

How people perceive and engage with science

Global insights and implications for science communication

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Keynote at Teaduskommunikatsiooni Konverents Eesti 2025



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**How much do
people around the world
trust in science**

and

**How do they communicate
about it?**

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And why do we need more research on this?

How much do people around the world trust in science

And why does it matter?

and

How do they communicate about it?

And what are implications for science communication?

And why does it matter?

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Trust in science

- Can serve as a heuristic in decision-making, helping individuals **act** based on the best available evidence (Earle, 2010; Siegrist, 2021)
- Promotes public legitimacy of science and **science-based policy-making** (Cologna et al., 2017)
- Crucial for individual and collective response to **major crises** such as pandemics and climate change

And why do we need more research on this?

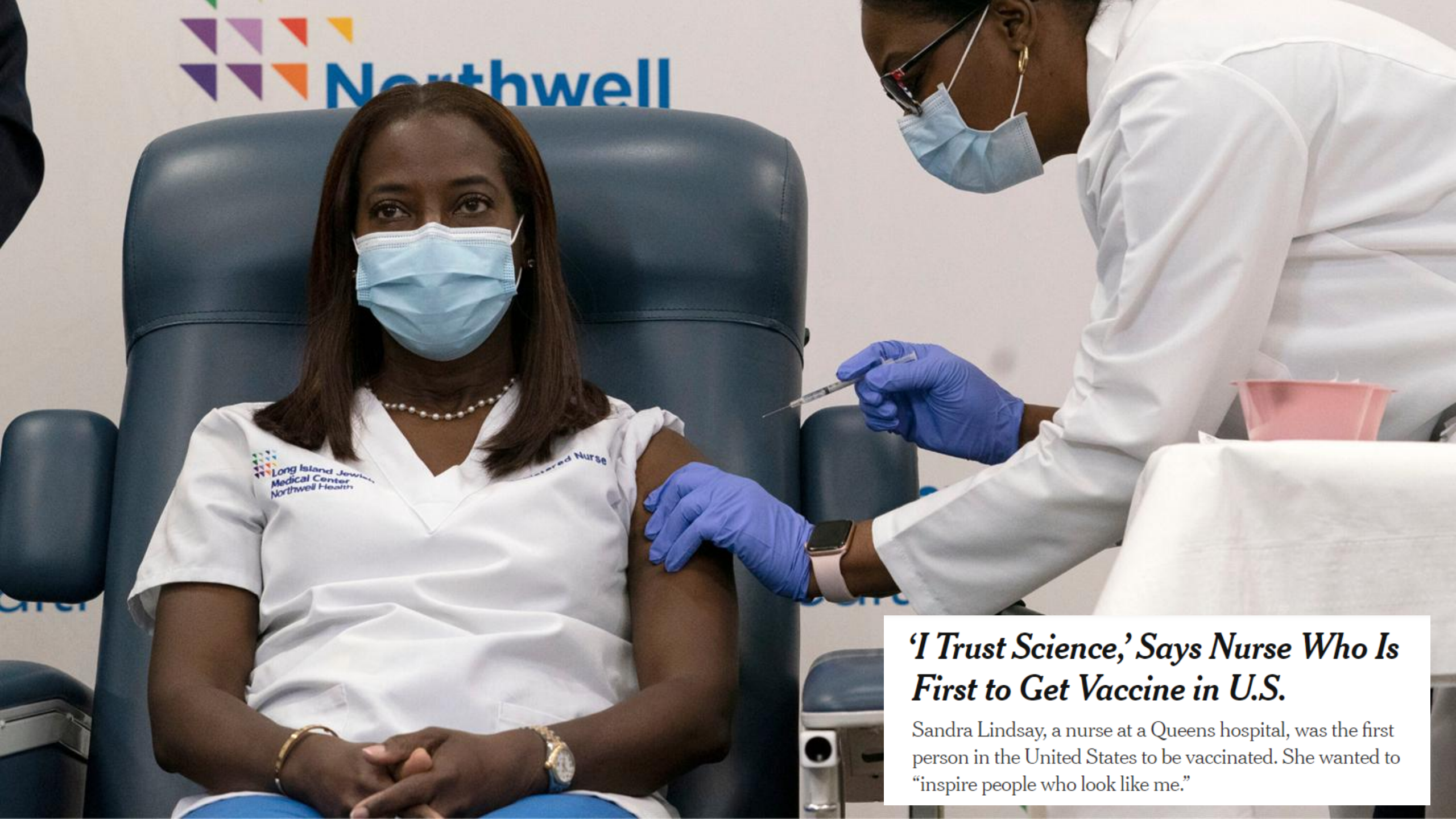
How much do people around the world trust in science

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And what are implications for science communication?



‘I Trust Science,’ Says Nurse Who Is First to Get Vaccine in U.S.

Sandra Lindsay, a nurse at a Queens hospital, was the first person in the United States to be vaccinated. She wanted to “inspire people who look like me.”

SCIENCE WILL

NATURALLY
IMMUNE

NO
FORCED
INJECTIONS

SCIENCE
KEEPS ASKING
QUESTIONS
UNTIL IT FINDS
WHAT IT'S
LOOKING FOR.



c&en

Will public trust in science survive the pandemic?

The confluence of rapidly evolving science mixed messaging, misinformation, and flagrant politicization in the US is creating a perfect storm for eroding trust in science

by [Ryan Cross](#)

January 25, 2021 | A version of this story appeared in [Volume 99, Issue 3](#)



SCIENTIFIC AMERICAN

BEHAVIOR | OPINION

The Antiscience Movement Is Escalating, Going Global and Killing Thousands

Rejection of mainstream science and medicine has become a key feature of the political right in the U.S. and increasingly around the world

By Peter J. Hotez on March 29, 2021

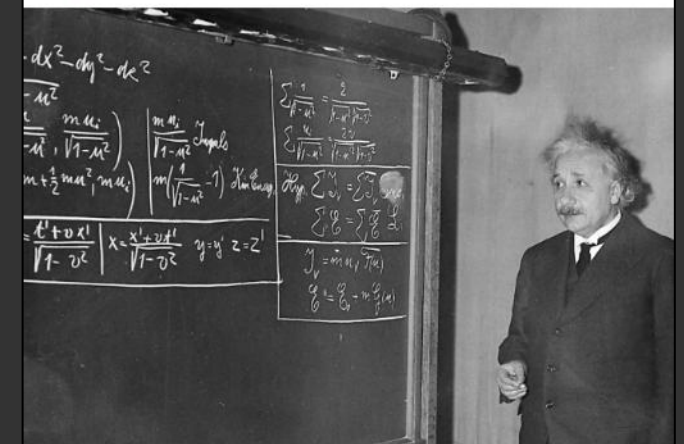


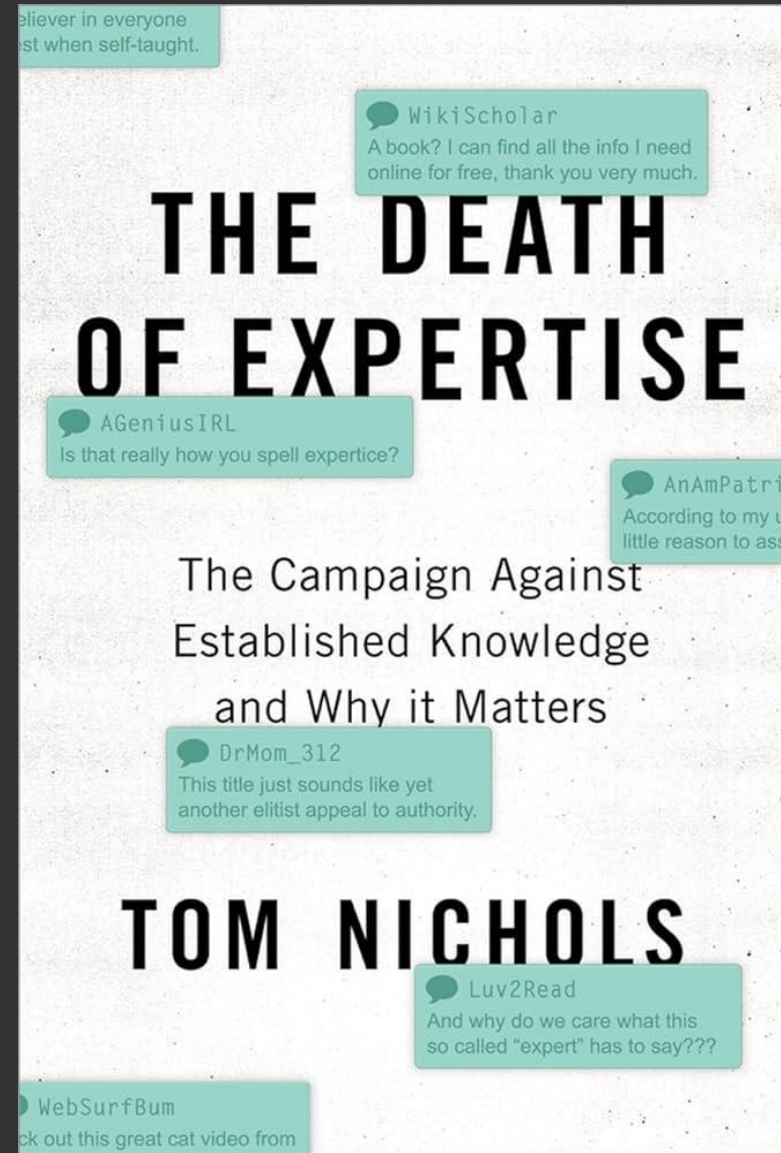
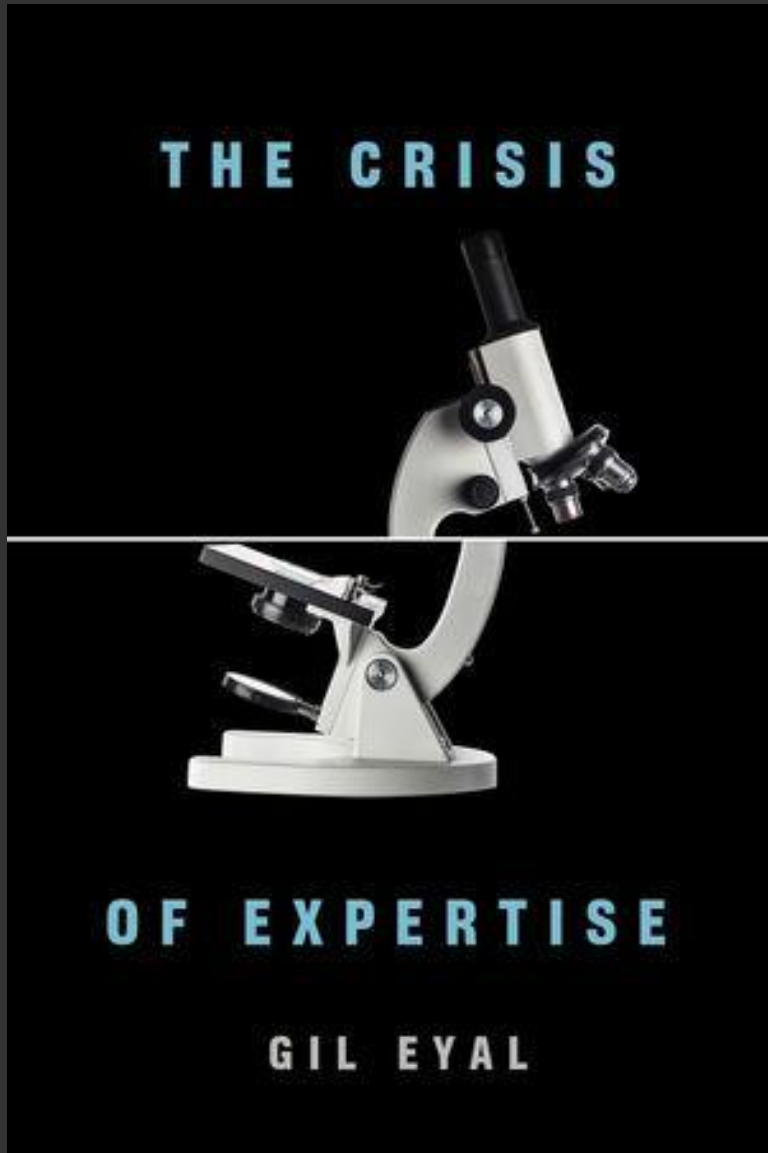
The Washington Post

Democracy Dies in Darkness

Americans' increasing distrust of science — and not just on climate change

By [Aaron Blake](#)





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What is trust?

- Trust is “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (Rousseau et al., 1998, p. 395)
- Trust in others reduces the risk of having to rely on the unknown and enables us to benefit from the expertise of others (Goodwin & Dahlstrom, 2014)
- Trust is based on the judgments of similarities in intentions and values (Earle et al., 2007)
- Trust is multidimensional: competence, integrity, benevolence, openness (Besley et al., 2021)



How to measure trust in scientists?

	Very inexpert	Somewhat inexpert	Neither expert nor inexpert	Somewhat expert	Very expert
How expert or inexpert are most scientists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How intelligent or unintelligent are most scientists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How qualified or unqualified are most scientists when it comes to conducting high-quality research?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How honest or dishonest are most scientists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How ethical or unethical are most scientists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How sincere or insincere are most scientists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How concerned or not concerned are most scientists about people's wellbeing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How eager or uneager are most scientists to improve others' lives?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How considerate or inconsiderate are most scientists of others' interests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How open, if at all, are most scientists to feedback?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How willing or unwilling are most scientists to be transparent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How much or little attention do scientists pay to others' views?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Data and Method

Trust in Science and Science-Related Populism (TISP)

A Global Many Labs Study
with 241 researchers from 179 institutions in 68 countries



Viktoria Cologna
ETH Zurich, Eawag
Project lead



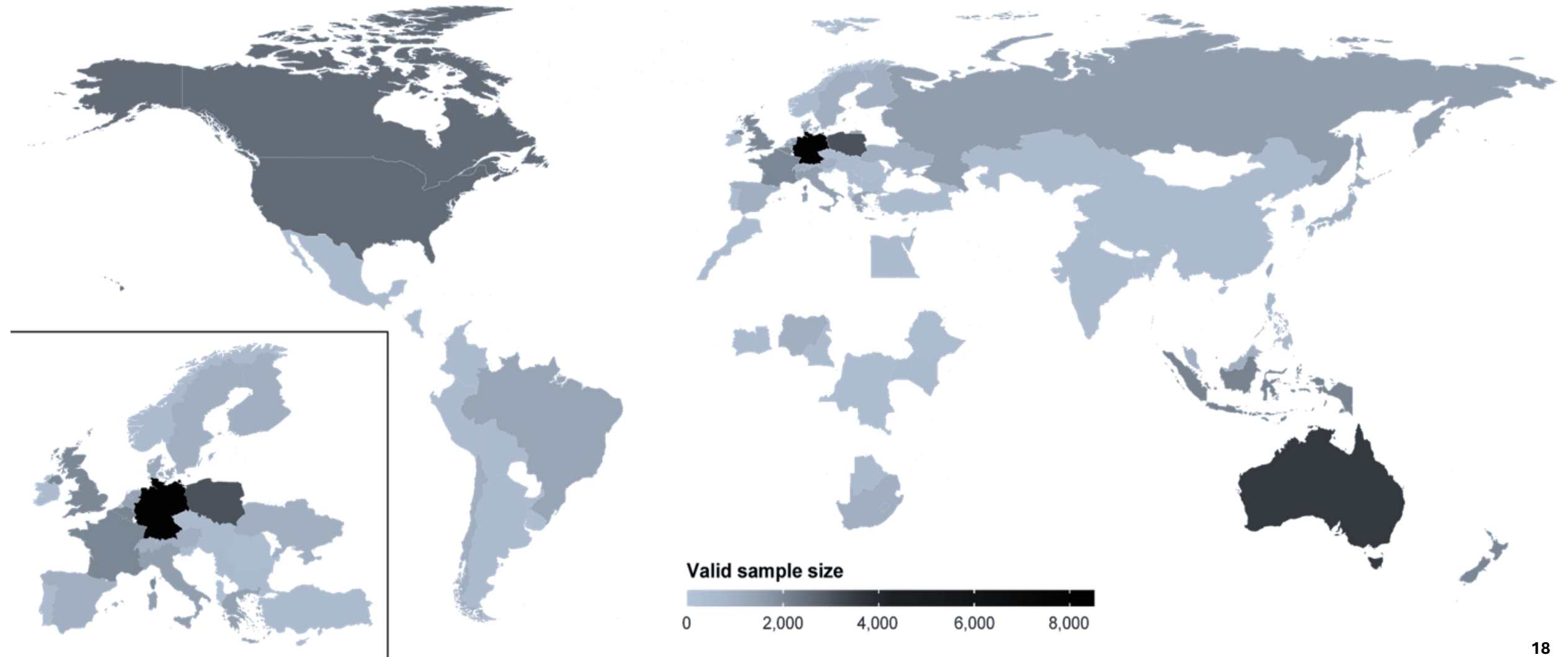
Niels G. Mede
U of Zurich, Wageningen U
Second lead

Data and Method

- **Sample size:** $N = 71,922$; 68 countries; 88 samples
- **Method:** Cross-sectional online surveys in 37 languages, age x gender quotas
- **Participants:** Online access panels of market research companies (mostly Bilendi & respondi)
- **Data collection:** November 2022 – August 2023
- **Weighting:** Post-hoc stratification (nationally representative for age, gender, education)
- **Public dataset and documentation:** Mede et al. (2025) in *Scientific Data*. doi: [10.1038/s41597-024-04100-7](https://doi.org/10.1038/s41597-024-04100-7)



Data and Method



Results: Trust in scientists is moderately high

Cologna et al. (2025) in *Nature Human Behaviour*. doi: [10.1038/s41562-024-02090-5](https://doi.org/10.1038/s41562-024-02090-5)

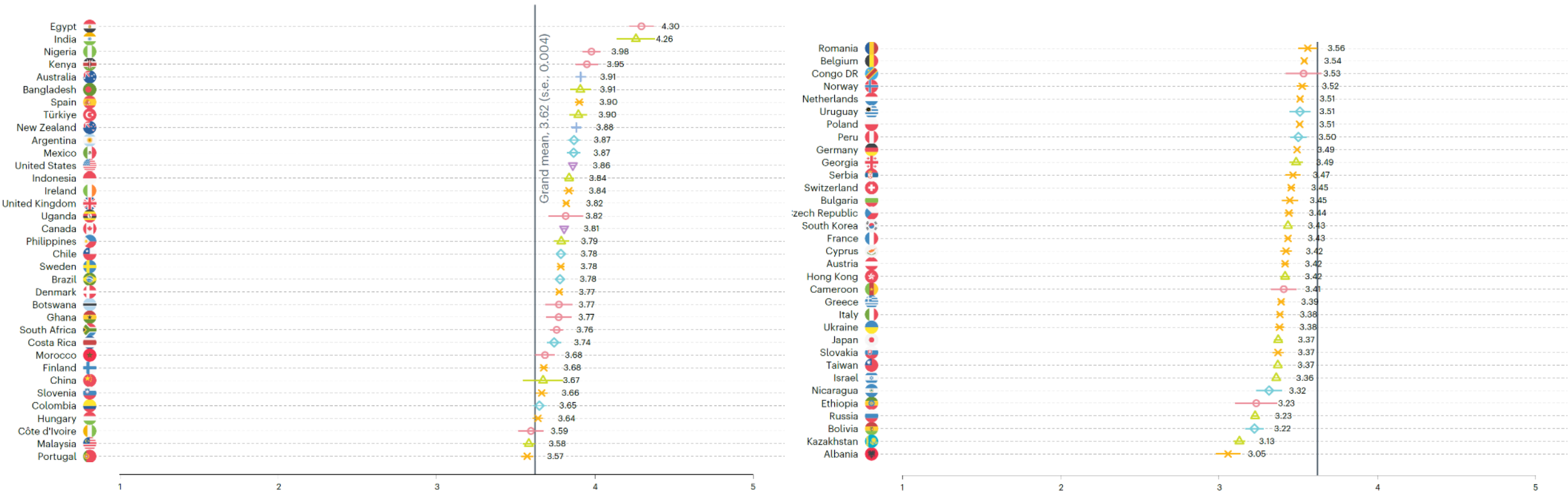


Fig. 1 | Weighted means for trust in scientists across countries and regions (1 = very low, 3 = neither high nor low, 5 = very high). Total $n = 69,527$. Country n s range between 312 and 8,014 (see Supplementary Information for a detailed overview). The vertical line denotes the weighted grand mean. The horizontal lines indicate means \pm standard errors. Country-level standard errors range between 0.008 and 0.133.

Region ○ Africa △ Asia + Australia/Oceania ✕ Europe ◇ Latin America ▽ North America

Results: Trust in scientists

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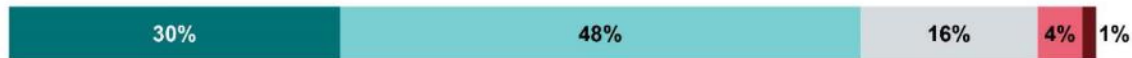
How expert or inexpert are most scientists?



How intelligent or unintelligent are most scientists?



How qualified or unqualified are most scientists when it comes to conducting high-quality research?



How honest or dishonest are most scientists?



How ethical or unethical are most scientists?



How sincere or insincere are most scientists?



■ very expert, intelligent, qualified, etc.
 ■ neither nor
■ somewhat expert, intelligent, qualified, etc.

How concerned or not concerned are most scientists about people's wellbeing?



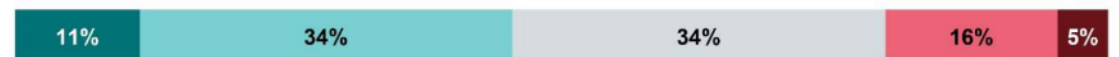
How eager or uneager are most scientists to improve others' lives?



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How open are most scientists to feedback?



How willing or unwilling are most scientists to be transparent?



How much or little attention do scientists pay to others' views?



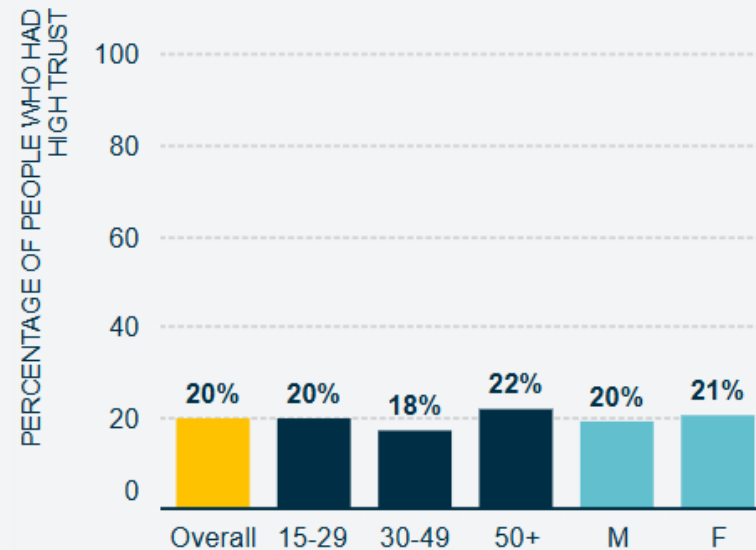
■ somewhat inexpert, intelligent, qualified, etc.
■ very inexpert, intelligent, qualified, etc.



Wellcome Monitor 2019: Trust in science in Estonia

Wellcome Trust (2019). Wellcome Global Monitor 2018. <https://wellcome.org/reports/wellcome-global-monitor/2018>

20% have high trust for the Trust in Science Index



Average of the 5 trust in scientist questions



Finland: 35%



Denmark: 31%



Germany: 25%



France: 21%



Belarus: 7%

Results: Trust in scientists is moderately high

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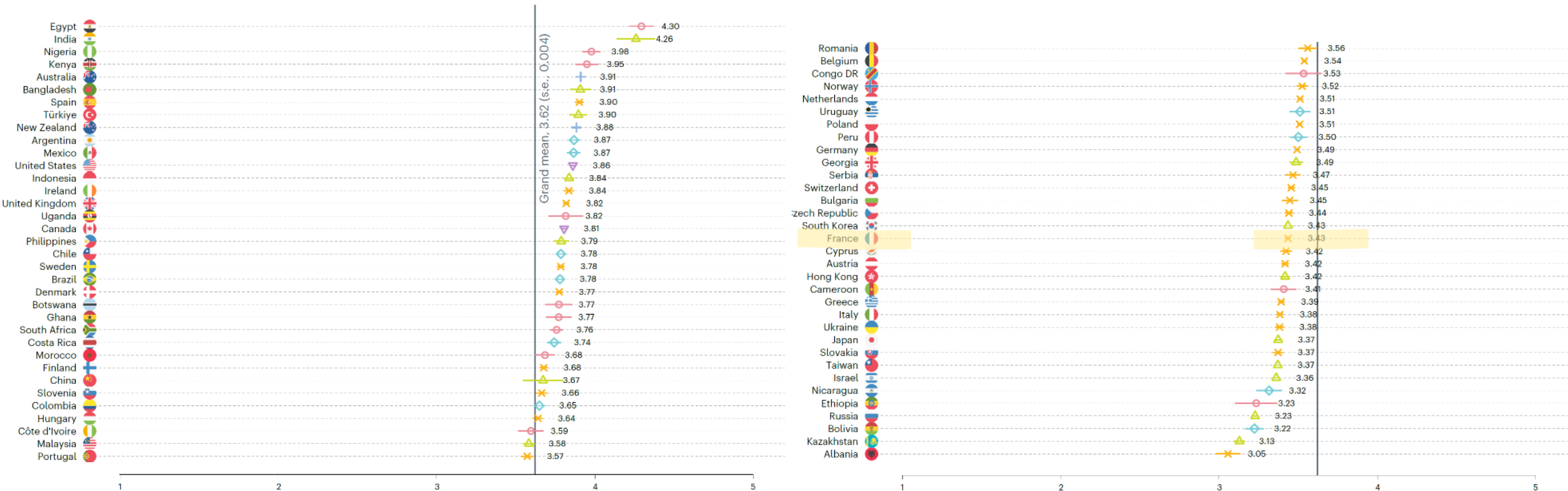


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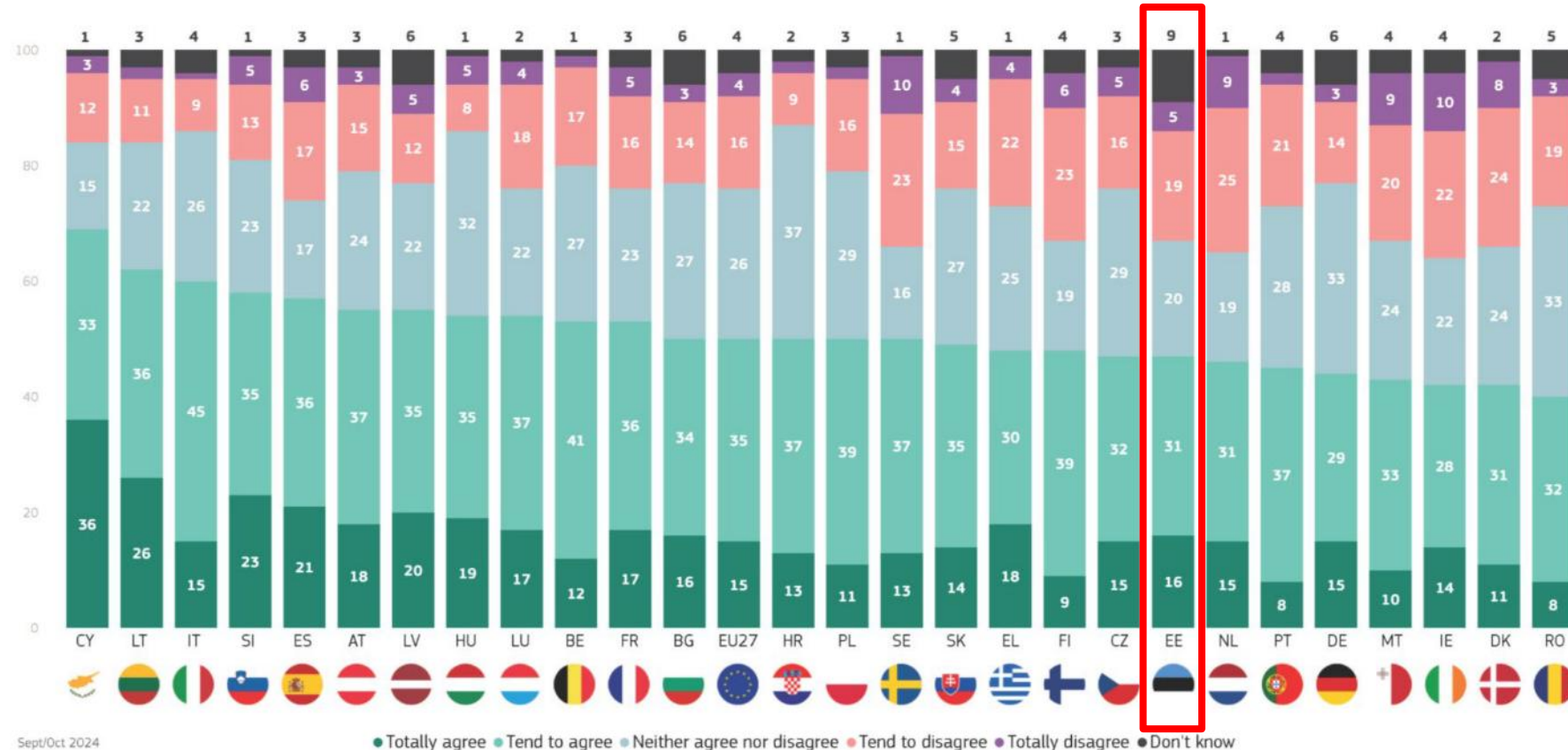
Region ○ Africa △ Asia + Australia/Oceania × Europe ◇ Latin America ▽ North America

Eurobarometer 2025: Trust in science in Estonia

European Commission (2025). Special Eurobarometer 557. <https://europa.eu/eurobarometer/surveys/detail/3227>



“We can no longer trust scientists to tell the truth about controversial scientific and technological issues because they depend more and more on money from industry.”

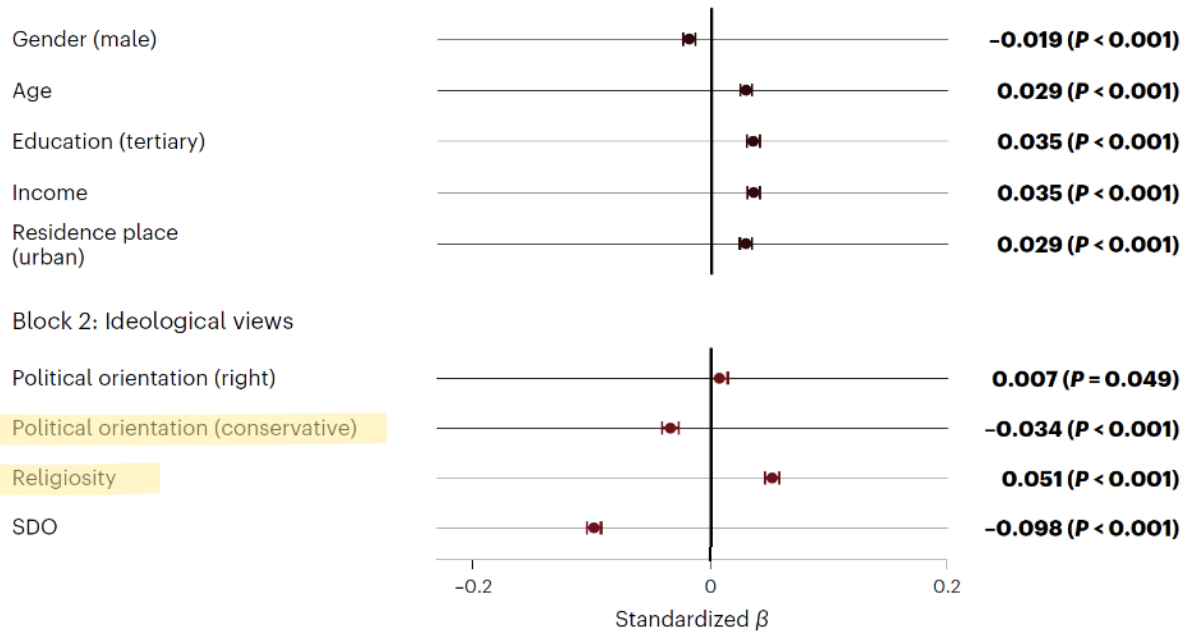


Sept/Oct 2024

Results: Trust in scientists – predictors

Cologna et al. (2025) in *Nature Human Behaviour*. doi: [10.1038/s41562-024-02090-5](https://doi.org/10.1038/s41562-024-02090-5)

Block 1: Demographic characteristics



Block 2: Ideological views

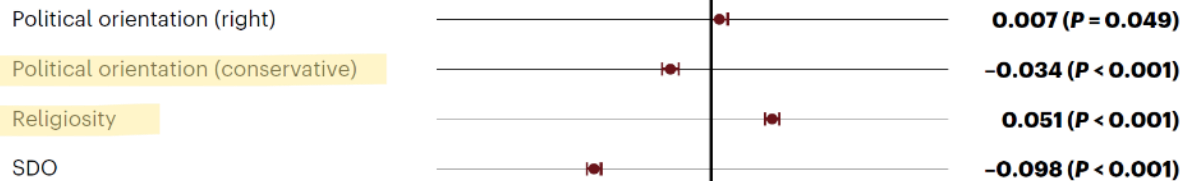


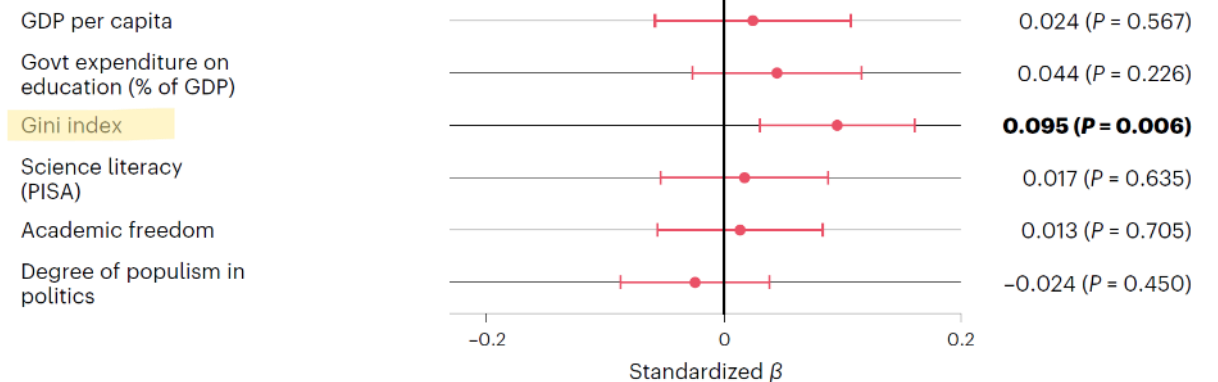
Fig. 2 | Standardized estimates of weighted blockwise multilevel regression models testing the association of trust in scientists with demographic characteristics, ideological views, attitudes towards science and country-level indicators (random intercepts across countries). The dots indicate point estimates of fixed effects, and the horizontal lines indicate 95% CIs based on two-sided t -tests. Estimates for gender (male) indicate the association of identifying as male and trust in scientists, where 0 = female and 1 = male. Estimates for education (tertiary) indicate the association of having tertiary education and trust in scientists, where 0 = no tertiary education and 1 = tertiary education. Estimates for residence place (urban) indicate the association of living in an urban vs rural place of residence, where 0 = rural and 1 = urban. Estimates for political orientation (right) indicate the association of right-leaning vs left-leaning political orientation and trust in scientists, where 1 = strongly left-leaning

and 5 = strongly right-leaning. Estimates for political orientation (conservative) indicate the association of conservative vs liberal political orientation and trust in scientists, where 1 = strongly liberal and 5 = strongly conservative. Bold indicates effects significant at $P < 0.05$. Block 1 uses data from all 68 countries, block 2 uses data from 67 countries (all except Malaysia, where SDO was not measured), block 3 uses data from 66 countries (all except Malaysia and Mexico, where willingness to be vulnerable to science was not measured) and block 4 uses data from 51 countries (all except those where PISA's literacy scores were not available; Supplementary Information). The full regression results are reported in Supplementary Table 2. The results of exploratory analyses with individual trust dimensions are reported in Supplementary Figs. 4–7. GDP, gross domestic product; Govt, government.

Block 3: Attitudes towards science



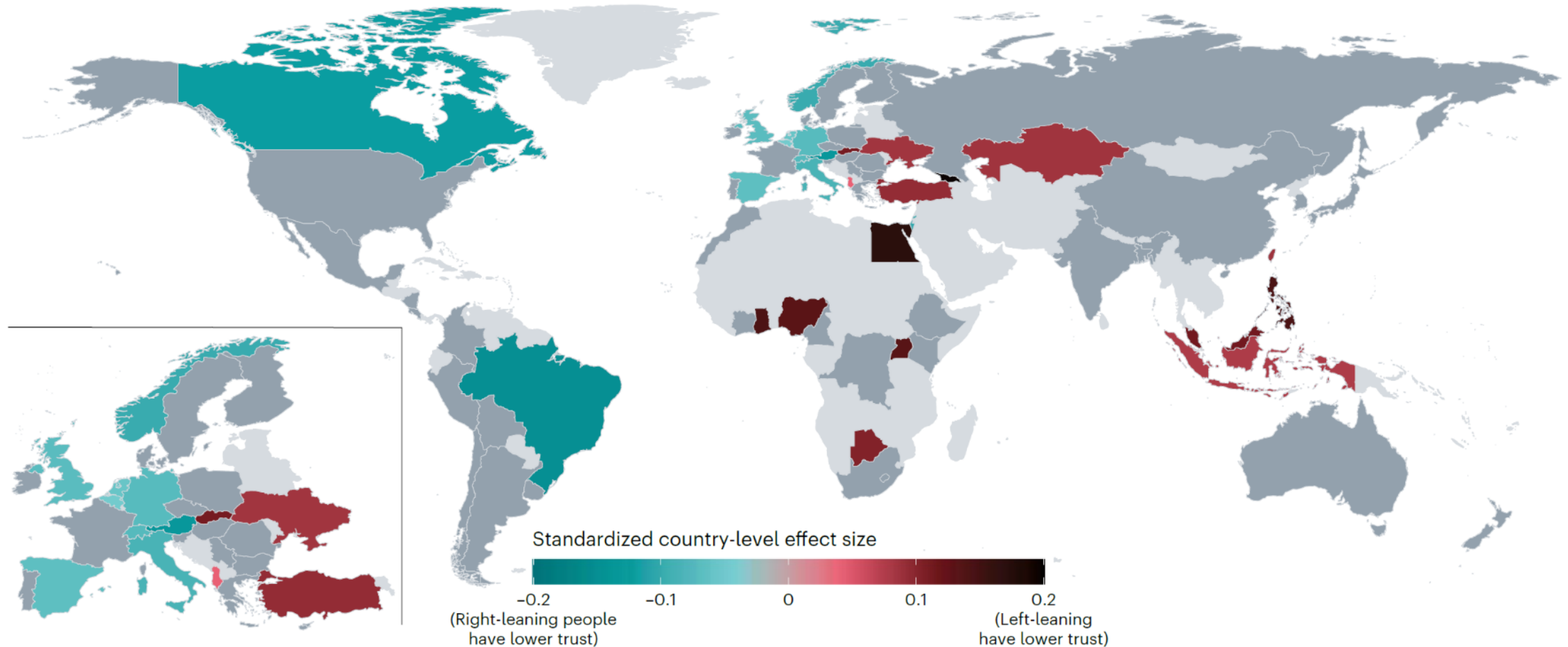
Block 4: Country-level indicators



Results: Trust in scientists related to left/right-leaning views

Cologna et al. (2025) in *Nature Human Behaviour*. doi: [10.1038/s41562-024-02090-5](https://doi.org/10.1038/s41562-024-02090-5)

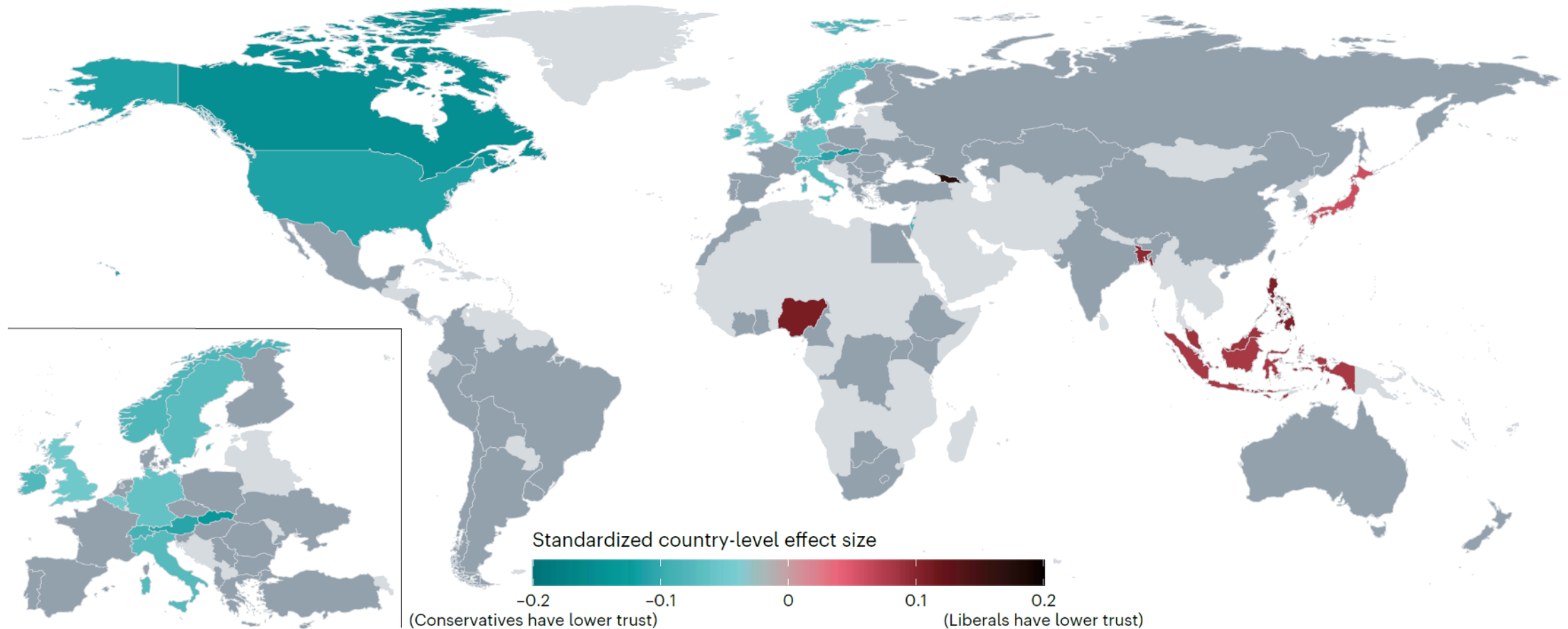
a Country-level effects of right-leaning political orientation and trust in scientists



Results: Trust in scientists related to liberal/conservative views

Cologna et al. (2025) in *Nature Human Behaviour*. doi: [10.1038/s41562-024-02090-5](https://doi.org/10.1038/s41562-024-02090-5)

b Country-level effects of conservative political orientation and trust in scientists



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Science Communication





Impact Factor: **4.1**

5-Year Impact Factor: **6.7**

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First published online October 21, 2025

Public Communication about Science in 68 Countries: Global Evidence on How People Encounter and Engage with Information about Science

Niels G. Mede  , Viktoria Cologna, [...] TISP Consortium  +20  8 [View all authors and affiliations](#)

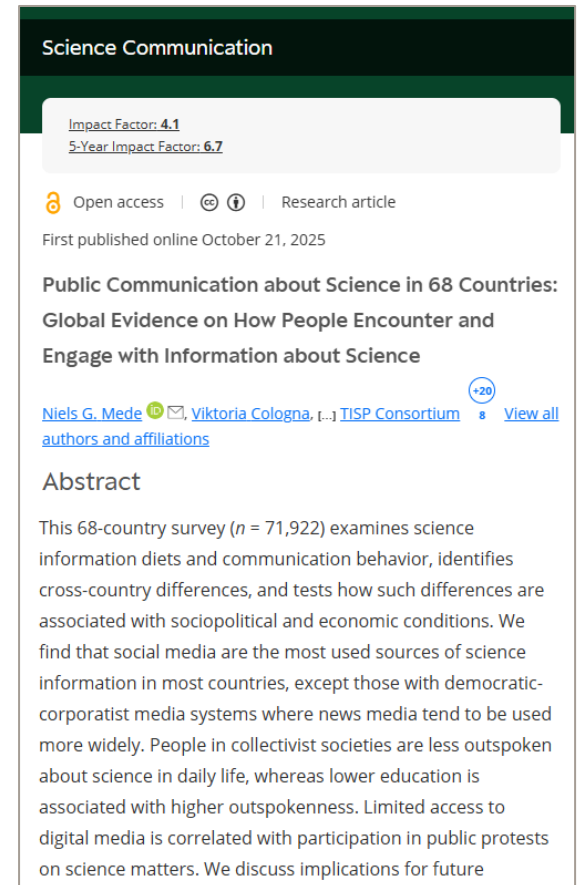
Abstract

This 68-country survey ($n = 71,922$) examines science information diets and communication behavior, identifies cross-country differences, and tests how such differences are associated with sociopolitical and economic conditions. We find that social media are the most used sources of science information in most countries, except those with democratic-corporatist media systems where news media tend to be used more widely. People in collectivist societies are less outspoken about science in daily life, whereas lower education is

Results: Public communication about science in 68 countries

Mede et al. (2025) in *Science Communication*. doi: [10.1177/10755470251376615](https://doi.org/10.1177/10755470251376615)

- **Social media** are the **most important** information source in most countries, but traditional news media remain relevant particularly in Northwestern Europe






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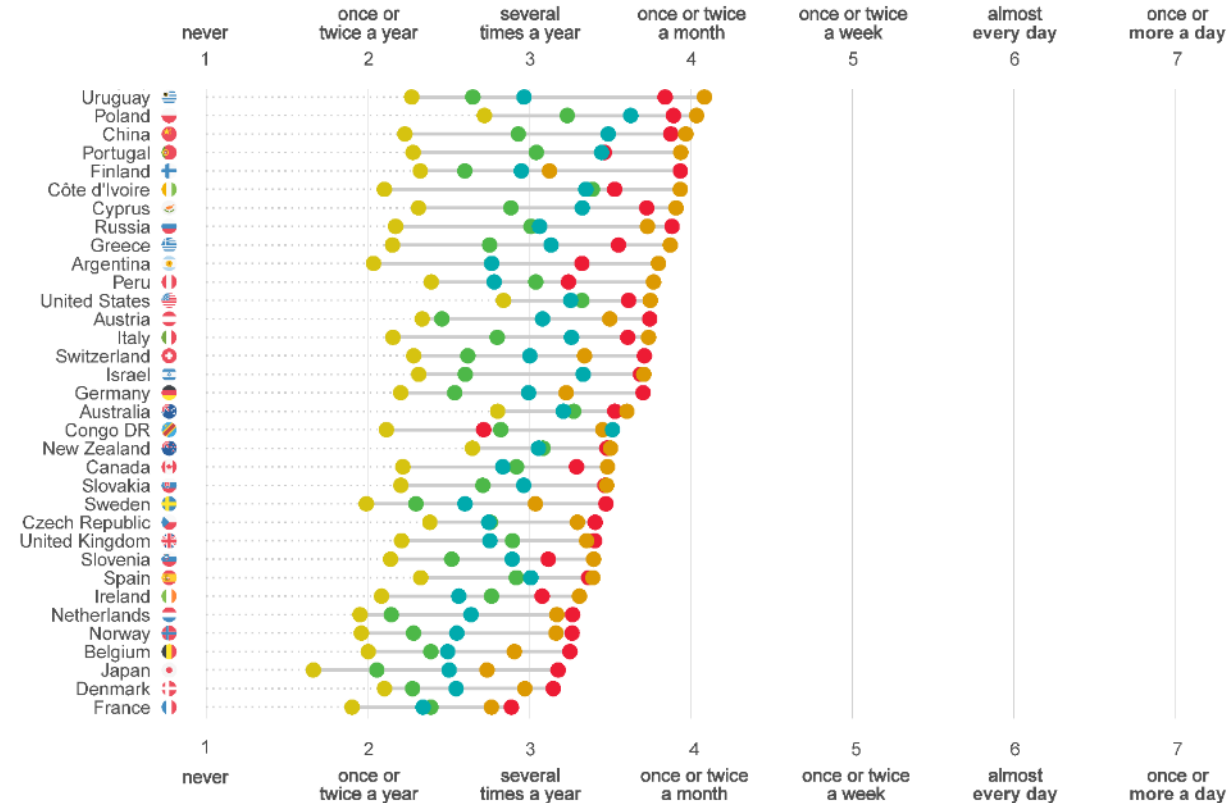
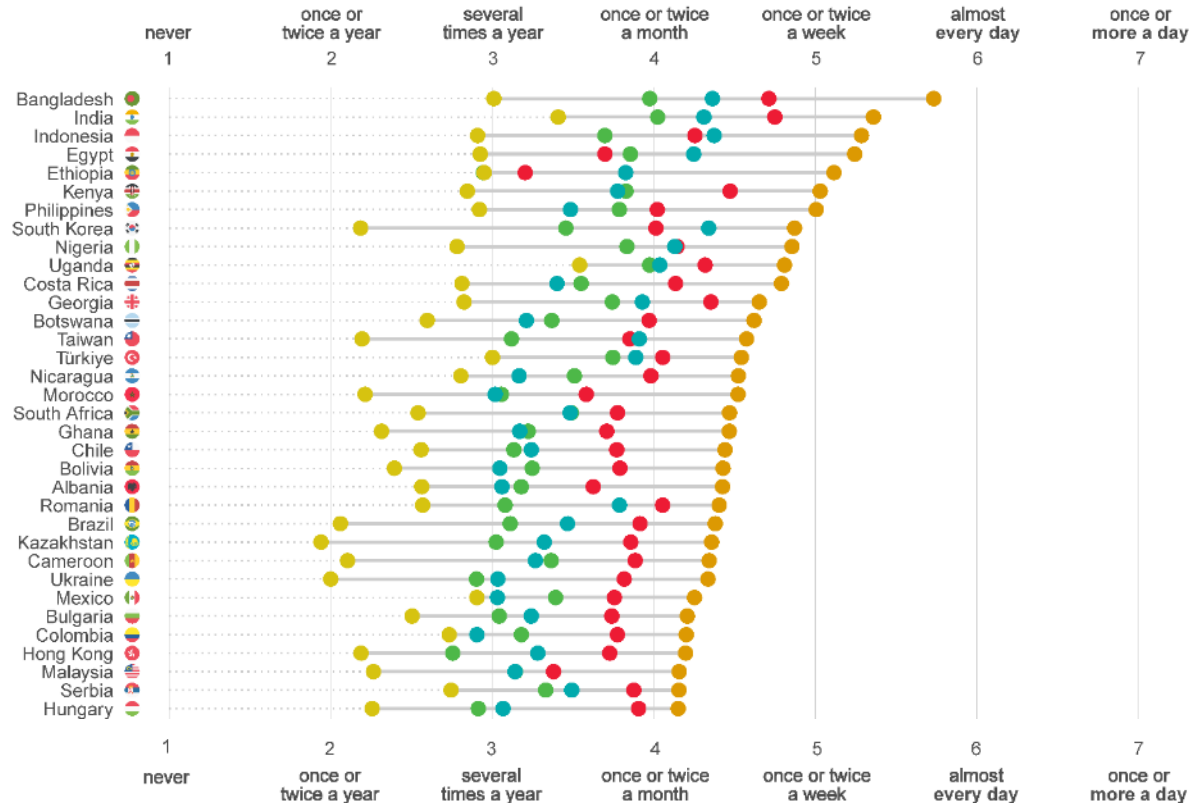
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Self-reported exposure to science information

Over the past 12 months, how often have you come across information about science in the following places?

- **Social media** (e.g., YouTube vlogs, Facebook, TikTok clips, Instagram)
- **News** (printed newspapers/magazines, news shows/documentaries on TV or radio, news websites/apps, videos or podcasts on news websites/apps)
- **Fiction** (films/series on TV, cinema, or other devices, books or comics)
- **Conversations with friends or family** (online messaging services and offline)
- **Formal science communication** (museums, zoos, or public talks)

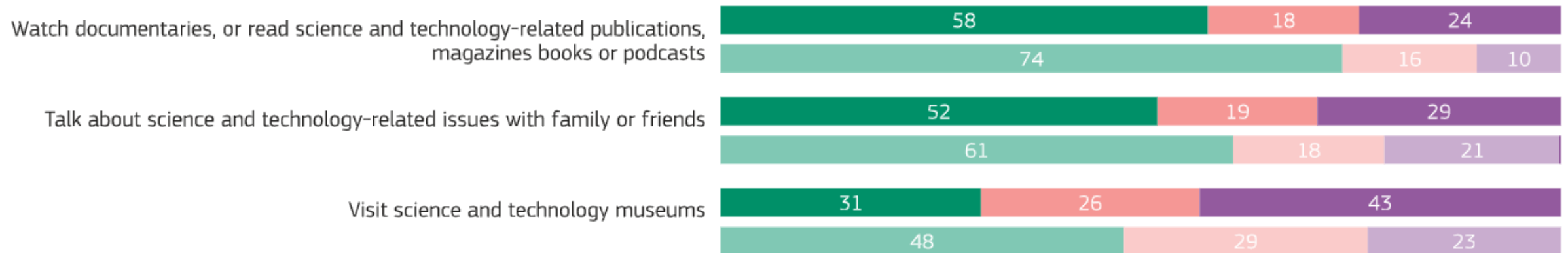




Eurobarometer 2025: Science engagement in Estonia

European Commission (2025). Special Eurobarometer 557. <https://europa.eu/eurobarometer/surveys/detail/3227>



“And now, a few questions on how you engage with science and technology issues. Do you...?”

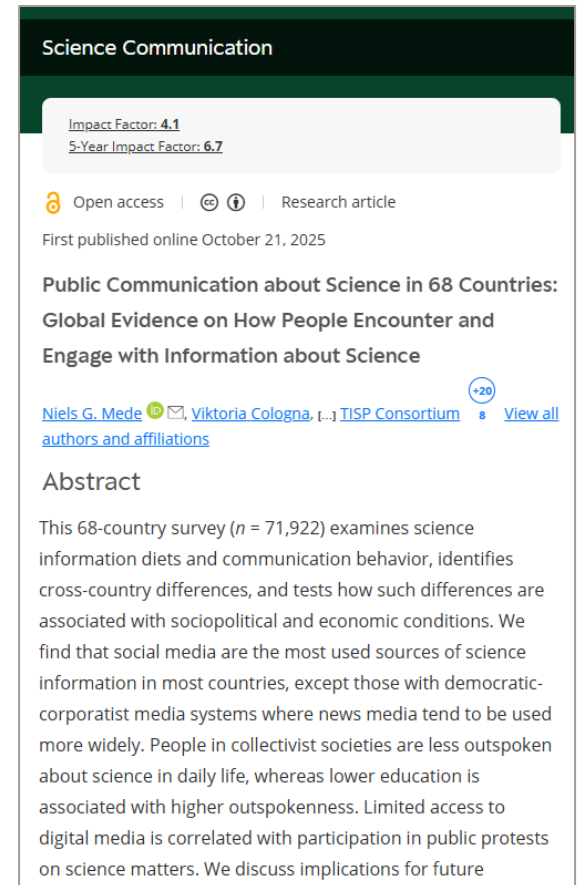


 EU27
 ● Total 'Yes'
 ● No, hardly ever
 ● No, never
 ● Don't know
 EE
 ● Total 'Yes'
 ● No, hardly ever
 ● No, never
 ● Don't know

Results: Public communication about science in 68 countries

Mede et al. (2025) in *Science Communication*. doi: [10.1177/10755470251376615](https://doi.org/10.1177/10755470251376615)

- **Social media** are the **most important** information source in most countries, but traditional news media remain relevant particularly in Northwestern Europe
- **Limited access to digital media** associated with **more visits of museums**, zoos, and public talks
- Limited freedom of journalists and academics does not fully prevent **engagement with science**






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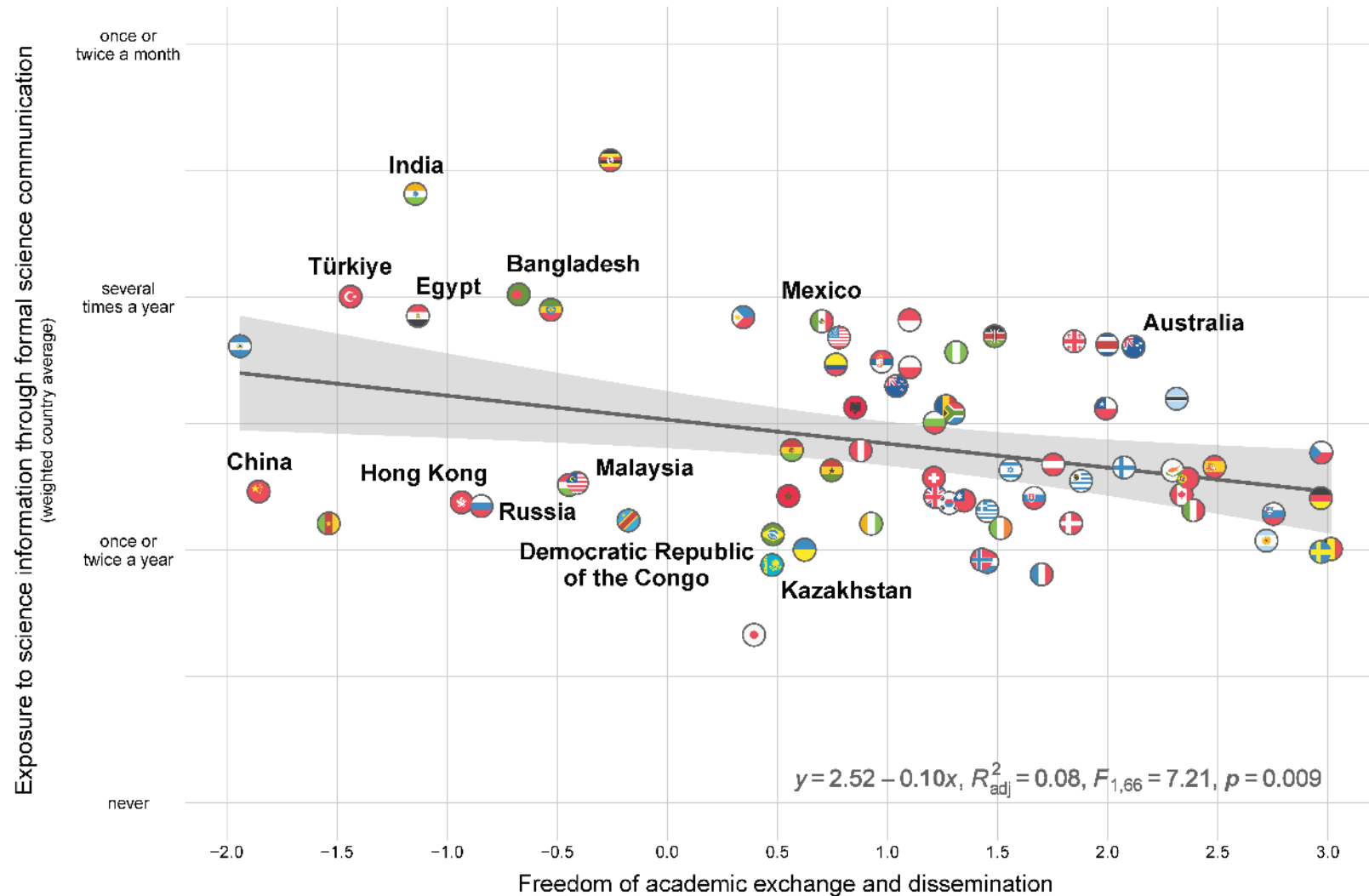
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Academic freedom and science information exposure through formal science communication

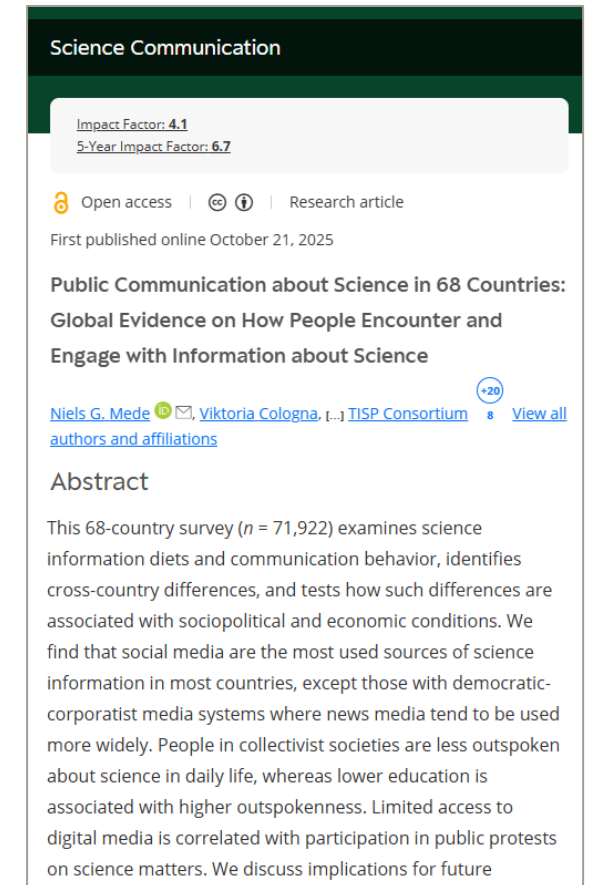
Bivariate distribution of scores for freedom of academic exchange and dissemination and reported frequency of coming across science through formal science communication over the past 12 months (e.g., museums, zoos, public talks)



Results: Public communication about science in 68 countries

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- **Social media** are the **most important** information source in most countries, but traditional news media remain relevant particularly in Northwestern Europe
- **Limited access to digital media** associated with **more visits of museums**, zoos, and public talks
- Limited freedom of journalists and academics does not fully prevent **engagement with science**
- **Less educated populations** tend to **discuss science more** frequently with others
- **Limits to democratic deliberation and freedom of speech** do not necessarily decrease willingness to speak out on science






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Eurobarometer 2025: Public participation and protests

European Commission (2025). Special Eurobarometer 557. <https://europa.eu/eurobarometer/surveys/detail/3227>



“And now, a few questions on how you engage with science and technology issues. Do you...?”

Sign petitions or join demonstrations on science and technology matters such as nuclear power, biotechnology, the environment or climate change



 EU27 ● Total 'Yes' ● No, hardly ever ● No, never ● Don't know

 EE ● Total 'Yes' ● No, hardly ever ● No, never ● Don't know

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Implications

- Scientists may want to be **more open to dialogue** – and show/advertise such openness
- Dialogue should be “genuine”, i.e., encourage actual conversations
- This requires **support** by communication professionals, institutions, and associations (and financial resources)

THE CONVERSATION
Academic rigour, journalistic flair

Search analysis, research, academics...

What it means to 'know your audience' when communicating about science

Published: April 16, 2019 12:46pm CEST

You have a lot of work to do before you step up to the mic. Chinnapong/Shutterstock.com

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X (Twitter) 40
Bluesky
Facebook 435
LinkedIn
WhatsApp
Print

Communication experts love to tell people to know their audience, but it is not always clear what they're meant to know.

Knowing someone's age, education and gender is nice. So too is knowing context about economic, educational, cultural and ideological background. These are typically what the two of us hear when [we've asked science communication trainers](#) what they think the expression means.

Authors

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Ellis H. Brandt Professor of Public Relations, Michigan State University

Anthony Dudo
Associate Professor of Advertising and Public Relations, The University of Texas at Austin

Implications

- **Ethical considerations:**

- More trust not always better (“blind trust”?)
- We can’t force scientists into doing engagement if they feel uncomfortable or are untrained

- **Challenges:**

- Openness may also harm trust among some people
- Dialogue and participation often involve only those with high trust
- Dialogue may come with tradeoffs (public backlash, hostility, etc.)



Implications

- **Social media** most important information source: both a potential (dialogue and engagement) and a challenge (misinformation)
- **Estonians** much more engaged with science than EU average – but a quarter barely/never engages
- **Professional (science) journalism** remains important but is at stake in many countries
- US, Australia, etc. have some a **science-related “protest culture”**, which may help and challenge academia – **Estonians** less outspoken
- Less educated publics more communicative: **Dunning-Kruger effects**, education efforts required



Thank you!

Questions or comments?



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Research, Netherlands
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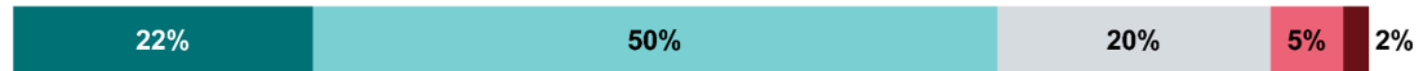


Results: Four dimensions of trust

Cologna et al. (2025) in *Nature Human Behaviour*. doi: [10.1038/s41562-024-02090-5](https://doi.org/10.1038/s41562-024-02090-5)

1. Competence ($M = 4.02, SD = 0.71$)

How expert or inexperienced are most scientists?



2. Integrity ($M = 3.59, SD = 0.78$)

How honest or dishonest are most scientists?



3. Benevolence ($M = 3.55, SD = 0.82$)

How concerned or not concerned are most scientists about people's wellbeing?



4. Openness ($M = 3.32, SD = 0.86$)

How much or little attention do scientists pay to others' views?



Response options:

