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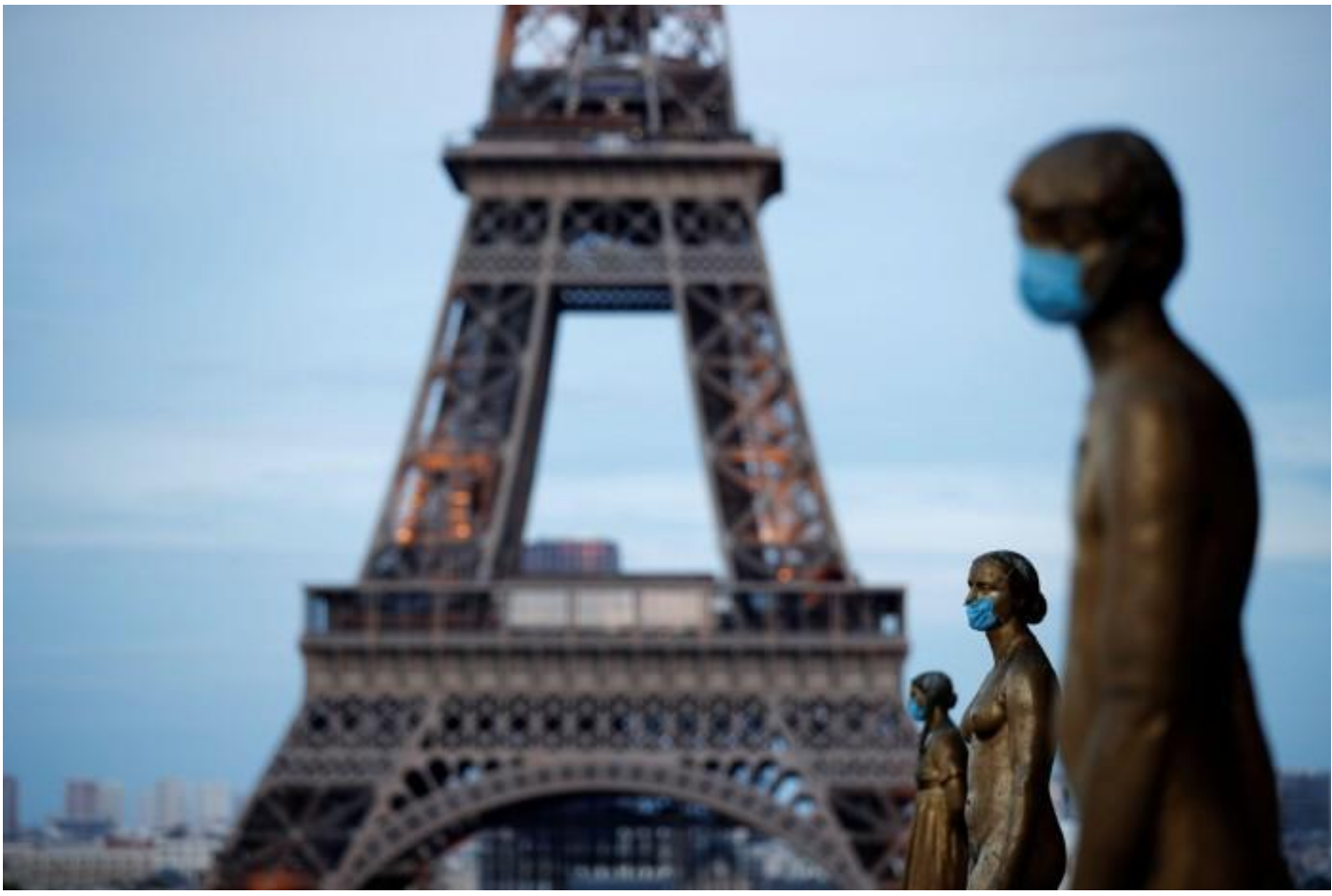
How COVID is changing the study of human behaviour

The pandemic is teaching us key lessons about crisis, communication and misinformation, and is spurring changes in the way scientists study public-health questions.

- Christie Aschwanden



National identity plays a part in how likely people are to support public-health policies such as mask wearing. Credit: Benoit Tessier/Reuters/Alamy

During the early months of the COVID-19 pandemic, Jay Van Bavel, a psychologist at New York University, wanted to identify the social factors that best predict a person's support for public-health measures, such as physical distancing or closing restaurants. He had a handful of collaborators ready to collect survey data. But because the pandemic was going on

everywhere, he wondered whether he could scale up the project. So he tried something he'd never done before.

He posted a description of the study on Twitter in April, with an invitation for other researchers to join. "Maybe I'll get ten more people and some more data points," he recalls thinking at the time. Instead, the response floored him. More than 200 scientists from 67 countries joined the effort. In the end, the researchers were able to collect data on more than 46,000 people. "It was a massive collaboration," he says. The team showed how, on the whole, people who reported that national identity was important to them were more likely to support public-health policies[1]. The work is currently being peer reviewed.

For social scientists, the COVID-19 pandemic has presented a unique opportunity — a natural experiment that "cuts across all cultures and socio-economic groups", says Andreas Olsson, a psychologist at the Karolinska Institute in Stockholm. Everyone is facing similar threats to their health and livelihoods, "so we can see how people respond differently to this depending on culture, social groups and individual differences", he says. Researchers have been able to compare people's behaviours before and after large policy changes, for example, or to study the flow of information and misinformation more easily.

The pandemic's global scope has brought groups together from around the world as never before. And with so much simultaneous interest, researchers can test ideas and interventions more rapidly than before. It has also forced many social scientists to adapt their methods during a time when in-person interviews and experiments have been next to impossible. Some expect that innovations spurred by the pandemic could outlive the current crisis and might even permanently change the field.

For example, with the technology that's now tried and tested, Van Bavel says, it's much easier to build an international team. "Now that we've got the infrastructure and experience, we'll be able to do this for all kinds of things," he says.

Social vaccine boosters

Before Van Bavel's massive collaboration, he and a group of more than 40 researchers got together to outline the ways in which behavioural research might inform and improve the response to the SARS-CoV-2 coronavirus at a time when people are scared, sceptical and inundated by information. They outlined previous research in the field that might influence policy, and identified potential projects on threat perception, decision-making and science communication, among other things[2].

The race to curb the spread of COVID vaccine disinformation

Many were eager to apply their work towards understanding the public response to practices such as lockdowns and mask mandates. In the survey of more than 46,000 people, Van Bavel and his colleagues showed that countries in which people were most in favour of precautionary measures tended to be those that fostered a sense of public unity and cohesion. A sense, he says, that "we're all in this together". That was somewhat counter-intuitive. Right-wing political ideology correlated with resistance to public-health measures among survey participants, but, on the whole, a strong national identity predicted more support for such measures. Van Bavel says this suggests that it might be possible to leverage national identity when promoting public-health policies.

Other work has shown that who delivers the message really matters. A study[3] published in February surveyed more than 12,000 people in 6 countries — Brazil, Italy, South Korea, Spain, Switzerland and the United States — about their willingness to share a message encouraging social distancing. The message could be endorsed by actor Tom Hanks, celebrity Kim Kardashian, a prominent government official from the survey-taker's country or Anthony Fauci, director of the US National Institute of Allergy and Infectious Diseases in Bethesda, Maryland. Respondents from all countries were most willing to share the message when it came from Fauci (although in the United States, where COVID-19 has been highly politicized, he has become a divisive figure for some). Celebrity endorsements were relatively ineffective by comparison.

Preliminary research suggests that aligning the message with recipients' values or highlighting social approval can also be influential. Michele Gelfand, a psychologist at the University of Maryland in College Park, is part of a team running an 'intervention tournament' to identify ways of promoting mask wearing among conservatives and liberals in the United States.

A London billboard encouraged people to follow lockdown guidance to prevent COVID-19.Credit: May James/SOPA Images/Zuma

The researchers are testing eight interventions, or ‘nudges’, that reflect different moral values and factors specific to COVID-19. The aim is to work out which are most effective at encouraging these political groups to adhere to public-health guidance. One message they are testing emphasizes that mask wearing will ‘help us to reopen our economy more quickly’ — an approach designed to appeal to Republicans, who are more likely to view the pandemic as an economic crisis than a health one. Another intervention highlights harm avoidance — a value that liberal people say is important to them. The message emphasizes that a mask ‘will keep you safe’.

“We’re pitting them against one another to see which nudge works best,” Gelfand says. It’s a study design that can test multiple interventions simultaneously, and could be deployed on a large scale across many geographical regions — a benefit made more urgent by the pandemic. The results have not yet been published.

Others started using a similar approach to encourage vaccination even before a SARS-CoV-2 vaccine was available. The Behavior Change For Good Initiative at the University of

Pennsylvania in Philadelphia was testing nudges that encourage people to get the influenza vaccine. Katherine Milkman, a behavioural researcher at the university's Wharton School, and her colleagues tested around 20 messaging strategies — everything from jokes to direct appeals. "We're seeing things that work," Milkman says. They've found, for example, that texting people to say a flu shot had been reserved especially for them boosted vaccination rates[4,5].

Tracking QAnon: how Trump turned conspiracy-theory research upside down

The findings were almost immediately put to work by researchers seeking to increase COVID-19 vaccination uptake. Researchers at the University of California, Los Angeles (UCLA), tried replicating the strategy among people being treated at the UCLA Health system in February and March[6], and found that it "proved quite useful for nudging COVID-19 vaccination", Milkman says.

And, in March, Milkman received an e-mail from Steve Martin, chief executive of the behavioural-science consultancy Influence at Work in Harpenden, UK, telling her that his team had implemented her findings on the island of Jersey in the English Channel. Martin and his colleague Rebecca Sherrington, associate chief nurse for the Government of Jersey, incorporated Milkman's insight that it was possible to increase the likelihood of someone coming in for a vaccine if they were given "a sense of ownership" — for instance, by telling them that 'this vaccine has been reserved for you'. "We've had a real problem engaging care-home staff — particularly young females, many of whom are sceptical about the vaccine," Martin says. But using Milkman's approach, along with other insights (such as the idea that the messenger's identity also matters), Martin's programme attained 93% coverage of care-home staff on Jersey, compared with around 80% in other jurisdictions.

Depolarization research

Technologies such as geotracking are helping social scientists to trace the way people really behave, not just how they say they do. The response to the COVID-19 pandemic has shown a dramatic split along political lines in many places, and because so many people own

smartphones that include GPS trackers, researchers can quantify how partisanship has translated into behaviour during the pandemic.

Van Bavel and his colleagues used geotracking data from 15 million smartphones per day to look at correlations between US voting patterns and adherence to public-health recommendations[7]. People in counties that voted for Republican Donald Trump in the 2016 presidential election, for example, practised 14% less physical distancing between March and May 2020 than did people in areas that voted for Democrat Hillary Clinton. The study also identified a correlation between the consumption of conservative news and reduced physical distancing, and found that the partisan differences regarding physical distancing increased over time.

The epic battle against coronavirus misinformation and conspiracy theories

The research possibilities opened up by geotracking are “beyond my dreams”, says Walter Quattrociocchi, a data scientist at the Ca’Foscari University of Venice, Italy. “We have so much more data to measure social processes now,” he says, and the pandemic has provided a way to put these data to work.

His group used location data from 13 million Facebook users to look at how people moved around France, Italy and the United Kingdom during the early months of the pandemic. The three countries displayed different patterns of mobility that reflect their underlying infrastructure and geography. Movements in the United Kingdom and France were more centralized around London and Paris, respectively, but were more dispersed among Italy’s major population centres[8]. Such results, he says, could help to predict economic resilience in the face of other disasters.

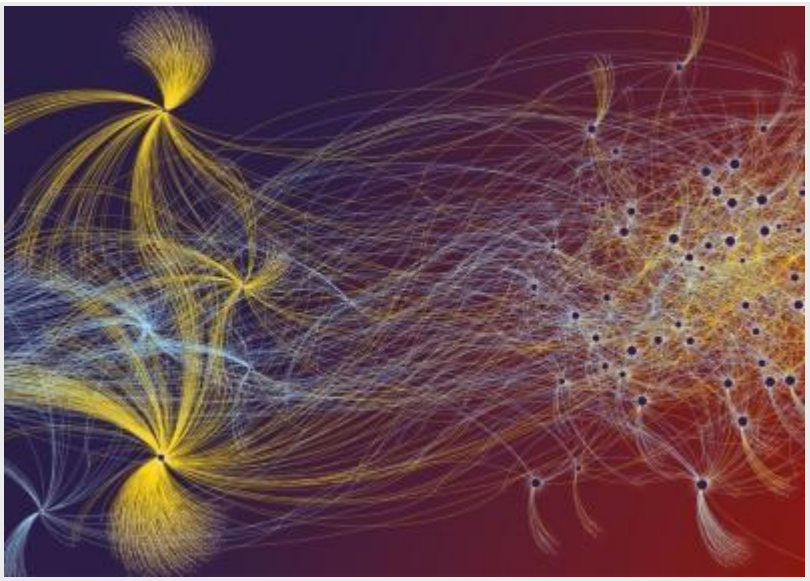
Researchers are also increasingly using Internet-based surveys, a trend accelerated by the pandemic. A US study[9] of people’s daily activities during the pandemic — such as going to work, visiting family or dining at restaurants — received more than 6,700 responses per day

on average. Results showed that political partisanship had a much greater role than did local COVID-19 rates in influencing safe behaviours. Self-identified Republicans were nearly 28% more likely to be mobile than Democrats were, and this gap widened over the course of the study period from April to September last year.

Post-lockdown legacy

The pandemic is clearly changing how researchers study behaviour — and in ways that could outlast the lockdowns. “I think people will continue to seek to do bigger studies with more laboratories to produce more robust and widely applicable findings,” says Van Bavel. The samples collected through these projects are more diverse than they are for typical approaches, and so the impact from these studies could be much higher, he says.

The COVID-19 crisis has also made researchers much more willing to collaborate and share information, says Milkman. And the pace of publishing and implementing findings has sped up, she says. “I wrote a paper about some of our findings over the Christmas holidays in a week,” she says — work that would have normally taken her several months. She expedited the manuscript because she felt the findings were urgent and she wanted to get them into the public domain.



How Facebook, Twitter and other data troves are revolutionizing social science

The constraints of COVID-19 have nudged social science in a good direction, says Milkman. “We should be doing ‘big science’,” she says, in the way that fields such as physics and astronomy do. Instead of running single, small experiments, researchers can now conduct mega-studies that bring together large groups of researchers to test 20 or even 50 treatment arms at once, she says.

The inability to gather people indoors to conduct research has also forced innovations in how scientists recruit and study participants, says Wändi Bruine de Bruin, a behavioural scientist at the University of Southern California in Los Angeles. She is an investigator on the

Understanding America Study, which has been repeatedly surveying about 9,000 nationally representative US households on questions related to the pandemic, such as 'Do you intend to get vaccinated?' and 'How likely do you think it is that you will become infected?'. Being forced to develop procedures to recruit large, nationally representative samples has allowed Bruine de Bruin and her colleagues to recruit more widely. "You don't have to stay local," she says, and because participants don't have to come into the lab, it's easier to recruit a more diverse sample. "I do think it will push social science forward," she says.

Technical workarounds spurred by the pandemic could also end up strengthening science. Alexander Holcombe, a psychologist at the University of Sydney, Australia, studies visual perception, which he describes as "a very narrow area of science where people weren't doing online studies" before the pandemic. Social-distancing practices forced him and his team to learn the computer programming necessary to make their experiments work online. The upshot is that they're able to get bigger sample sizes, he says — an important improvement on the methodology.

Brian Nosek, executive director at the Center for Open Science, a non-profit organization in Charlottesville, Virginia, sees the pandemic as a chance to rethink some of the fundamentals of how science is done. "It's given us an occasion to say, 'Well, how should we be doing this?'" he says, with 'this' being everything from teaching and lab work, to study designs and collaboration. The ways that people communicate in the field and engage with collaborators have "fundamentally changed", he says. "I don't imagine we'll go back."

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