

Drinking from a firehose: The communication of science and risk during a pan- and infodemic

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***Five** Key takeaways*

Communication Revolution

#1

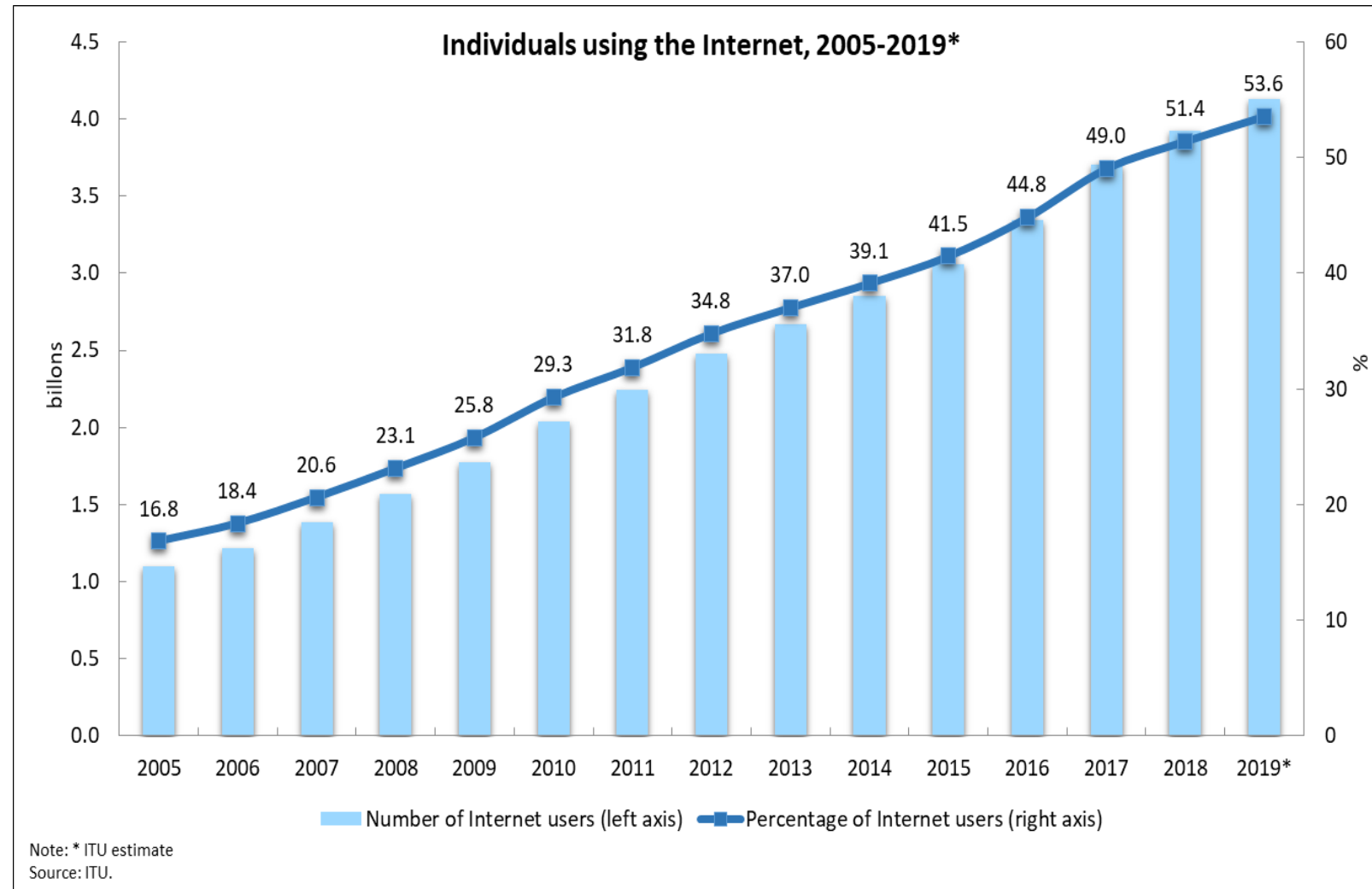
Proliferation of Platforms and (Mis)information



Features of the communication revolution

- Proliferation of information platforms
 - Generation and delivery
- Generation of an enormous amount of data from different sources
- Networked environment

Internet Usage, 2005-2019



JAN
2020

SOCIAL MEDIA USE AROUND THE WORLD

BASED ON THE NUMBER OF MONTHLY ACTIVE USERS OF TOP SOCIAL MEDIA PLATFORMS IN EACH COUNTRY OR TERRITORY

TOTAL NUMBER OF
ACTIVE SOCIAL
MEDIA USERS



we
are.
social

3.80
BILLION

SOCIAL MEDIA
PENETRATION (USERS
vs. TOTAL POPULATION*)



49%

ANNUAL GROWTH IN
THE TOTAL NUMBER OF
SOCIAL MEDIA USERS



+9.2%

TOTAL NUMBER OF SOCIAL
MEDIA USERS ACCESSING
VIA MOBILE PHONES



global
web
index

3.75
BILLION

PERCENTAGE OF TOTAL
SOCIAL MEDIA USERS
ACCESSING VIA MOBILE



99%

77

SOURCES: KEPIOS ANALYSIS; COMPANY STATEMENTS AND EARNINGS ANNOUNCEMENTS; SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS; MEDIASCOPE; CAFEBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). ***NOTES:** PENETRATION FIGURES ARE FOR TOTAL POPULATION, REGARDLESS OF AGE. **♦ COMPARABILITY ADVISORY:** SOURCE AND BASE CHANGES.

we
are.
social



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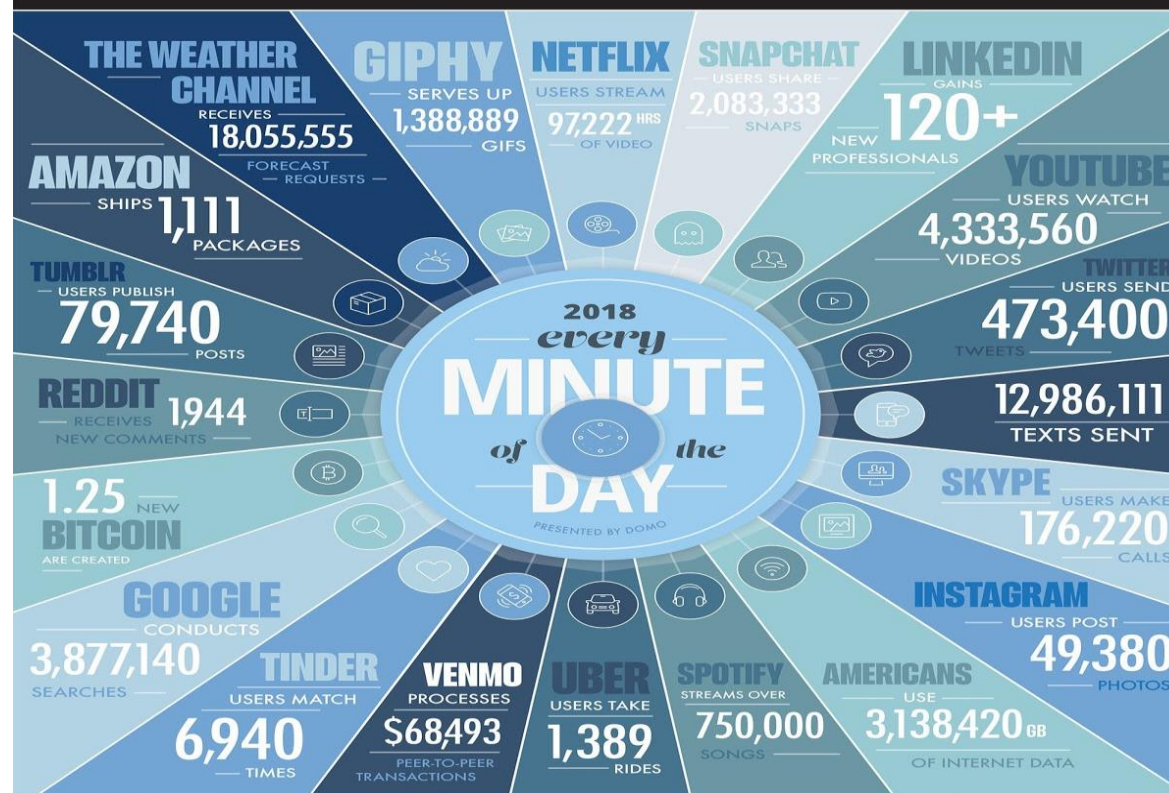
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DATA NEVER SLEEPS 6.0

How much data is generated *every minute*?

There's no way around it: big data just keeps getting bigger. The numbers are staggering, but they're not slowing down. By 2020, it's estimated that for every person on earth, 17 MB of data will be created every second. In our 6th edition of Data Never Sleeps, we once again take a look at how much data is being created all around us every single minute of the day—and we have a feeling things are just getting started.



The world's internet population is growing significantly year-over-year. In 2017, internet usage reached 47% of the world's population and now represents 3.8 billion people.



GLOBAL INTERNET POPULATION GROWTH 2012-2017
(IN BILLIONS)

SOURCES: STATISTA, LINKEDIN, INTERNET LIVE STATS, EXPANDED RAMBLINGS, SLASH FILM, RIAA, BUSINESS OF APPS, INTERNATIONAL TELECOMMUNICATIONS UNION, INTERNATIONAL DATA CORPORATION

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https://www.socialmediatoday.com/user_media/diveimage/internet_minute_info2.jpg



COVID-19



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About 1,520,000,000 results (0.70 seconds)



National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed.gov

COVID-19



Search

[Advanced](#) [Create alert](#) [Create RSS](#)

[User Guide](#)

Save

Email

Send to

Sorted by: Best match

Display options

MY NCBI FILTERS

141,878 results

RESULTS BY YEAR



Use COVID-19 filters from PubMed Clinical Queries to refine your search

[Treatment](#) [Mechanism](#) [Transmission](#) [More filters](#)

[See more SARS-CoV-2 literature, sequence, and clinical content from NCBI](#)



Resolution of **coronavirus** disease 2019 (**COVID-19**).

Two key features of this data deluge

- *Information Deluge.....*
- *Limited or no gatekeeping*



#2

The Production of health, science and risk information: Who generates it?



Who generates risk “information”?

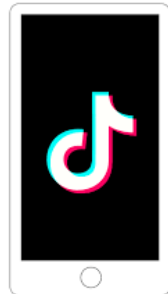
Scientists provide the science, but..

- Mass Media
- Health systems
- Private Sector
- Activists Groups
- User-generated content



Individuals as information producers in the age of social media

- Penetration of Social Media and apps has allowed individuals to
 - Produce information
 - Disseminate information
 - Network effect



#3

Information ≠ Communication



Distinguish

- Information
- Misinformation
- Disinformation

Did You I



The medical staff in
shared photos of the



HELP PRESS API JOBS PRIVACY TERMS DIRECTORY PROFILES



*Incredible world: unscrupulous
and in-humane leaders who
engineer a killer virus to wipe out
innocents- whether in enemy
nation or their own*

ముఖ్యగమనిక:-

కరోనా వైరస్
సోకకుండా ముందు
జాగ్రత్తగా *ఆర్సేనికం
ఆల్బమ్-30* అనే
హెమామియో మందును
పరగడుపున మూడు రోజులు
పాటు తీసుకోవలసినదిగా
భారత ఆయుష్ మంత్రిత్వ
శాఖ
సూచించింది. దయచేసి ఈ
మెసేజ్ ను అందరికీ
ఫార్వర్డ్ చేయండి.



VISU

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Disinformation



CORONAVIRUS 05/24/2020 10:03 am ET



Bots Are Likely Responsible For Nearly Half Of COVID-19 Tweets, Say Researchers

Many of them are promoting fake cures, spreading conspiracy theories and pushing to "re-open America."



By Mary Papenfuss

Nearly half of some 200 million tweets about COVID-19 likely came from bots, with many of them plugging false cures, peddling conspiracy theories and clamoring for the U.S. to drop safety measures in order to re-open America, researchers have found.

POLITICO

CORONAVIRUS

Conspiracy theorists, far-right extremists around the world seize on the pandemic

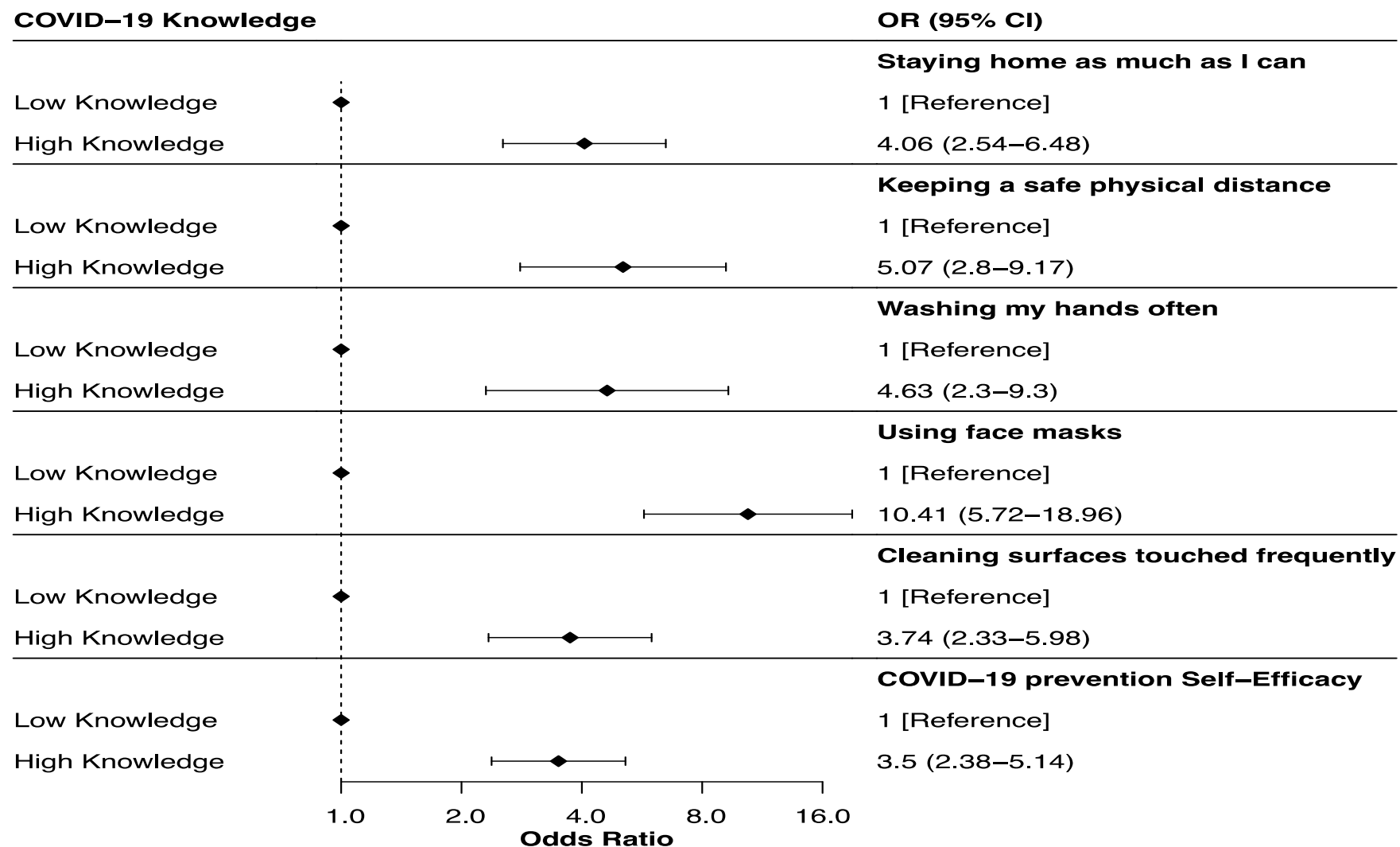
Civil rights advocates have warned for months that the coronavirus could aid recruiting for the most extreme white-supremacist and neo-Nazi groups.

Not all online groups peddling messages on the pandemic have links to the far right, but those extremists have become especially vocal in using the outbreak to push their political agenda at a time of deepening public uncertainty and economic trauma. They are piggybacking on social media to promote coronavirus-related themes drawn from multiple sources — among them, [Russian and Chinese disinformation campaigns](#), the Trump administration's musings about the coronavirus' origins and anti-Muslim themes from India's nationalist ruling party.

Consumption of Health Information

- **Flood of health information is overwhelming**
- **Culture of science and culture of communication**
 - Episodic
 - Seemingly contradictory and conflicting
 - “they can’t make up their mind”
- **Innumeracy, healthy literacy and low “research literacy”**

Misinformation and Public Health Compliance



#4

Health & Communication Inequalities



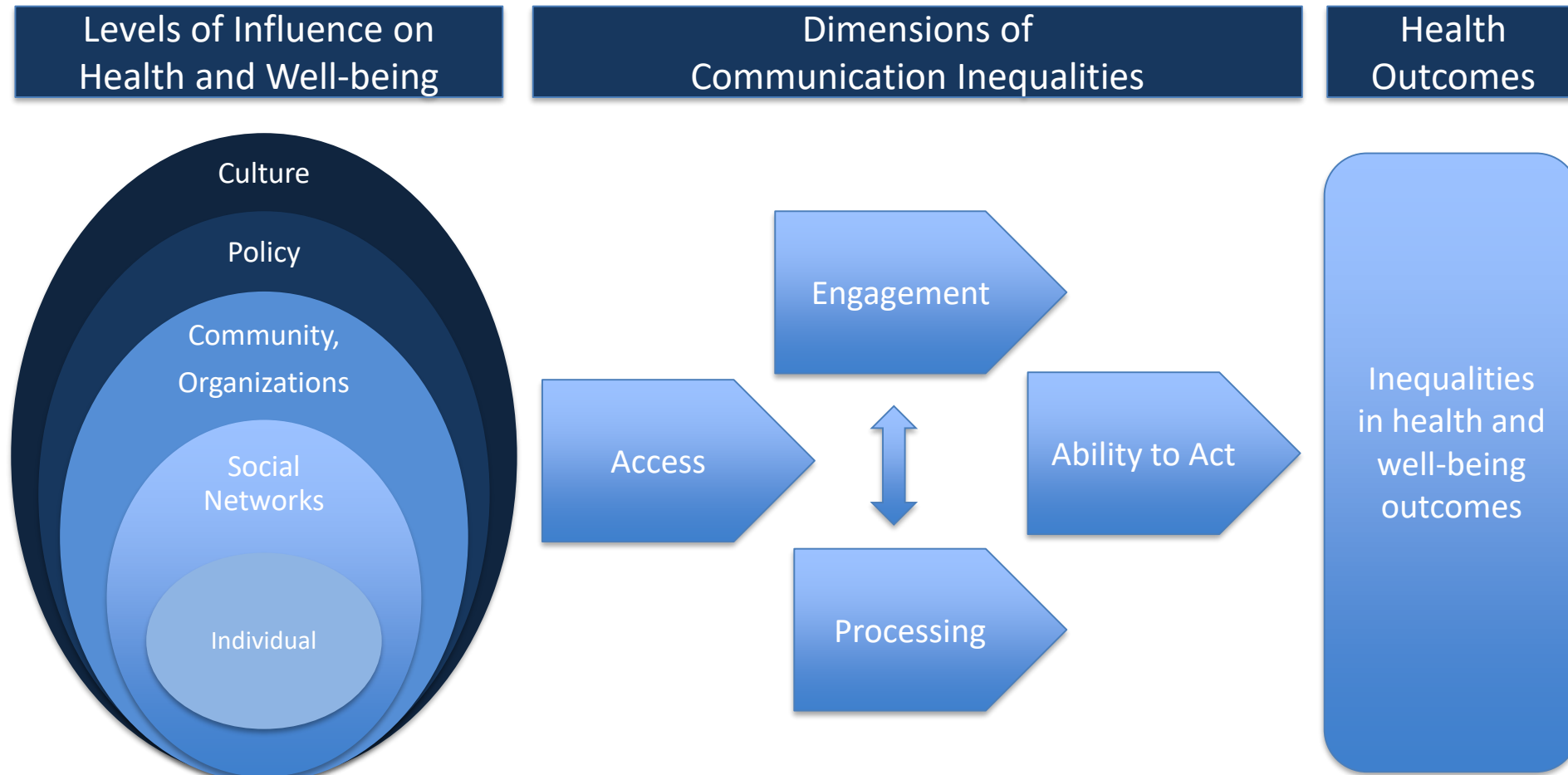
Health Inequalities

- Health, like wealth, is unequal
 - People from higher SEP, and those living in wealthy neighborhoods/cities are healthier
 - Mortality is distributed unequally across social groups
 - Risk factors are unequally distributed
 - More prevalent among low SEP
 - Poverty has pernicious effect on wellbeing
 - Leads to isolation, disconnectedness, lack of access to health services, less access to telecommunication services, more unhealthy behaviors

Communication Inequalities

- **Communication inequalities** manifest at multiple levels
 - **Macro-Level**: Differences in generation, processing and distribution of health information between different groups and institutions
 - **Individual-Level**: Differences in accessing, processing and using health information → precluding certain groups from taking advantage of the information revolution

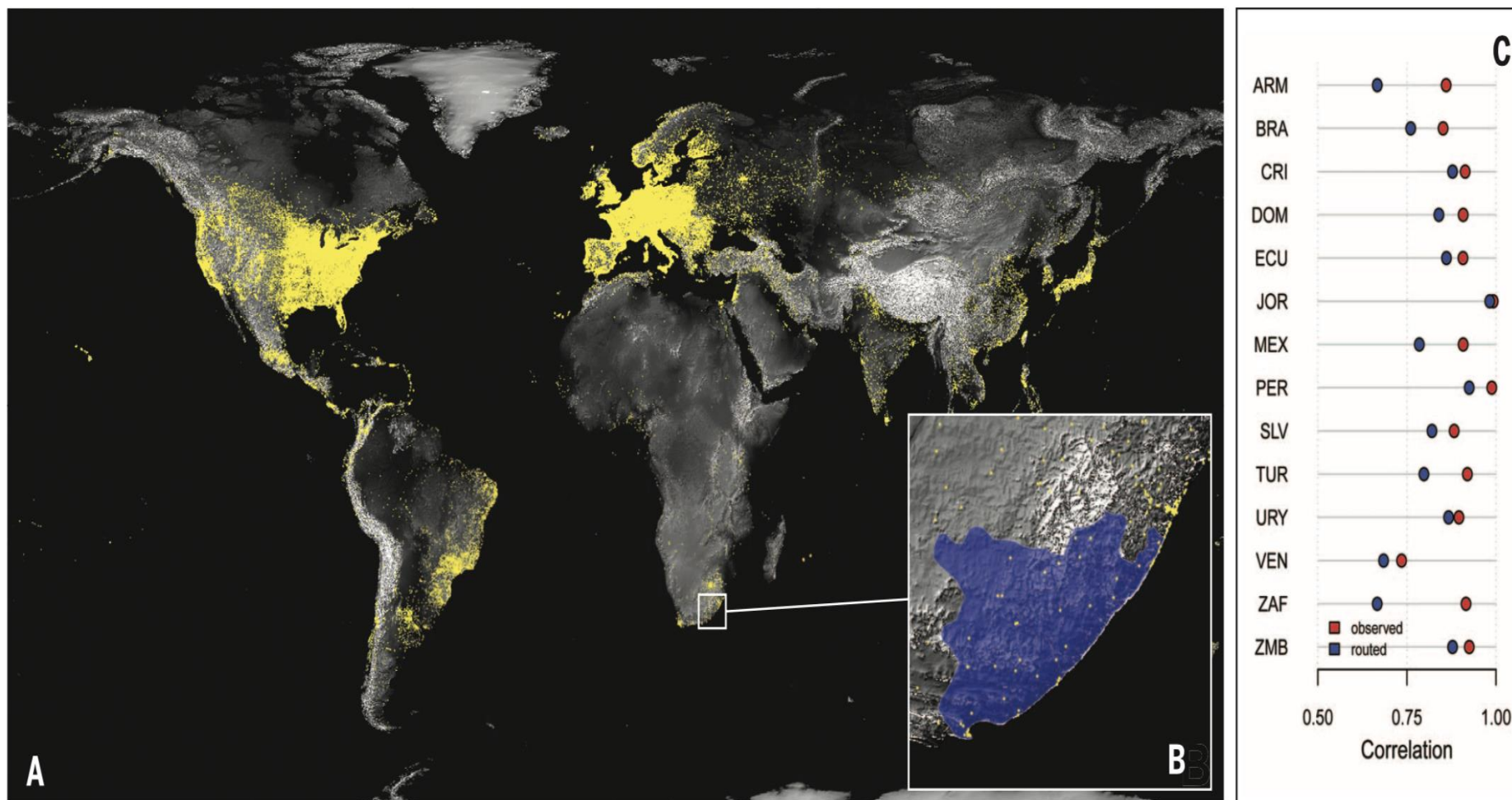
Communication Inequalities: Structural Influence Model



Social Determinants and Science Communication

- What matters
 - Class matters
 - Race (& ethnicity) matters
 - Place matters
 - Policy matters
- Data Absenteeism

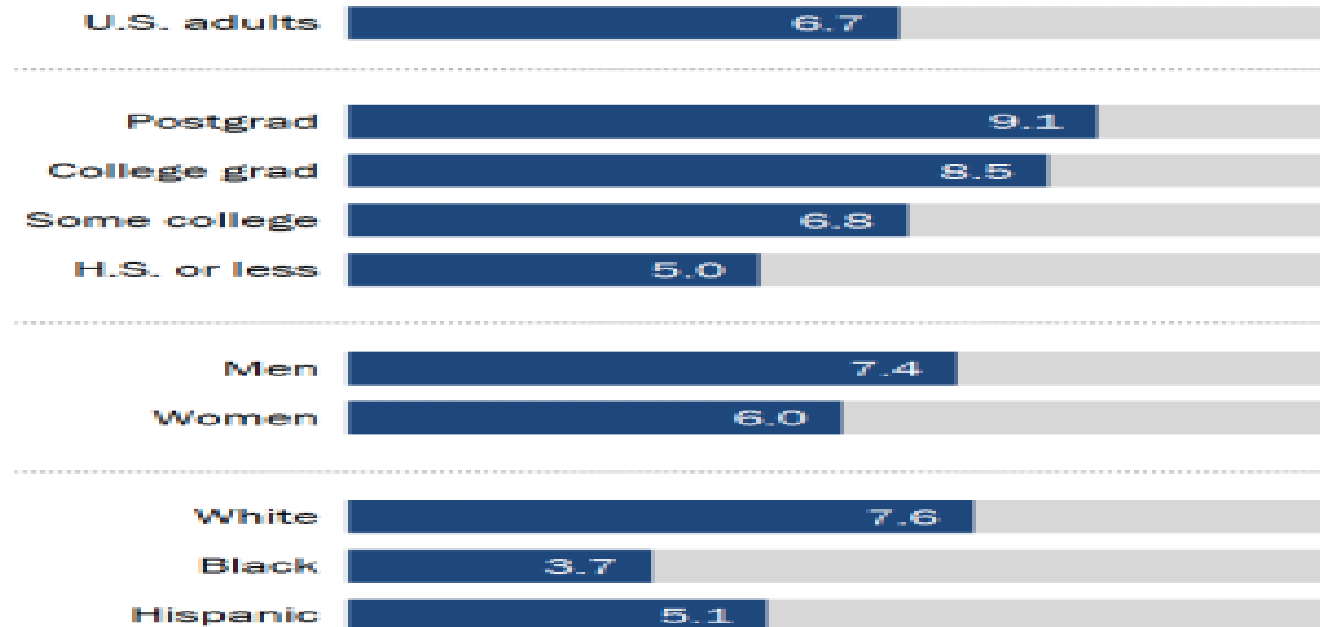
Digital Discrimination



Nils B. Weidmann, Suso Benitez-Baleato, Philipp Hunziker, Eduard Glatz, Xenofontas Dimitropoulos. Digital discrimination: Political bias in Internet service provision across ethnic groups. *Science*. 9 SEPTEMBER 2016 • VOL 353 ISSUE 6304

More educated Americans score higher on the science knowledge scale

Mean number of correct answers out of 11



Notes: Whites and blacks include only non-Hispanics. Hispanics are of any race. All questions are multiple choice; for full question wording, see topline.

Source: Survey conducted Jan. 7-21, 2019.

"What Americans Know About Science"

PEW RESEARCH CENTER

Viswanath K, Lee EWJ, Pinnamaneni R. We Need the Lens of Equity in COVID-19 Communication. Health Commun. 2020 Dec;35(14):1743-1746. doi:

10.1080/10410236.2020.1837445. Epub 2020 Oct 26. PMID: 33106029.

Intersectionality

Among the college educated, whites score higher than blacks and Hispanics on science knowledge

Mean number of correct answers out of 11

Among those with a college degree or more



Among those with some college education or less



Notes: Whites and blacks include only non-Hispanics. Hispanics are of any race. All questions are multiple choice; for full question wording, see topline.

Source: Survey conducted Jan. 7-21, 2019.

"What Americans Know About Science"

PEW RESEARCH CENTER

Information processing

- **Mindset of resource scarcity**
 - Differential allocation of attention
 - Pressing demands and juggling
 - Cognitive overload?

Shah, AK., Mullainathan S., Shafir E. Some Consequences of Having Too Little. Science 338, 682 (2012).

Consequences of inequalities

- Lower knowledge
- Norms conducive to unhealthy behaviors
- Limited or no access to services
- Inability to act on opportunities even when available
- **Higher disease incidence, prevalence and even mortality**

#5

What can be done?

Some solutions....

- Science of message construction
- Science of Engagement
- Participatory science

Message construction...

How you say it is as important as **what**
you say

Message formats

- **Several types of message formats (“construction”)**
 - Fear appeals
 - Sensation seeking
 - Narratives
 - Exemplars
 - Framing

What is the message?

Is Domestic Violence...

A women's issue or... a community issue?

eliminando el racismo, potenciando a la mujer
eliminating racism
empowering women
ywca

domestic violence

Stemming Domestic Violence: A Community Issue

In response to recent violence within Lawrence, Executive Director Rebecca A. Hall offers insight into the larger issue of how communities can stem the tide of domestic violence.

Combating domestic violence is a community issue: everyone has a role to play. Everyone must speak up. Research has shown that bystanders can be a powerful force for domestic violence prevention if we take the opportunity to step in before a harrowing event such as the murders in Lawrence occurs. Concerned family, friends, and colleagues should not intervene themselves, but should reach out to the YWCA of Greater Lawrence or other domestic violence service providers for guidance about how to encourage a victim to seek the services which can save lives.

A private or a public health issue?



Bell Bajao – Global Champion

United Nations Secretary-General Ban Ki-moon joins Bell Bajao as the first global champion. He invites men all over the world to unite in stopping violence against women. ...

Reframing responsibility, changing norms.

http://www.ywcalawrence.org/programs/domestic_violence2.asp

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

Engagement of stakeholders

COVID-19 Dashboard

Use our
step-by-step approach

Find resources

Get help

Sign up for
a training



Evidence-based programs for healthy communities

WHAT'S NEW

COVID-19 Dashboard

Given the global pandemic, there is an urgent need for reliable information that is technically and scientifically sound and easily understandable. It has become increasingly difficult to separate truth from fiction even though

"Planet MassCONNECT gives you the tools to identify successful evidence-based programs [and] get immediate access to important data... I utilize the website regularly to research evidence-based programs that might work in my community."



Rev. Albert Whitaker
NE Regional Director of Community
Health Strategies, American Diabetes

Data visualization

[Read more](#)

COVID-19 Dashboard

Welcome to the site. The rapid spread of COVID-19 virus across the globe is affecting millions of people and is at the same time resulting in the spread of information, misinformation (false information spread without malicious intent) and disinformation (false information spread with the intent to deceive). Our intention is not to create additional information but to bring together credible COVID-19 related information that is easy to access, understand and act upon. Here, we try and address how to navigate the large amounts of information and will update this page as more evidence becomes available. Our target audiences are people we have been working with: journalists, non-governmental organizations and members of the communities we are engaging in. Others too may find this useful.

Over the next few weeks we will expand, modify and update this information. Please visit as often as you can and let us know how this site can be more helpful.

Frequently Asked Questions

Frequently Asked Questions about COVID-19

[Go to FAQs](#)

Myths vs Facts

False information about COVID-19 with facts debunking these myths

[Go to Myths vs Facts](#)

Social Media Tips

How to use social media responsibly during COVID-19

[Go to Social Media Tips](#)

Data Spotlight

Latest numbers on COVID-19 cases around the world

[Go to Data Spotlight](#)

Health & Well-being

Tips to manage stress and promote mental, physical, and social well-being

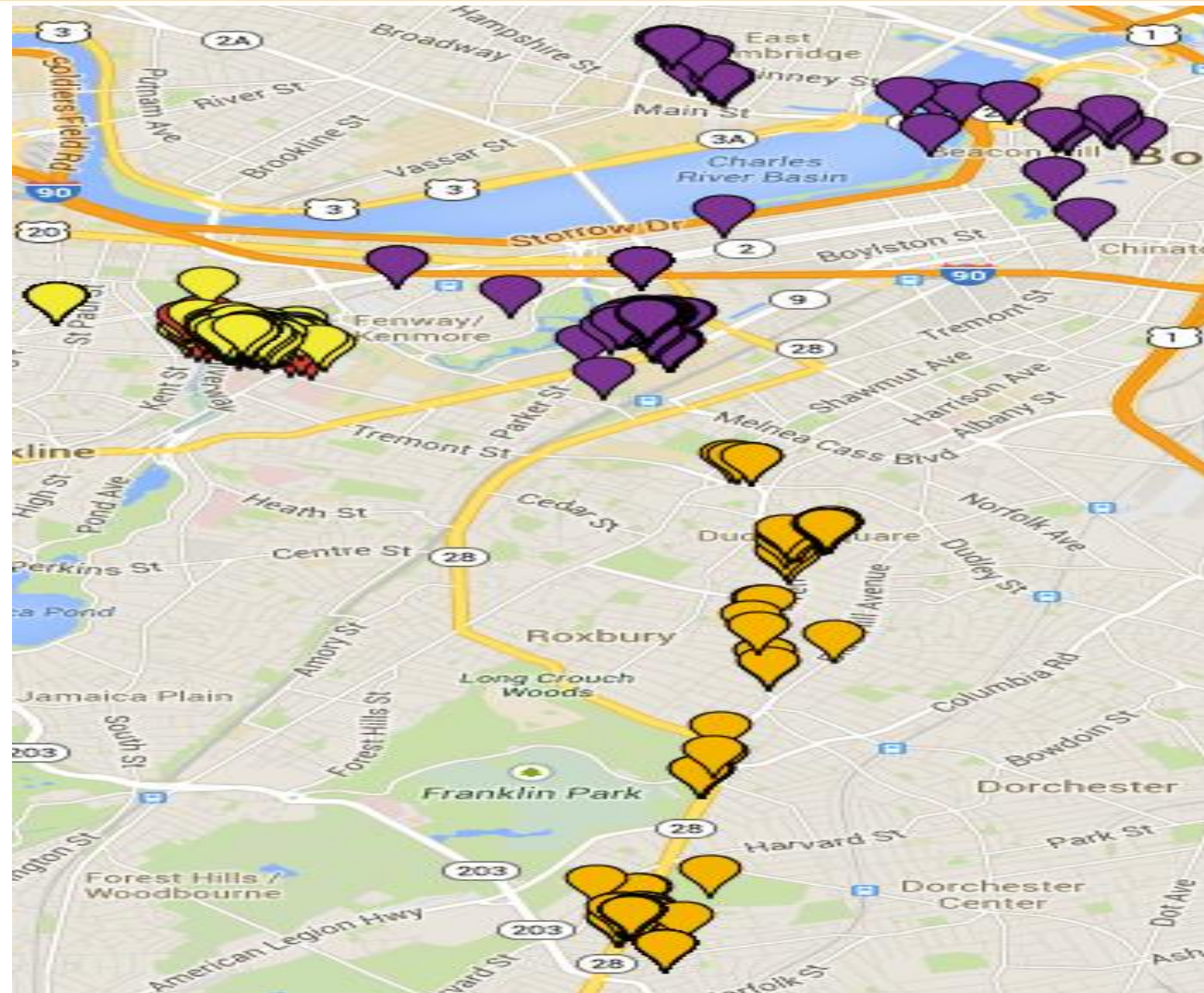
[Go to Health & Well-being](#)

Tobacco Control

Tips for smokers and tobacco users

[Go to Tobacco control](#)

Participatory Science



Desideratum or even need of the hour....

Need a new approach that requires laser **focus** on the **underserved**, **engages** communities and where science communication is **participatory**

Acknowledgements

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