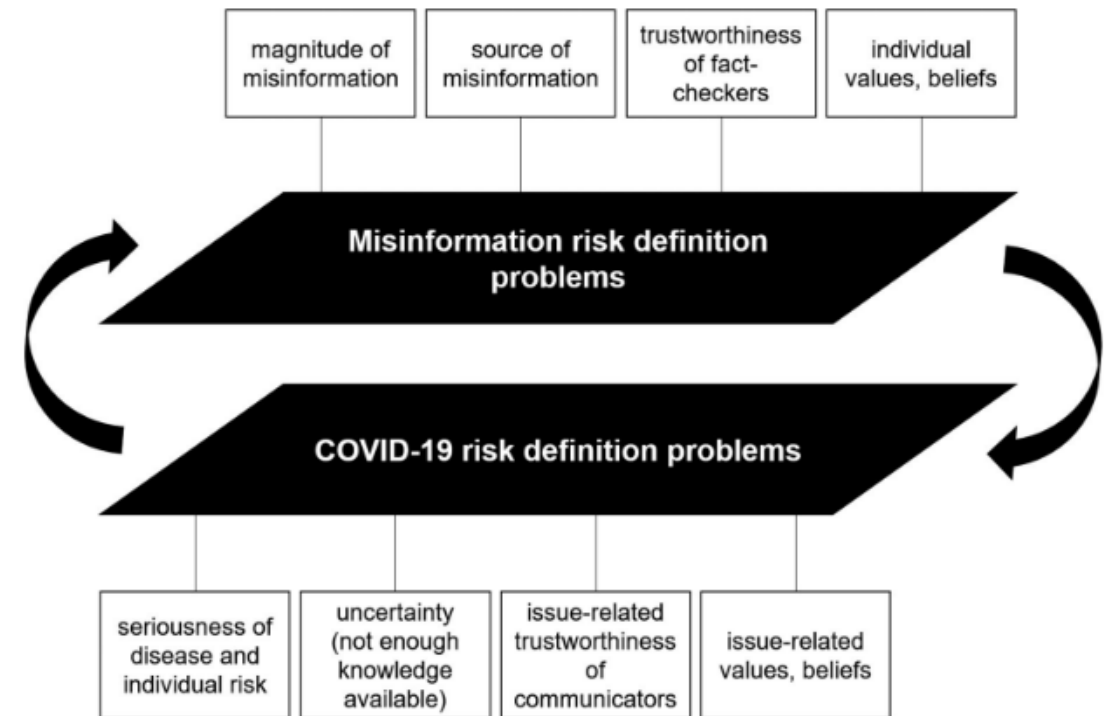
What does it mean for citizens to be misinformed or uninformed about science ?

- Lack of understanding of science
  - Knowledge about scientific facts
  - Epistemic knowledge about science
- Holding beliefs inconsistent with the best available science
  - Inaccurate views of scientific consensus and the willful rejection of scientific consensus
  - Conspiratorial beliefs

How does misinformation take root, and why does it persist ?

- Individual-Level Roots of Misinformation
  - The (in)ability to recognize misinformation
  - Motivations to recognize inaccurate information...or not
- Misinformation in Groups and Informational Cascades
- Communication Dynamics at the Societal Level

Multi-layered problem of risk definition in the context of the COVID-19 pandemic (Krause et al. 2020)



[Scheufele & Krause \(2019\)](#)

[Krause et al. \(2020\)](#)

# Covid-19 and mental health

## Study 1

# Materials

- Phase1 Mai-June 2020 (n=8806) Phase2 November 2020 (n=9027)
- Switzerland : Covid-19 Wave 1: March-April 2020 ; Covid-19 Wave 2: end Oct-Dec 2020
- Switzerland: we ran the questionnaire in the three regions
- Data collection : an online questionnaire centred on the concepts of the Knowledge-Attitude-Practice (KAP) model allowing the exploration of diverse themes such as risk perceptions and beliefs, positive and negative attitudes, as well as adaptive and maladaptive behaviours

Meas. wave	Canada		United States		England		Belgium		Switzerland		Hong Kong		Philippines		New Zealand	
	1 %	2 %	1 %	2 %	1 %	2 %	1 %	2 %	1 %	2 %	1 %	2 %	1 %	2 %	1 %	2 %
Numbers	1501	2004	1065	1003	1041	1000	1015	1014	1002	1000	1140	1002	1041	1003	1001	1001
Sex <sup>a</sup>																
Female	48.4	48.3	48.5	48.1	48.8	47.8	48.6	48.4	47.7	47.8	45.1	45.0	49.2	49.3	48.6	48.6
Male	51.6	51.7	51.5	51.9	51.2	51.2	51.4	51.6	52.3	52.2	54.9	55.0	50.6	50.7	51.4	51.4
Age (years)																
18-24	10.9	10.9	5.5	8.0	11.1	11.1	6.2	5.6	9.5	9.5	9.5	9.5	21.6	22.6	12.2	12.2
25-34	16.4	16.4	21.2	18.7	17.4	17.4	20.5	21.2	14.4	14.4	17.2	17.2	25.0	25.0	18.4	18.4
35-44	16.2	16.2	17.9	17.9	16.3	16.3	13.7	11.6	13.8	13.8	18.1	18.1	20.1	20.1	16.3	16.3
45-54	17.9	17.9	19.1	19.1	17.9	17.9	20.7	22.5	17.6	17.6	19.1	19.1	15.5	15.5	17.5	17.5
55-64	17.5	17.5	17.8	17.8	14.5	14.5	16.9	15.9	23.9	17.1	17.7	17.7	10.2	12.5	15.7	15.7
≥ 65	21.1	21.1	18.4	18.4	22.8	22.8	22.0	23.2	20.8	27.5	18.4	18.4	7.7	5.3	19.9	19.9
Household composition <sup>b</sup>																
Alone	20.2	18.3	21.9	22.9	20.7	21.2	18.9	18.8	23.6	27.1	6.5	6.7	4.8	3.4	18.0	15.6
With children	25.1	22.4	32.2	30.2	27.9	25.7	22.2	22.2	22.1	18.5	31.0	27.8	52.9	55.0	32.6	34.0
With others	54.7	59.3	45.9	46.9	51.4	53.2	58.9	59.0	54.3	54.4	62.5	65.5	42.3	41.6	49.4	50.4
Essential worker <sup>c</sup>																
No	75.9	73.6	78.2	73.0	73.1	73.9	82.2	77.4	77.2	78.3	64.3	61.3	81.2	70.4	72.9	74.3
Yes: health	6.8	8.9	7.8	9.2	9.5	7.9	7.5	6.1	13.0	9.8	13.6	10.9	8.1	10.9	9.9	8.9
Yes: other	17.3	17.5	14.1	17.8	17.3	18.2	10.2	16.5	9.8	11.9	22.1	27.8	10.7	18.7	17.2	16.8

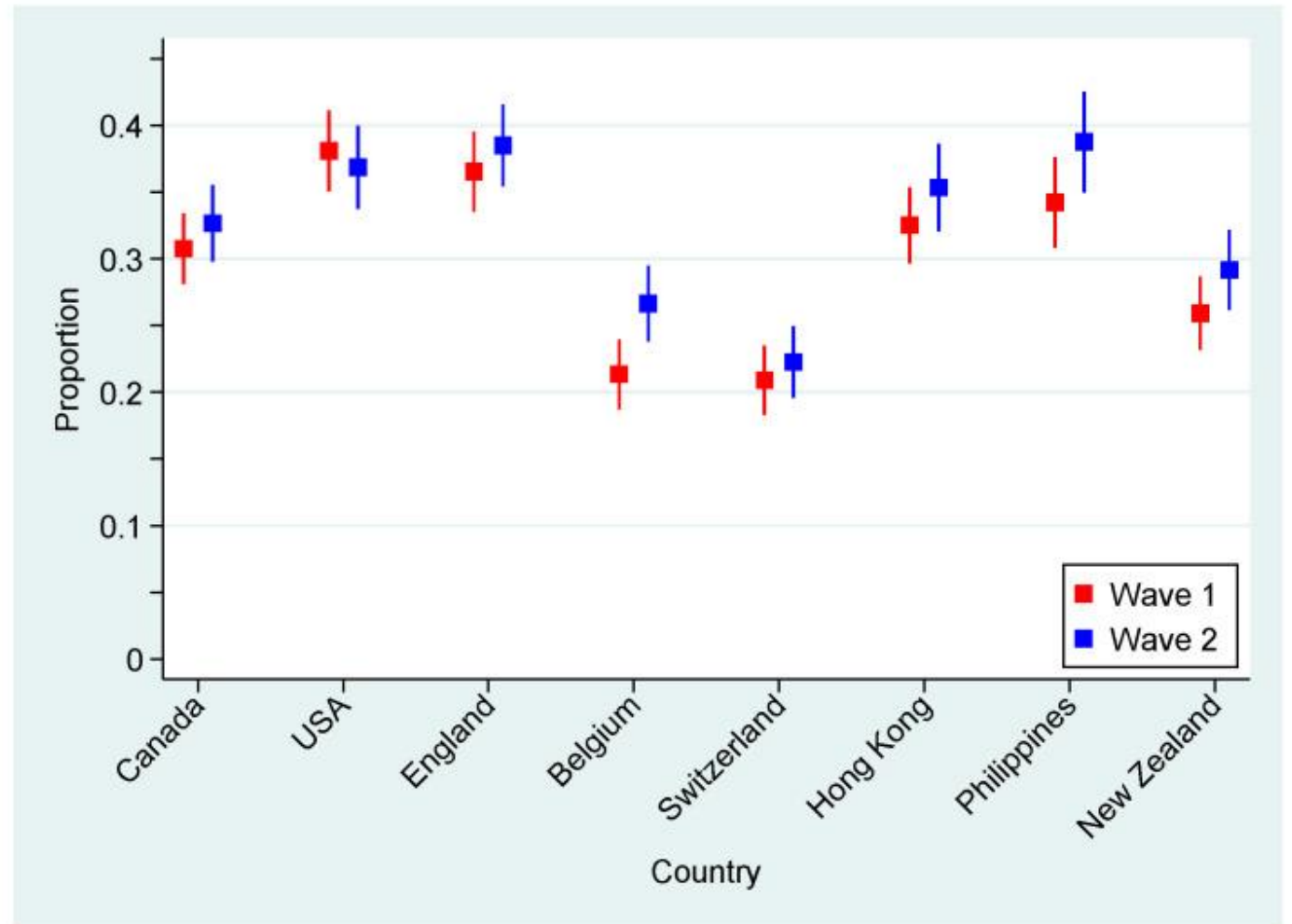
## Indicators

- Main component of the study is a psychological response survey -> Raising awareness of the impacts of the pandemic on psychological health
- Indicator : probable GAD or MDE
  - GAD (generalized anxiety disorder). Standard questionnaire (GAD-7). The total score is obtained by adding up the score obtained for each item. ([Spitzer al. 2006](#))
  - MDE (major depressive episode). Standard questionnaire (PHQ-9).
- Countries across the globe faced different epidemiological situations, and even those impacted in a similar manner chose to respond to the pandemic in different ways
- Early and effective containment measures have decreased infection rates ; however, the benefits come with huge costs in terms of negative psychological outcomes, especially when individuals are affected by specific stressors such as greater duration of confinement, inadequate supplies, difficulty securing medical care, financial losses
- The confinement also deepened social inequalities, causing more individuals to be vulnerable to the impacts of the pandemic
- Various factors play important roles in coping with a highly stressful situation such as the Covid-19. These factors encompass not only individual psychological resources, such as one's sense of coherence, but also socio-ecological factors for resilience such as family functioning, social support, social participation, and trust in healthcare institutions

# Findings

## Psychological Outcomes

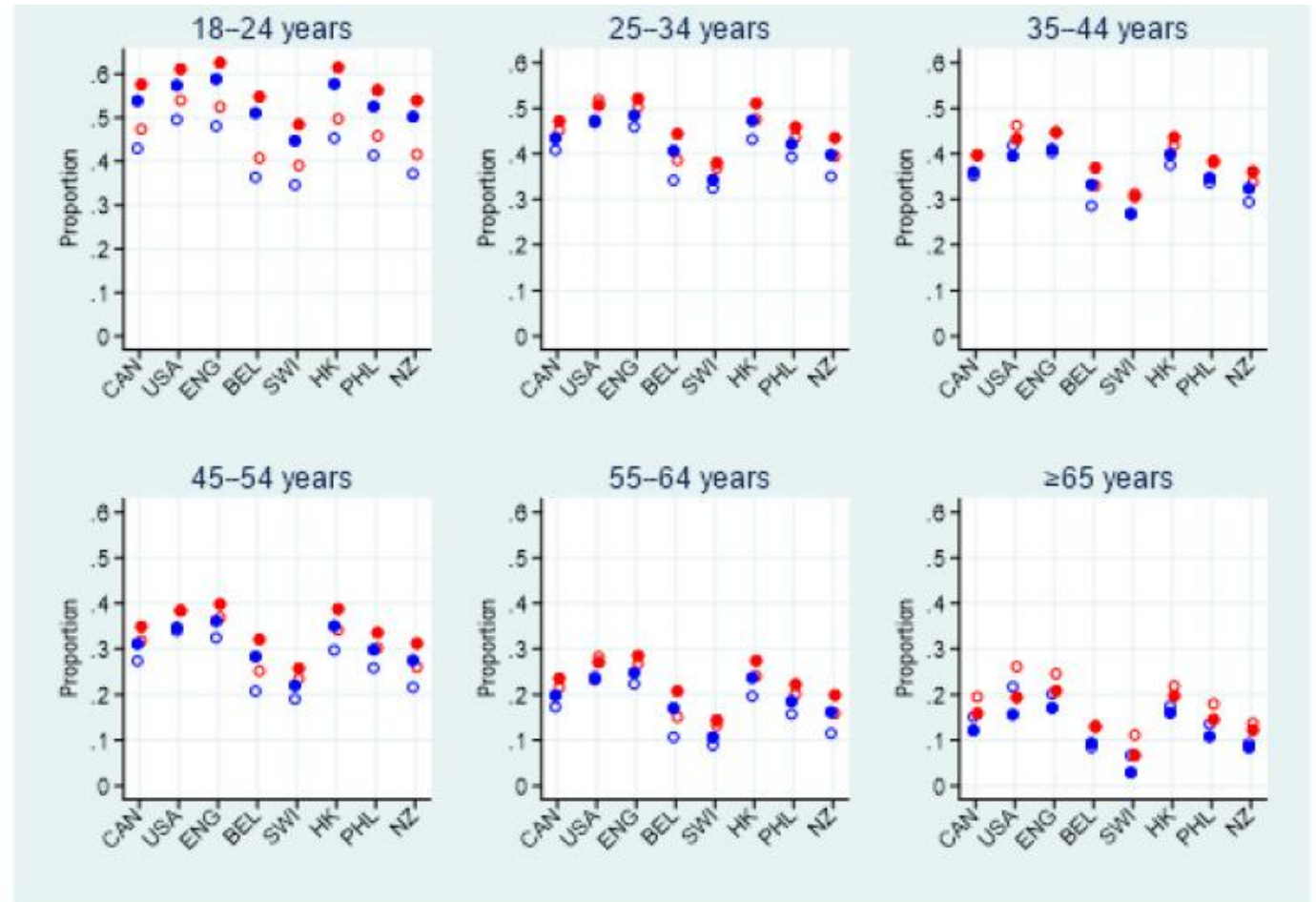
- An increase in negative psychological outcomes between the first and second measurement waves.
- Substantial differences between countries, with rates in the USA, England, Hong Kong and the Philippines generally higher and those in Switzerland and Belgium generally lower.
- Probable GAD or MDE indications ranged from 22.3% in Switzerland to 38.8% in the Philippines in November 2020 (Wave 2)



# Findings

## Psychological Outcomes

- Rates among female, younger, and measurement wave 2 participants are generally higher than males, older and measurement wave 1 participants.
- Higher changes between wave 1 and wave 2 rates in the younger age groups



Females are denoted by red circles, males by blue circles Measurement wave 1 with hollow circles and measurement wave 2 with solid circles

# Conspiracy theories and misinfo. about Covid-19

## Study 2

# Materials

- Phase1 June 2020 (n =8806)
- Switzerland : Covid-19 Wave 1: March-April 2020
- Data collection : Questionnaire study 1 (≥18 years)

	Belgium	Canada	England	Hong Kong	New Zealand	Philippines	United States	Switzerland	Total
<b>Age (mean)</b>	48.9	48.0	47.5	46.3	46.6	38.2	47.8	49.3	46.6
<b>Gender (%)</b>									
Male	49	48	49	45	48	49	49	48	48
Female	51	51	51	55	51	50	51	52	52
<b>Educational attainment (%)</b>									
Secondary education or lower	65	32	60	38	34	41	24	44	49
Tertiary education or higher	35	68	39	61	64	57	76	55	51
<b>Information sources (mean)</b>									
Health experts	2.4	2.5	2.5	2.5	2.5	3.1	2.5	2.4	2.6
Political actors	2.1	2.4	2.3	2.1	2.3	2.6	2.2	2.4	2.3
Traditional media	2.5	2.1	2.2	2.5	2.4	2.9	2.2	2.4	2.4
Digital media and personal contacts	1.7	1.9	2.0	2.4	2.0	2.8	2.1	2.0	2.1
<b>Trust in information sources (mean)</b>									
Health experts	6.9	7.6	7.5	6.7	7.6	7.8	7.1	7.1	7.3
Political actors	4.7	6.2	5.5	5.0	6.8	6.5	4.9	6.4	5.8
Traditional media	5.8	6.3	6.0	6.5	6.3	7.1	6.0	6.1	6.3
Personal contacts	7.6	7.7	7.7	7.2	8.1	7.6	7.6	7.7	7.6
<b>GAD (mean)</b>	4.9	5.6	6.2	6.4	5.0	6.4	6.8	4.0	5.7
<b>PHQ (mean)</b>	5.0	6.4	7.4	7.0	6.3	6.9	7.6	5.1	6.4
<b>N</b>	1,015	1,501	1,041	1,140	1,000	1,041	1,065	1,003	8,806

1% of respondents are missing for gender, and 1.5% for educational attainment.

## Indicators

- Belief in **conspiracy theories** (e.g., *the pharmaceutical industry is involved in the spread of the coronavirus*) was measured through with 3 items presented in all countries and another one with 6 items presented in all countries except Hong Kong. Answer options ranged from 1 (do not agree at all) to 10 (fully agree)
- Belief in **misinformation** was measured through 5 items (e.g., *the coronavirus cannot be transmitted in warm countries*). Answer options ranged from 1 (do not agree at all) to 10 (fully)
- Covid-19 Information sources was measured through 12 items. Answer options ranged from 1 (never) to 4 (mainly/always)
- Trust in Covid-19 Information Sources was measured through 7 items. Answer options ranged from 1 (do not trust at all) to 10 (fully trust)
- Switzerland and Belgium are part of the democratic corporatist model (Hallin & Mancini 2017). Despite differences, the United Kingdom and Canada are close to this group. The political and media environment in the US is polarized and creates fertile ground for spreading misinformation. The Philippines and Hong Kong have a partisan media landscape, and political polarization is high in both countries/regions. New Zealand is selected for its approach to the Covid-19 pandemic. Almost all countries were still in the process of fighting the pandemic (wave 1), while New Zealand had passed this stage
- We expect conspiracy and misinformation beliefs to be low in countries with a consensual, media-friendly political system and high in countries with a polarized political and media environment

# Findings

## Countries differences

- Belief in **conspiracy theories** results. Mean scores indicated that respondents from the Philippines, the United States, and Hong Kong reported the highest scores with regards to conspiracy beliefs. Respondents from Switzerland, but especially Canada and New Zealand reported the lowest scores
- As for **misinformation beliefs**, results again pointed to significant country differences. Respondents from same three countries the Philippines, Hong Kong, the United States reported the highest belief
- Respondents from countries with a media-supportive and consensual political system report some of the lowest conspiracy/misinformation beliefs

Dependent variables	df	F	Sig.	Country	Mean score
Conspiracy beliefs	7	107.82	0.00	Philippines	5.83
				United States	5.19
				Hong Kong	5.03
				England	4.97
				Belgium	4.35
				Switzerland	4.31
				Canada	3.95
				New Zealand	3.86
Misinformation beliefs	7	172.63	0.00	Philippines	4.91
				Hong Kong	4.06
				United States	3.73
				England	3.51
				Switzerland	3.11
				New Zealand	3.05
				Canada	2.75
				Belgium	2.62

Answer options for both misinformation and conspiracy beliefs ranged from 1 to 10, with the high end of the scale denoting high misinformation/conspiracy beliefs

# Findings

## Sociodemographic differences

- Differences in **conspiracy beliefs** by age and education, with mean scores indicating that younger age categories (18-34; 35-54) and lower educated individuals held higher conspiracy beliefs than older age categories and highly educated individuals
- As for **misinformation beliefs**, we found that younger age categories, lower educated individuals, and women were more inclined to believe in misinformation than older age categories, higher educated individuals, and men

Dependent variables	Independent variables	df	F	Sig.	Mean score
Conspiracy beliefs	<b>Age</b>	8,781	76.35	0.00	
	18-34				5.22
	35-54				4.81
	55 +				3.99
	<b>Gender</b>	8,781	13.82	0.24	
	Male				4.63
	Female				4.69
	<b>Education</b>	8,710	15.70	0.00	
	Secondary education or lower				4.83
Tertiary education or higher				4.53	
Misinformation beliefs	<b>Age</b>	8,781	91.62	0.00	
	18-34				4.03
	35-54				3.54
	55 +				2.85
	<b>Gender</b>	8,781	49.04	0.00	
	Male				3.56
	Female				3.33
	<b>Education</b>	8,710	4.23	0.00	
	Secondary education or lower				3.52
Tertiary education or higher				3.36	

Answer options for both misinformation and conspiracy beliefs ranged from 1 to 10, with the high end of the scale denoting high misinformation/conspiracy beliefs

# Findings

## Exposure

- **Exposure to health experts** was in general associated with lower conspiracy and misinformation beliefs
- **Exposure to political actors** was associated with greater conspiracy beliefs in the United States, Hong Kong, and the Philippines, and greater and misinformation beliefs in all countries except Belgium and Canada
- In terms of **information from traditional media** (TV, radio, print news), analyses showed greater exposure was negatively associated with conspiracy beliefs and misinformation beliefs in Belgium and Switzerland only
- Exposure to **digital media** was associated with greater conspiracy theory beliefs and misinformation beliefs

# Findings

## Trust

- Information from **health actors** was more likely to be associated with lower conspiracy or misinformation beliefs for those who report high trust in these actors
- Information from **digital media** was more likely to be associated with higher conspiracy or misinformation beliefs among those who report high trust in these media

# Findings

Direct standardized effects of predictors on conspiracy beliefs and misinformation beliefs

	Belgium		Canada		England		Hong Kong		New Zealand		Philippines		Switzerland		United States	
	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs	Conspiracy beliefs	Mis information beliefs
<b>Exposure to information</b>																
Health experts	-0.16**	-0.03	-0.18***	-0.08*	-0.07*	-0.17***	-0.12**	-0.09**	-0.21***	-0.10**	-0.06	-0.10*	-0.05	-0.07	-0.18***	-0.20***
Political actors	-0.02	0.07	-0.03	0.05	0.00	0.14***	0.10**	0.43***	0.03	0.09*	0.05*	0.16***	-0.06	0.08*	0.07*	0.25***
Traditional media	-0.20***	-0.12**	-0.11**	-0.01	-0.03	0.01	0.03	-0.11**	-0.02	0.00	0.02	0.04	-0.16**	-0.08*	-0.03	0.03
Digital media and personal contacts	0.25***	0.19***	0.28***	0.21***	0.26***	0.26***	0.27***	0.15***	0.31***	0.28***	0.09*	0.09*	0.33***	0.26***	0.32***	0.26***
<b>Interaction trust/exposure</b>																
Health experts	0.15***	0.04	0.09*	-0.03	0.12***	-0.01	-0.08*	0.00	0.10*	0.06	-0.01	-0.03	0.11**	0.02	0.09*	-0.02
Political actors	0.02	-0.12**	0.04	0.09**	-0.01	0.06	0.10**	-0.06	0.13**	0.02	-0.06	-0.08	0.08*	-0.04	0.08*	0.03
Traditional media	-0.04	-0.06	0.06*	-0.04	0.04	-0.01	-0.02	0.01	-0.09*	-0.07*	0.03	0.13**	-0.00	0.00	0.01	0.02
Digital media and personal contacts	-0.05	-0.01	0.02	0.04	0.03	-0.04	0.12***	0.15***	0.09**	0.07*	-0.03	0.09*	0.03	0.04	0.08*	0.16***
<b>GAD</b>	0.04	-0.12*	0.05	-0.01	0.09	0.04	-0.15**	-0.23***	-0.04	-0.05	0.11*	0.07	0.08	0.04	-0.08	-0.13*
<b>PHQ</b>	0.12*	0.16**	0.07	0.08	0.16**	0.13*	0.37***	0.41***	0.24***	0.26***	-0.01	0.00	0.13*	0.11*	0.21***	0.26***

# Last words

# (Mis)information <-> health

## SUM UP (selection)

- Study 1
  - Switzerland and Belgium had the least negative psychological results
  - Young people are particularly affected by the Covid-19 pandemic
- Study 2
  - The Philippines, United States, and Hong Kong ranked as the top three for beliefs in conspiracy theories and misinformation. Significantly lower scores for both beliefs were found for Switzerland, Canada and New Zealand and Belgium
  - One would expect that more exposure to information from political actors would also decrease beliefs in conspiracies and misinformation, but results showed that this exposure is associated with greater conspiracy and misinformation beliefs in Hong Kong, the United States, and the Philippines, and not associated with these beliefs in most other countries

## CHALLENGES

- Content
  - Health (e.g. non-certified websites)
- Approaches
  - Methods ([Jerolmack & Khan 2014](#))
  - Long-term effects ([Gerbner 1998](#))
- Putting true news into circulation
- Developing an appetite for science

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Thank you !

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