



Exploring COVID-19 online debates and information pollution in Latin America and the Caribbean



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United Nations Development Programme

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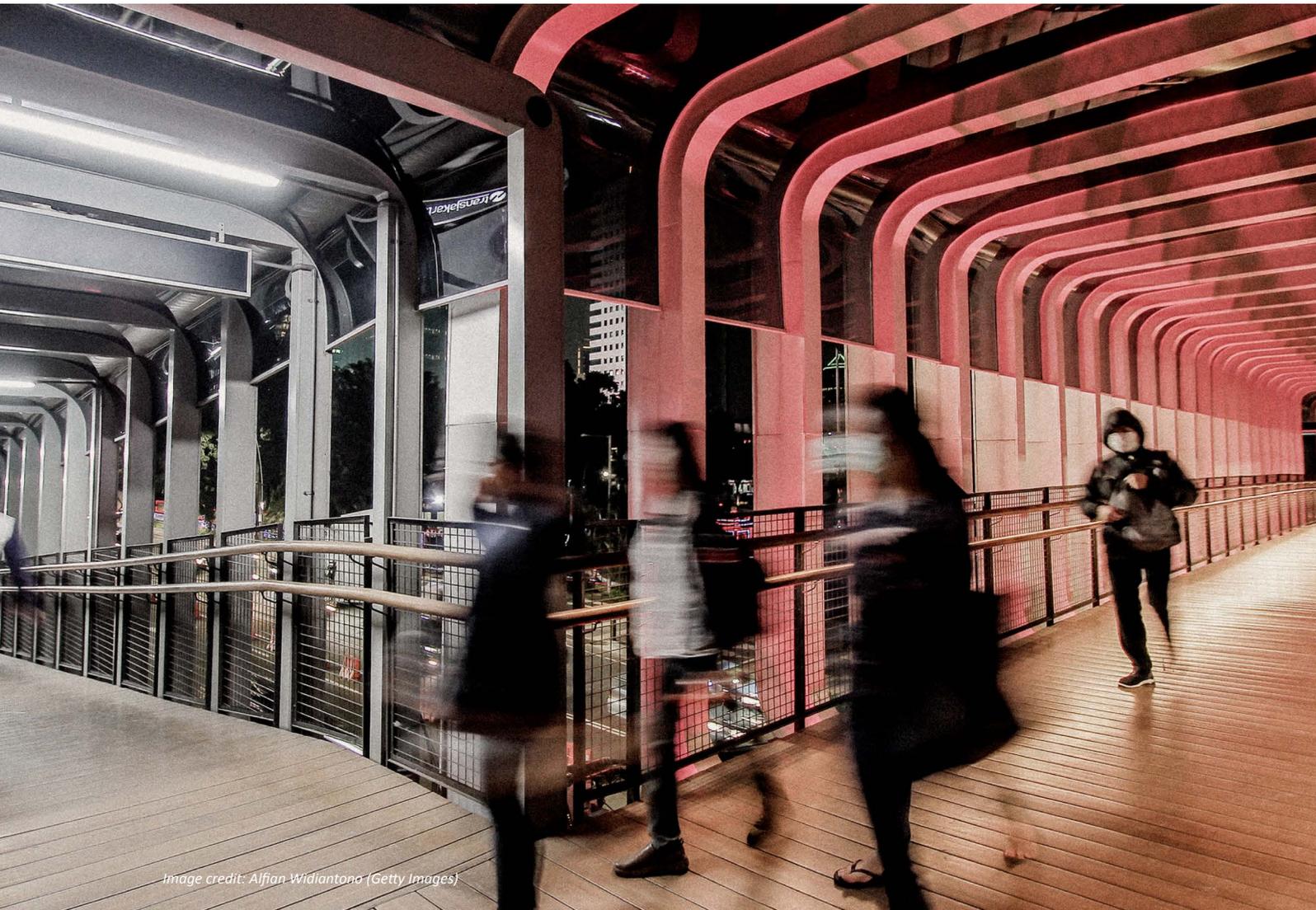


Image credit: Alfian Widiantono (Getty Images)

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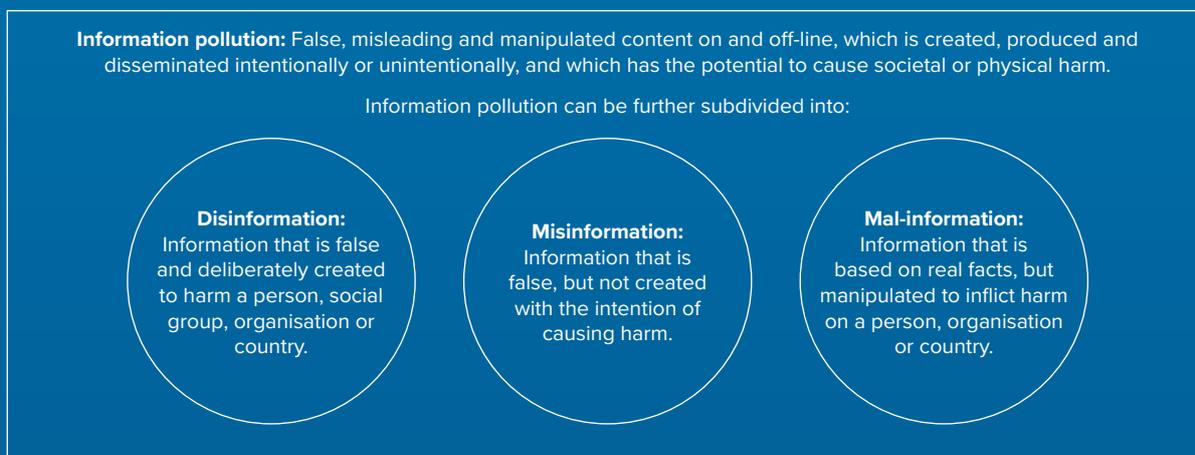
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1

Introduction

The global pandemic that was declared by the World Health Organization (WTO) in early 2020 has brought unprecedented challenges to governments and populations alike. As countries face further waves of SARS-CoV-2 (COVID-19), populations continue to suffer from the impact on citizens' health, the economy, education and social cohesion. The speed at which vaccines have been developed and the rollout of mass vaccination programmes has provided cause for optimism although coverage of vaccination remains deeply unequal across different regions of the world. At the same time, issues of safety, human rights, individual freedoms and collective responsibility, as well as the competency of and trust in governments in responding to the pandemic and delivering mass vaccination programmes remain highly controversial and continue to generate intense public discussion. Such a context, as well as the many unknowns of the novel coronavirus, have provided fertile ground for what the WHO refers to as an 'infodemic' – an excess of information, including false or misleading information, which has accompanied the pandemic, causing confusion and undermining public health responses. Much of this 'information pollution' is taking place online, across social media platforms, messaging apps, forums, blogs and news websites.



Placing information pollution in context

UNDP has identified information pollution as a key concern that can affect multiple governance and development issues, including health. There is concern, among other things, that information pollution is undermining public health responses and combining with other COVID-19 challenges to exacerbate pre-existing societal challenges.

While information pollution is a threat to all societies, there are certain factors that appear to make populations more vulnerable to information pollution, such as low trust in public institutions, the prevalence of populist rhetoric, lack of quality, independent, pluralistic journalism and media, a shrinking national/local media sector, low media and internet literacy levels, and divisions between different social, ethnic or religious groups. Many of these factors can be observed – to varying degrees – across countries in LAC.

Furthermore, even before the pandemic, various countries in LAC had been enduring prolonged periods of political instability and economic crisis, as well as increasing inequality, which have further contributed to the region's vulnerability to misinformation and disinformation.

Addressing information pollution is a complex matter, and involves consideration of an array of rights, including privacy, freedom of expression and the right to information, as well as engagement with multiple stakeholders. One of the crucial elements in developing adequate responses is mapping information pollution so that solutions can be based on evidence.

Media and online landscape in LAC

To understand the context in which information related to COVID-19 is accessed, it is important to look at the changing media landscape in the region. Internet usage continues to grow, now reaching some 70% of the region's population, up 5% from 2020.¹ This has been accompanied by a corresponding rise in social media usage. According to data provided by the *Reuters Institute Digital News Report 2021*², while television and radio remain important news sources, in most countries in the region the majority of people now get most of their news from online sources. Print media, already suffering from a decline in circulation in the face of digital advances, has further declined during the pandemic due to shrinking advertising revenues and lockdown-related disruption to, or suspension of, operations. Local media, including local TV and radio stations, has particularly suffered. At the same time, many of the top national media brands responded to declining advertising revenues by putting up paywalls, further limiting the free media choices on offer.

Compounding this is a backdrop of a general decline in trust in traditional media in recent years across the region, in some cases due to their perceived bias during political events, while in other cases media have become the target of overt criticism and verbal attacks from outspoken political leaders. Overall, news consumption in much of LAC has reportedly declined across all media, online and social media included, despite the increase of digital access.

The decline in traditional media and a lack of trust in public institutions in the region means that people are more likely look elsewhere to find information. While research suggests that there exists a large amount of distrust in the region towards news in general, particularly news sourced from social media, at the same time significant numbers of people admit to sharing news content through social media, messaging apps and email.³

1 Hootsuite, *Digital 2021 Overview Report*, https://hootsuite.widen.net/s/zcdrtxwczn/digital2021_globalreport_en

2 Nic Newman et al, *Reuters Institute Digital News Report 2021*, https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2021-06/Digital_News_Report_2021_FINAL.pdf

3 See country reports for Argentina, Brazil, Chile, Colombia, Mexico and Peru, *Ibid*, pp. 114-126,

Social media use in LAC

Social media use is particularly high in South America and Central America at 72% and 71% of the population respectively, comparable to North America's 74%. The Caribbean is significantly lower at 51% of the total population, and gender balance of users is even in the region, although the difference is more pronounced in South America where female users outnumber male users 75:70, and in Central America where males outnumber females at a proportion of 72:70. Brazil experienced one of the highest absolute annual global increases in social media use between 2020 and 2021, rising by 10 million users, or 7.1%⁴ Globally, the highest number of social media users are aged between 18 and 34, with 35–44-year-olds also significant users, and with older generations joining the social media space in increasing numbers. Social media users in Mexico, Colombia, Brazil and Argentina all have high average numbers of social media accounts per internet user (above 9), although they are not necessarily active users of all accounts/platforms.⁵

While the exact numbers of users of each social media platform in each country is not available, through the published data on their advertising reach, social media companies themselves claim a considerable penetration into these populations. For example, in Mexico, data indicates that advertisers can reach 92.3% of the population above 13 years of age, 87.3% in Colombia, 86.7% in Argentina and 74.1% in Brazil. For Twitter, Argentina at 14% and Mexico at 10.9% have the most reported users reachable by advertising in the region. For other platforms, the levels are quite variable across countries – for example Argentina and Brazil lead in the LAC region on Instagram at 58.7% and 56.4% respectively, with Colombia at 38.7% and Mexico at 31.7%.⁶ Meanwhile, newer platforms such as SnapChat and TikTok have experienced huge climbs in the number of worldwide users over the last year. These differences in user levels should be borne in mind when assessing the impact of the various platforms in relation to information pollution.

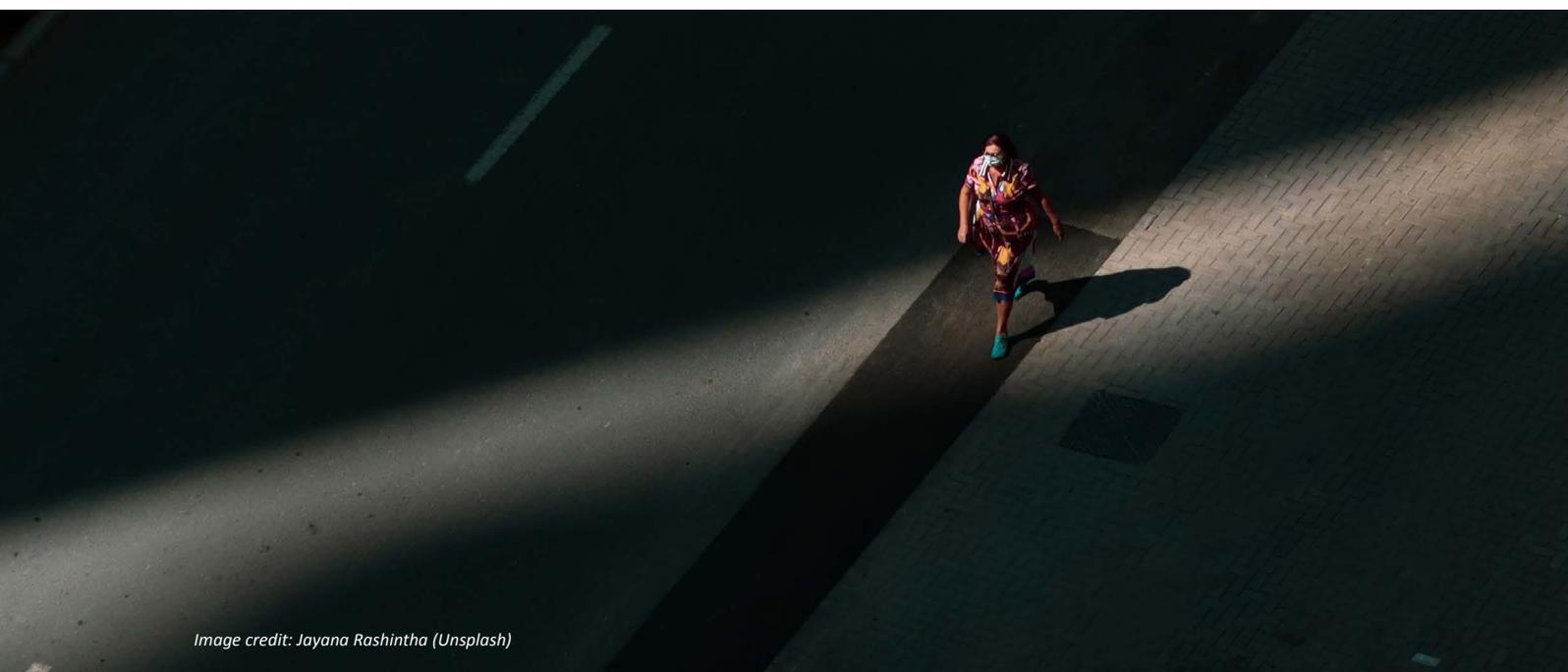


Image credit: Jayana Rashintha (Unsplash)

⁴ Figures as of January 2021, op. cit. Hootsuite, *Digital 2021 Overview Report*, pp.81-82, 86 & 95.

⁵ Data from Q3 2020 survey by GlobalWebIndex, presented in Ibid, p.95.

⁶ Ibid, pp.110, 170 & 133.

Scope, Methodology and Limitations

To better understand the scale and nature of the information pollution challenge related to COVID-19 and vaccines in LAC, and to help develop policy responses, UNDP commissioned [Constella Intelligence](#) to conduct a social and digital media research study, using a combination of artificial intelligence and human-assisted analysis methods. The research focused on the digital public sphere in Spanish and English from October 2020 to February 2021. It is a recognized limitation of this study that it does not fully capture the public digital debate in Brazil, Haiti and other areas of LAC where Spanish and English are not the predominant languages. Nevertheless, the fact that Brazil still appeared prominently within the results of the research indicates that content in English and Spanish is consumed there in statistically significant quantities.

Data-capturing software and algorithms were used to index and capture conversations related to COVID-19 and vaccines across online public platforms including Twitter, Facebook, YouTube, Instagram, media domains, blogs and other digital communities. Some 37 million results from 4.4 million profiles were captured and used to provide quantitative analysis about the digital discussion. Some 85.6% of these results were from Twitter, 13.8% from Facebook, 0.5% from Instagram and 0.3% from YouTube. While these proportions do not reflect the relative overall use of these different platforms in LAC, they represent an overview of publicly available data and are a powerful proxy for the type of digital conversations taking place in the region.

From this larger dataset, the top 4,000 conversations on Twitter (comprising 2.6 million comments) were selected to be qualitatively analyzed to provide further information on the main narratives and insights into the communities around these topics. While the conclusions of the analysis of these Twitter conversations cannot be transferred wholesale to all other social media platforms, the results present a detailed picture of the evolution of particular forms of information pollution over the period and provide a useful body of evidence for policymakers.

A widely recognized obstacle to comprehensive social media and online research is the increasing popularity of closed platforms such as WhatsApp, Telegram, Facebook Messenger and private Facebook groups, which are not accessible to researchers using digital tools to capture open-source data. It is therefore impossible to capture the full extent of online information pollution. At the same time, it is generally acknowledged that there is much crossover between these different platforms, with the same or similar content often being shared by users on several platforms.

Finally, it should be remembered that many users read content online without reacting to it through likes, comments or shares. We cannot measure the impact of information pollution on these 'silent' audiences, but we should be aware that information pollution is likely consumed more widely than the data from this research indicates.

Despite the above limitations, through the research conducted, it is possible to gain insights into key social media trends such as where information pollution originates geographically, how it spreads within and across borders, and which narratives have most traction and are most widely shared. This in turn can help us identify vulnerabilities and inform strategies to counter the most harmful effects of information pollution.

METHODOLOGY:
BIG DATA ANALYSIS OF
CONVERSATIONS
AROUND COVID-19 AND
VACCINES IN LAC

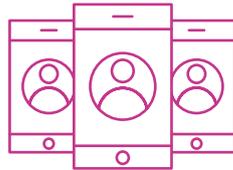
DIGITAL PUBLIC SPHERE

Although the highest volume sources are depicted graphically, multiple other digital media sources are indexed in the analysis.*



1

Algorithms map digital relationships and patterns emerging from interactions in the digital public sphere based on keywords and language, building and identifying the largest communities of users interacting in connection with the public debate related to Covid-19 and vaccines in LAC.



4.4M
PROFILES INTERACTING

37M
RESULTS

*Results refers to all publications on digital media sources (Twitter, Facebook, YouTube, Instagram, blogs, forums, and other digital communities) that are indexed for the analysis.

2

From the larger dataset, the top 4,000 conversations on Twitter (the top 200 conversations in the top 20 communities) were qualitatively analyzed to provide insight into the principal narratives, content, and sentiment within the debate.



4000 = 2.6M
CONVERSATIONS = COMMENTS



QUALITATIVE HUMAN ANALYSIS

3

Algorithms are used to rank authors by influence, taking three different types of interactions or connections into account to measure influence: retweets, replies, and mentions performed by authors geolocated in LAC countries.



200
GLOBAL INFLUENCERS



350
POLLUTING INFLUENCERS

The top 350 influencers spreading information pollution across the network are identified and analyzed to understand the key content and narratives propagated

2

Main findings

General online conversation

Participation

The numbers of internet users in each country who actively participate in public conversations about COVID-19 and vaccines according to Constella's research ranges from less than 0.5% (*Brazil, Haiti*, Bolivia, Cuba) to around 3.5% (El Salvador, Uruguay, Antigua and Barbados).

According to the analysis, the majority of sharing of news and information is done in a neutral way (60.4%), followed by news shared as part of political debate (30.6%), and criticisms aimed at individuals or institutions (for example for not following COVID-related regulations or about rising inequalities) (7.6%). Just 1.4% of COVID-19 and vaccine-related conversations was classified as clear-cut information pollution.

When the sample is narrowed down to just conversations about vaccines, we see the balance shift towards political discussions, which represents 47.8% of conversations, followed by neutral content (43.0%), criticisms of individuals or institutions (7.6%) and information pollution (1.6%).

In other words, much of the online debate is political, consisting of discussions about how governments are handling the crisis, debates about lockdowns and other measures aiming at stopping the spread of the virus, and questions about national vaccination programmes, among other topics. Such conversations are a healthy part of normal public debate, and it is just as important to engage with these positive conversations as potential amplifiers of accurate public information messages as it is to tackle information pollution.

Also notable is the high presence of satire and jokes, which account for nearly one in four results of the neutral content. This is not necessarily surprising, given the high level of humorous content, such as memes, commonly found on social media,⁸ as well as the role of humour as a coping mechanism in times of uncertainty and stress. The popularity of satirical content also suggests that there could be opportunities to leverage humour in policy responses.

Different communities can be identified by their geographic locations and main topics of conversation – usually these centre around a national political concern or point of view. A few are more global in nature – for example communities that have developed around satire or around specific political figures such as former US President Donald Trump, and which have found support in the LAC region.

7 The figures for Brazil and Haiti are likely to be an under-representation as the study only covered English and Spanish conversations and not those in Portuguese, French or Creole.

8 35% of global internet users aged 16-64 list finding funny or entertaining content as one of their primary reasons for using social media, a close second to staying up to date with news or current events (36.5%), op.cit, Hootsuite, *Digital 2021 Overview Report*, p.97.

Main influencers

Of the top 200 digital influencers identified throughout the region on digital conversations about COVID-19 and vaccines, more than half were media, and three quarters of those were from the international media. Since the top 200 influencers generated one in four results, the impact of the global media was substantial. International media outlets were also identified as among the most shared website domains across the region.⁹ These global media sites include outlets that are generally considered reliable sources of fact-based journalism as well as more controversial ones. The most prominent media profiles from within the region were El Universal (Mexico), El Comercio (Peru), Clarín (Argentina), Aristegui Noticias (Mexico), Tele 13 (Chile), and Infobae (Argentina), although the research showed that they tended to have influence mainly in just their own country and did not compete with the international media in terms of regional influence. Infobae's website stood out among media from the region that had been shared widely across the region, followed by El Universal, Mazo Dando (Venezuela), López Dóriga (Mexico), Milenio (Mexico) and Clarín (Argentina).

The next most significant category of top influencers was politicians (11%), of which two-thirds held government positions. Other top influencers included individual experts, the WHO, health ministries and vaccine-developing companies as well as celebrities, social media influencers and private citizens. Most top influencers have impact in just one country while 30% have regional influence. Of those with regional influence, the vast majority are mainstream international media and well-known (mainly US) politicians, although some individual citizens and social media influencers also make it into this category.

The overall picture suggests that a relatively small proportion of all internet users are actively engaging in public conversations about COVID-19 and vaccines, and an even smaller proportion are interacting with information pollution related to these topics. Does this mean that the infodemic problem is exaggerated? Unfortunately not. While the percentages are small, we must remember that given the overall number of internet users in LAC, if this pattern is mirrored across all social media platforms this actually represents a large number of people, which is statistically relevant in the context of a pandemic. In addition, far more people view this content than engage directly with it, and many conversations are happening on closed platforms such as WhatsApp that are beyond the scope of the research conducted. In other words, this small percentage of worrying content likely has an outsize impact on the real world.

While it is difficult to establish clear causal links between information pollution and real-world trends such as vaccine hesitancy, there are numerous examples of individual incidents being provoked by online disinformation related to COVID-19.¹⁰ Collectively, they paint a picture of communities susceptible to false information and vulnerable to alternative explanations and marginal ideas.

9 CNN, El País RT (Russia Today), New York Times, BBC (British Broadcasting Corporation), and Reuters were found to be the most influential international outlets in this order.

10 For examples of incidents in Latin America, see Philips T., Agren D., Collins D. and Goñi U., 'Tsunami of fake news hurts Latin America's effort to fight coronavirus', *The Observer*, 26 July 2020, <https://www.theguardian.com/world/2020/jul/26/latin-america-coronavirus-tsunami-fake-news>

EXAMPLE: IMPACT OF DISINFORMATION IN THE REAL WORLD

One of the most prominent global COVID-19 conspiracy theories claims that the virus is spread by 5G mobile phone technology.

In June 2020 in the Andean community of Chopcca in Huancavelica, Peru, eight telecommunications workers who were sent to repair one of the internet antennae in the locality were captured by a group of villagers who falsely believed that a 5G antenna was being installed and that it would spread COVID-19. The technicians were eventually released unharmed.¹

This incident suggests some important lessons: firstly, even rural communities that may have low levels of internet penetration can still be susceptible to disinformation – perhaps even more so if there are lower rates of media and digital literacy; secondly, conspiracy theories that may appear outlandish cannot be dismissed as they can take root in the popular consciousness and have real-world impact; and finally, disinformation can easily spread among close-knit communities, whether families, religious communities or villages. Countering disinformation may therefore require direct engagement with representatives of such groups.

¹ <https://www.france24.com/es/20200613-liberan-a-trabajadores-retenidos-por-creer-que-antenas-5g-transmiten-covid-19-en-per%C3%BA>

<https://www.bbc.com/news/world-latin-america-53021239>

Trends in information pollution

In the LAC regional overall, approximately 1.4% of the reviewed content could be classified as clear-cut information pollution (false, manipulated and misleading information produced and transmitted with or without a harmful intent). The distribution across the subregions varied slightly, with 1.6% in South America, 1.0% in Central America and 0.9% in the Caribbean.

Types of information pollution

It occurs on a spectrum ranging from unintentionally misleading content to deliberate obfuscation or downright falsehood. It can take many forms. Users may believe they are passing on useful information about COVID-19, how it spreads, how people can protect themselves against it and how it can be cured, when in fact they are simply propagating potentially harmful myths.

How inaccurate information is responded to when it appears in the public debate can in itself be a factor contributing to information pollution. For example, in recent years, media across the world have had to deal with the challenge of reporting the words of prominent political leaders who have made untrue or inaccurate statements, including those related to COVID-19, either at live events or on their social media accounts. While some media outlets have found ways to report such statements (which can often not be ignored due to the position of the person) by rebutting false claims or adding context such as “without providing evidence”, many other news sites and individuals repost such statements without caveats. Information pollution originating from prominent politicians clearly has added weight among their supporters who may see caveats as politically motivated.

A similar type of pollution occurs when a genuine incident is reported without adequate context. This has occurred frequently in relation to COVID vaccines. For example, if a person has suffered a rare side effect to one of the vaccines, this is indeed a legitimate public interest story. The problem occurs when either the reporting of such incidents happens without providing adequate context or a balanced report is re-framed in such a way as to distort the original reporting, for example by reposting an article alongside a misleading caption on social media. Appropriate context could include the fact that such reactions are extremely rare, that vaccine trials are often paused following the precautionary principle before any causal link has been confirmed, and that almost all established medical treatments entail a certain, if minimal, degree of risk.

EXAMPLE: MISINFORMATION VERSUS DISINFORMATION

Information pollution is not always deliberately misleading. For example, the same influencers might share good medical advice sometimes, and unverified or incorrect information on other occasions, without any malign intent. One example of this is a prominent political figure in one of the countries covered by the study, who has a substantial Twitter following (200,000+). While encouraging the population to follow measures such as wearing masks and social distancing in some tweets, in other tweets he shares his belief in the efficacy of Ivermectin to treat COVID-19, often providing anecdotal evidence to support his claims. While he frequently caveats these views, admitting that he is not a doctor, such tweets nonetheless contribute to the volume of support for medicines that have not been clinically approved to treat COVID-19, and can therefore be seen as a form of information pollution.

Main narratives

The research study identified seven overarching themes among COVID-19 information pollution, which are presented below, in order of volume:

- **‘Plandemic’ conspiracy theories (45.6% of information pollution)**

These unfounded conspiracy theories support the belief that the pandemic was planned and that COVID-19 was deliberately created. Conspiracy theories that come under this category include the ‘New World Order’, which claims that nation states will be replaced by a global totalitarian elite; the ‘China Virus’ theory which posits that China deliberately created and released the virus for geo-political purposes; the ‘depopulation plan’, which claims that the virus was released to reduce the world’s population; and finally, theories that the virus does not exist, but is a fabrication of governments and/or elites in order to exert control over the population. Although these are all linked to COVID-19, many of them closely relate to pre-existing conspiracy theories about shadowy global elites who seek world dominance. Typical hashtags and key words associated with the profiles promoting these theories include #plandemic, #covid1984, #nwo, #NuevoOrdenMundial and #WWG1WGA (“where we go one, we go all” – a slogan associated with the QAnon conspiracy theory).
- **Vaccines (25.8% of information pollution)**

In this category, many posts combine fact with false or misleading information, making it a particularly insidious type of pollution. One in four comments relates to rejection of the vaccines. The rest relate to: vaccine-related deaths or side effects; claims that COVID-19 vaccines alter DNA; claims that people will be forced to be vaccinated; claims that vaccines use microchips; and claims that vaccines are experimental. Similarly to the previous category, some of the vaccine-related content builds on the pre-existing movements, in particular the anti-vaxx movement which is prominent in North America but also has a growing global following.

- **Support towards alternative treatments (15.8% of information pollution)**
The two most prominent alternative treatment narratives relate to Ivermectin, an anti-parasite drug, and Hydroxychloroquine, which is used to treat malaria and a number of auto-immune diseases. In addition to these, many non-drug alternative treatments for preventing or curing COVID-19 have been suggested, including lemon juice and ginger (to which a spike in ginger exports from Peru has been attributed) and even bleach. The spread of alternative remedies is not a new phenomenon when faced with new and unfamiliar diseases – alternative remedies abounded during the HIV and AIDS, Ebola and Zika health crises, often propagated by prominent political figures. However, the online space allows such theories to spread ever more widely and rapidly.
- **Social distancing and masks rejection (5.6% of information pollution)**
These narratives reject the idea that social distancing and the wearing of face masks help reduce the spread of the virus, contrary to the global consensus of medical experts.
- **Test efficiency (3.9% of information pollution)**
The accuracy of the various types of COVID-19 tests is called into question. Such claims can be linked to alleged profiteering by private companies, or to other theories that seek to downplay the threat of the virus by claiming that there are a high number of ‘false positives’.
- **COVID-19 is exaggerated or uses false data (2.0% of information pollution)**
Like the previous category, these claims typically suggest that COVID-19 is not as dangerous as is claimed and is similar to the common cold or seasonal flu. Doubt is also thrown on official COVID-19 statistics, claiming they are exaggerated and that non-COVID deaths have been wrongly attributed to COVID-19.
- **5G conspiracy theories (1.8% of information pollution)**
This conspiracy theory claims that COVID-19 is transmitted via 5G technology. This claim has found traction in many countries where 5G has yet to be deployed, including in LAC.

It is clear that the bulk of information pollution narratives go far beyond the kind of legitimate questions that would be expected in relation to an unknown virus and new treatments and vaccines. Feelings of economic insecurity and perceived lack control over the direction of one’s life may increase vulnerability to conspiracy theories that attribute problems to plots or hidden agendas by obscure powers. Economic inequalities and social divisions in some countries of the region may contribute to this situation.

Given the historic tensions in a number of countries in the region related to the indigenous peoples, as well as other ethnic groups, the study paid particular attention to potential themes of discrimination or scapegoating. Conversations linked to immigrants, China and indigenous people generated 340,000 results, representing 0.8% of the overall qualitative Twitter sample. This was further broken down into immigrants (0.5%), China (0.2%) and indigenous peoples (0.1%).

Most of these conversations can be linked to specific phenomena or events. For example, a large part of the anti-China narrative seems to have been influenced or imported from the anti-China discourse espoused by the US leadership at the time. Significantly, this is the only discriminatory attitude found by the research to be shared by an identifiable online community in LAC (see table below on p.16)

The immigrant narratives relate mainly to policies related to access to vaccines for immigrants in Chile, concerns about migrant caravans potentially spreading the virus in Mexico, and the Chilean government’s policies towards Venezuelan migrants.

EXAMPLE: ATTITUDES TO MARGINALIZED GROUPS

The Chilean government's announcement on 10 February 2021 that it would exclude foreigners and illegal immigrants from its vaccination programme led to a peak in online activity related to immigrants, including debates about 'vaccine tourism'. The conversations included both expressions of solidarity with immigrants and anti-immigrant sentiment. This conversation can be seen as part of the wider political discussions that characterize much of the public debate in relation to COVID-19, where government policies are scrutinized by the online public.

The main conversations around indigenous peoples were criticism about the protests and behavior of Colombia's Minga, a collective made up of indigenous and other marginalized groups, and the potential risks to the wider population, as well as discussions about government treatment of indigenous peoples in the election campaign. In Venezuela there were criticisms of the quality of healthcare available to indigenous peoples.

While xenophobic and discriminatory narratives were not particularly prominent among the results in terms of volume, their presence nonetheless indicates that policymakers need to be alert to these risks.

Who are the polluters?

Among the top 350 influencers found to have engaged in information pollution, particularly prominent are those that are considered part of the 'alt right' movement in the US, as well as a number of ultra conservative profiles from within the LAC region. A significant number of influencers (16%) during the period analyzed were from accounts that were suspended during the reporting period for violating the platforms' policies. While it is unknown what proportion of these accounts were suspended for their activity related to COVID-19 as opposed to other topics, it is nonetheless encouraging that social media platforms do appear to be suspending problematic accounts, at least in some cases. However, such steps often lead users to set up similar accounts on less regulated platforms.¹¹

Top 350 'polluters'



¹¹ For example, action taken by Twitter and Facebook following the US Capital riots in January 2021 led to a spike in users downloading alternative platforms: <https://techcrunch.com/2021/01/11/following-riots-alternative-social-apps-and-private-messengers-top-the-app-stores/>

One in five of the 350 top polluting influencers are located in the US and one in ten in Spain, with a significant number also based in the UK.¹² This is even more pronounced in the Caribbean, where one in two top polluting influencers are based abroad, of which one in three come from the US (for more details on external influence on the English-speaking Caribbean, see box on p.18 below). Profiles from Chile, Argentina, Venezuela and Peru are the most influential from within the LAC region as a whole. As with the wider (non-polluted) community of COVID-19 influencers, around 30% have regional impact while some 60% only have influence in one country. The top regional polluting influencers include conspiracy theorists, individual citizens, politicians and ‘junk’ media (sites that produce misleading or inaccurate stories that purport to be real news).

Among the top domains generating information pollution content are a number of recently created media sites that focus specifically on the pandemic, alongside more established global conspiracy and junk media sites. A concerning development is the creation of new junk news sites on the pandemic by established figures in the conspiracy theory world. For example, Tierrapura.org was set up at the beginning of the pandemic by a former director of the far-right alternative media, *The Epoch Times*, which promotes conspiracy theories such as QAnon. It takes a strong stance against the Chinese government and links to content related to the Falun Gong. The site has quickly established itself as one of the main sources of information pollution in LAC, based **on the total amount of disinformation shared**. Similarly, Summit.news is a relatively new website owned by a British former editor of Info Wars, a prominent far-right US-based conspiracy website. The two sites share much of the same content, and Summit.news has also become one of the most-shared domains for information pollution in LAC. The prominence of these sites indicates that experience counts when it comes to producing ‘successful’ information pollution and that combating such efforts will require better understanding of the incentives that drive their creators.

Popular content-sharing platforms such as YouTube and Facebook also appear among the top domains for information pollution – an indication of the ease with which information pollution can still spread on these platforms despite the existence of policies designed to limit such content.¹³

12 Fact-checking organization Chequeado has conducted research analysing how disinformation travels from the US to Latin America, and highlighting the comparative weakness of social media platforms in tackling the issue once it moves from English into Spanish: <https://chequeado.com/investigaciones/disinformation-for-export-how-false-content-generated-in-the-united-states-reaches-latin-america/>

13 For YouTube’s policy on COVID-19 content, published on 20 May 2020, see: <https://support.google.com/youtube/answer/9891785?hl=en-GB> ; for information on Facebook’s actions to counter COVID-19 related misinformation see: <https://about.fb.com/news/2020/03/combating-covid-19-misinformation/>

EXAMPLE: POLLUTING INFLUENCER

The **@No__Plandemia** conspiracy theorist account is the top regional Twitter influencer within information pollution related to vaccines according to the dataset of the research. Despite being an anonymous account, it has significant reach within the region, and can be considered a high-activity account.

The image shows a screenshot of the Twitter profile for the account **¡No! a la nueva normalidad** (@No__Plandemia). The profile picture features a globe with a microchip and a star of David. The bio lists several other conspiracy theory accounts. A pinned tweet from August 25, 2020, contains a link to a Telegram channel and a quote from a doctor. The account has 18.8K followers and was created in Spain in January 2012.

Callout boxes and their content:

- Top left:** A high number of tweets is generated by this account (12,500)
- Profile picture:** Account name refers to one of the main conspiracy theories
- Profile name:** The use of the star of David compares the situation of unvaccinated people to the Jews under the Nazis. A microchip is also shown, referencing another common COVID-19 vaccine conspiracy theory.
- Location:** The geolocation is Spain
- Joined:** While the account has been active since January 2012, the username appears to have been changed in August 2020 since no tweets are visible prior to that date.
- Recommended accounts:** The bio of the account does not give any information about who is running the account but rather lists other conspiracy theory accounts
- Followers:** Nearly 19,000 followers
- Pinned tweet:** The 'pinned tweet' at the top of the feed includes a link to the No Plandemia Telegram channel which has 6,000 subscribers and includes similar content.

EXAMPLE: MEDICAL INFLUENCERS

The qualitative analysis identified various profiles of medical professionals that were contributing in different ways to the online debate. While the majority of medical experts contributed in a positive way, a significant minority are active in information pollution. Some are individuals whose medical speciality is not necessarily related to immunology or virology but who may nonetheless appear authoritative because of their medical qualifications. They promote views that are not supported by the majority of medical experts on COVID-19, particularly on alternative treatments and vaccines.

Information from such sources may have particular appeal because of the respect usually accorded to the medical profession. In some cases, individuals may also have another position, such as being a pastor or a politician, which can further enhance their credibility among their followers.

One major source of this kind of information pollution is a global group of doctors and health professionals called “Medicos por la Verdad” (Doctors for the Truth) who subscribe to negationist conspiracy theories around the virus and are against the COVID-19 vaccines. The group was started by a military doctor in Germany but includes a number of doctors in Spain and across the LAC region (Argentina, Mexico, Chile, Ecuador, Venezuela, Uruguay, Paraguay and Guatemala).

In the more extreme cases, such accounts have been suspended and posts have been removed on some platforms. However, these groups are usually also present on closed platforms such as Telegram and often encourage their followers to view their content there, as can be seen below on the Instagram account of Medicos por la Verdad:



To understand how information pollution works in practice, it is helpful to look beyond individual accounts to see how informal networks or communities of users are formed and how they interact with other communities. Some communities are more inward-looking, interacting only within the echo-chamber of a single community whereas others connect and overlap with other networks, providing further opportunity for information pollution to spread.

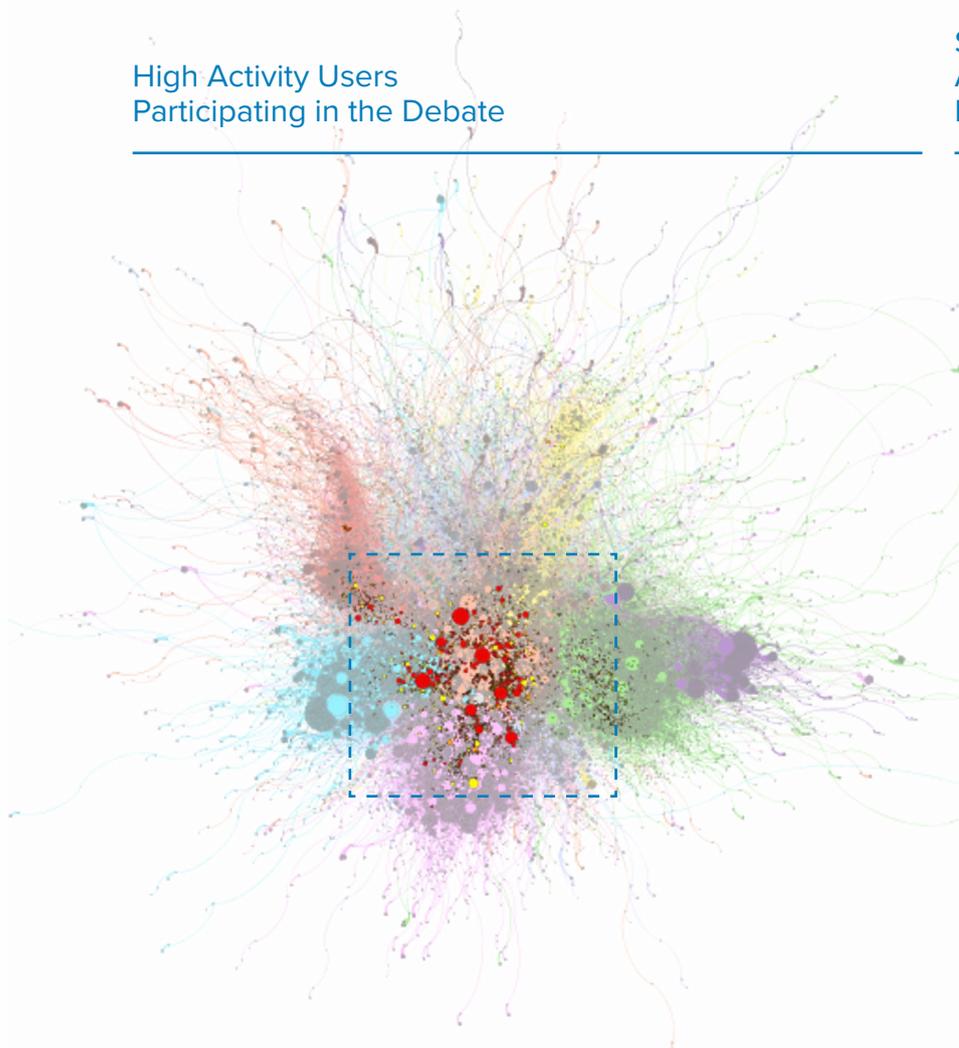
By analysing patterns of retweets and comments, the main communities that have sprung up around disinformation narratives can be identified, some of which are centred around one country, whereas others are global in nature.

When analysing the impact of each community, not only is the size of each community relevant, but also the activities of its members. Within each community, certain users are more active than others. While high activity users are relatively rare – around 1% of the total users sharing information pollution on Twitter – their comments generate nearly 25% of the information pollution conversations.

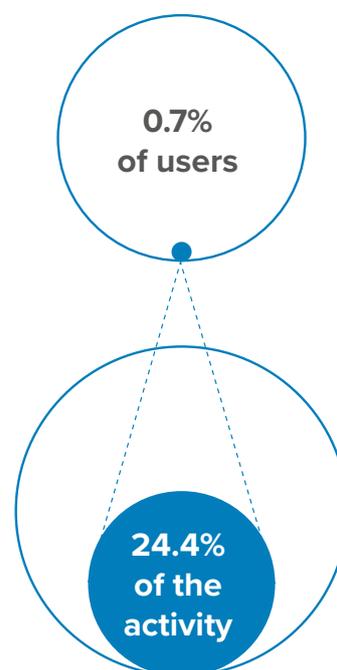
High Activity Users' Impact on the Debate

Less than 1% of total users sharing information pollution exhibit high activity behaviours, but their comments generate nearly 25% of the information pollution conversations.

High Activity Users Participating in the Debate



Share of Voice of High Activity Users Sharing Information Pollution



The table below identifies the main communities on Twitter (which have been identified by their retweets) that are responsible for information pollution in LAC. They are labelled by the main topics they show interest in. The table shows their relative activity, based on the average number of comments per user, and the overall percentage of information pollution in LAC that this represents.

Community	Percentage of information pollution they represent	Country/global	Average number of comments per user (percentage of total)
Spanish-language community mainly discussing politics in Venezuela and in the US	17.2%	Venezuela	3.1 (17.3%)
English-language community of COVID-19 deniers and against vaccines	15.9%	Global	3.1 (16.1%)
Spanish-language COVID-19 deniers	15.2%	Global	6.6 (32%)
Conspiracy theories in Argentina	11.2%	Argentina	2.8 (10.0%)
English-language community in favour of alternative treatments	4.8%	Global	1.5 (2.8%)
Peruvian community discussing certain COVID-19-related restrictions and in favour of Ivermectin	4.2%	Peru	4.6 (6.2%)
Community discussing certain COVID-19-related restrictions in Panama	3.1%	Panama	4.7 (4.7%)
Community blaming China for the pandemic	2.7%	Colombia	2.2 (1.9%)
Spanish-language community in favour of alternative treatments and against vaccines	2.2%	Global	3.7 (2.4%)
COVID-19 deniers and those in favour of Ivermectin in the Dominican Republic	1.9%	Dominican Republic	1.2 (0.9%)

From analysing the location of owners and leading participants in these groups, the influence of the US and Spain can be seen within the global communities but also the difference between the popularity of particular narratives in certain countries, which emphasizes once again the need to have a tailored approach to each country.

Community Analysis



The size of the node represents the level of influence within the network of users



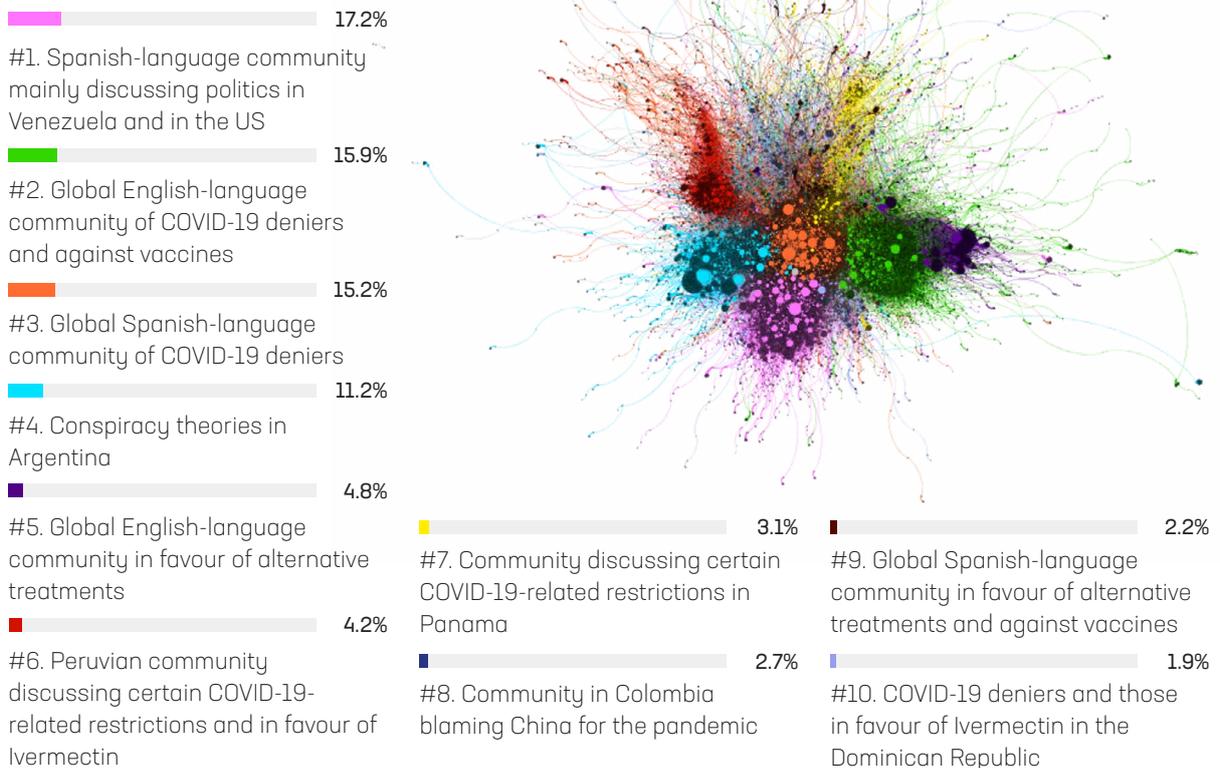
The thickness of the links depends on the volume of interactions among connected nodes



The color of a node indicates the community to which belongs

Information Pollution network is formed by 133,295 profiles, which generate 345K interactions. The largest communities (based on retweets) are influenced by global conversations spreading conspiracy theories and anti-vax narratives.

Period of Analysis: 01/10/20 – 13/02/21. Languages: Spanish and English.
Location: LAC Countries



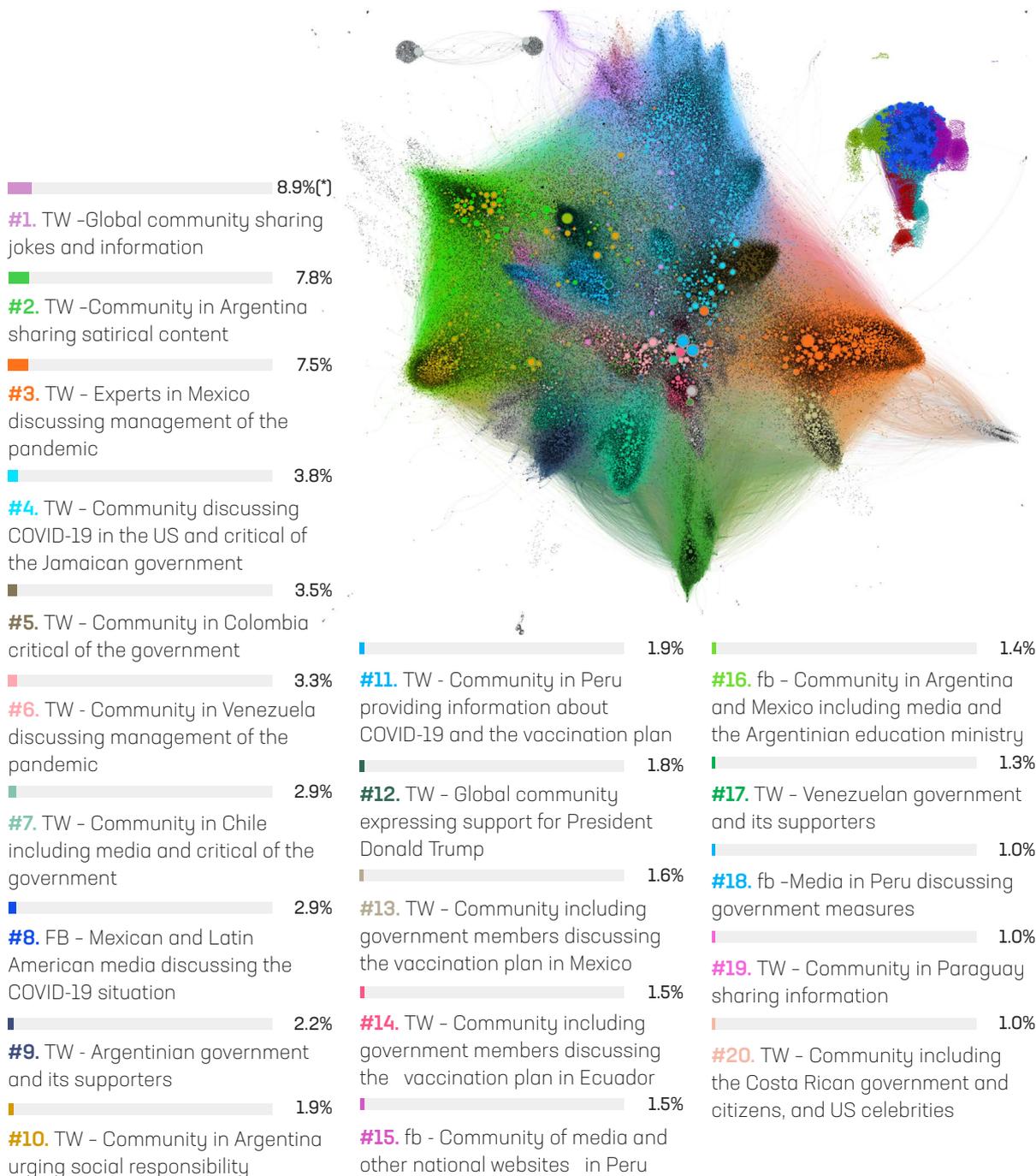
Methodology Note: data set for qualitative analysis was the top 4,000 conversations on Twitter

The above diagram shows how the different communities interact – the closer they are to the other groups, the more they interact. The orange network in the centre in the above diagram represents the “Spanish-language COVID-19 deniers” community. Not only does it generate the most comments (average of 6.6 per member and contains nearly half of all “high-activity” users who posted more than 39 comments over the period analyzed), but it is the most interconnected with the other groups, hence its placement in the centre of the diagram. This higher level of connection between other networks makes it a key spreader of information pollution. In contrast, some of the more country-specific communities, such as the Peruvian community against curfew and for Ivermectin, is relatively self-contained, as indicated by the cluster in red at the top left of the diagram.

The relatively fragmented and local nature of information pollution communities stands in contrast to the picture of the overall conversation around COVID-19, as can be seen from the diagram below:

Overview and Context: Top communities on Twitter and Facebook are generated by country specific conversations.

Period of Analysis: 01/10/20 – 13/02/21. Languages: Spanish and English. Location: LAC Countries



Here, there is a much greater level of interconnectivity apparent; while the different communities can be identified by the clusters of colour, the edges blur into other communities, indicating overlaps and exchanges that cross both geographic and narrative borders. From this we can see that while the overall conversation is global, conversations involving information pollution tend to be more local, despite often having origins abroad.

Of the 932 profiles considered high activity users, 107 were created during 2020, often clearly in response to the pandemic. Understanding the drivers behind the creation of profiles that push disinformation narratives is crucial to discouraging this phenomenon. More research is needed into both the psychological appeal of conspiracy theories, but also the financial drivers that can make disinformation websites profitable (clickbait financial models, online sales of linked products, etc).

EXAMPLE: MAL-INFORMATION

The below example shows one of the top stories linked to information pollution. The report in and of itself is not information pollution – it accurately reports the death of a doctor several weeks after having the Pfizer vaccine, and reports that the case is being investigated for any possible links to the vaccine. Where this can cross over into information pollution, however, is when the story is shared with comments that distort the original reporting and imply a certainty that has not been established. It was reported several months later that the US authorities had concluded that the case was not linked to the vaccine.

This example is typical of the outsize attention and prominent level of online sharing that articles about possible and rare side effects of the vaccine have had during the pandemic.

Top domain linked to vaccines information pollution

Russia Today

Portada > Actualidad

Investigan en EE.UU. la muerte de un médico por un raro trastorno días después de recibir la vacuna de Pfizer

Publicado: 9 ene 2021 18:53 GMT



La esposa del difunto aseguró que se encontraba en perfecto estado de salud y que era "un defensor de las vacunas".



THE ENGLISH-SPEAKING CARIBBEAN

Given the smaller population sizes of countries in the English-speaking Caribbean, there is a far higher outside influence in the online debate than is evident elsewhere in the region. For example, one larger community that includes conversations about Jamaica is mainly influenced by media from the US and Canada as well as the US political leadership. In most countries of the English-speaking Caribbean at least 30% of retweets are of tweets from accounts based abroad, going up to three-quarters in the case of the Cayman Islands, more than half of which are from the US. The influence of the UK is also evident across the English-speaking Caribbean, albeit to a lesser extent than the US.

Many of these countries have such small numbers of users of the public social media platforms that there may not be a “critical mass” to sustain a more localized debate, while the existence of large diasporas in the US and elsewhere means that conversations related to these countries are already more global, and at least as much influenced by political debates in the US as by those in the Caribbean.

When it comes to information pollution, this presents a particular vulnerability. Not only are these countries especially at risk of imported disinformation but it may be more challenging to combat this through a purely national approach.



3

Way forward

Main conclusions

Vast and largely unregulated, the online space is complex, ever-changing and difficult to fully comprehend. Yet despite the unmanageable volume of conversations that take place in both the public and private domains, from this targeted analysis of public content it has been possible to identify clear patterns and trends related to information pollution and the actors that produce it. From the research findings we can draw the following overall conclusions, which in turn can help inform policy responses.

Putting it in perspective

A significant majority of the public online debate around COVID-19 and vaccines in LAC involves neutral discussions, often of a satirical nature, the sharing of reputable news and information sources, and political debate.

While most conversations are healthy, there is nevertheless a small but persistent amount of information pollution that is consistent in polluting conversations across all the countries of the LAC region.

- Information pollution represents a small but worrying part of the public online debate
- The online space is an important place for political debate and public interest discussion
- Satire plays an important role and could be leveraged in policy responses

Regional versus global influencers

Both within the wider public debate and information pollution, a significant percentage of influencers come from outside the LAC region. The US is a particularly strong source of influence, especially within the Caribbean, with Spain and to the lesser extent the UK also prominent.

Regional voices are also significant, with cross-border conversations often taking place. However, country-specific conversations dominated interactions, suggesting that users will be more receptive to engaging on these issues at the national level.

- The majority of information pollution originates outside the LAC region
- Conversations are largely local, suggesting opportunities for local solutions

Information pollution involves a diverse range of actors and motives

The influencers involved in spreading information pollution are heterogenous. Some are part of wider conspiracy theorist groups, others are alt-right or extreme right political activists, politicians, or junk media sites. Others can be ordinary citizens or well-known personalities convinced by a particular COVID theory, such as belief in the efficacy of an alternative treatment. The risks posed by each type also vary, with some high-activity conspiracy theorists producing and propagating significant volumes of content in the hope of breaking out of their echo-chambers, while more mainstream figures may reach wider audiences with inadvertently polluting content. The online space enables diverse groups to engage and amplify each other's messages, but as they have diverse types and levels of motivation, they cannot necessarily all be countered in the same way.

- Information pollution is heterogenous and will require multi-faceted solutions

The importance of online communities

Social networks operate through networks or communities that spring up around shared beliefs or interests. The more interconnected these are, the more influential they become. The most interconnected community identified by the research shared were Spanish-speaking COVID-19 deniers.

Significantly, the research found little indication of coordination of information pollution through coordinated networks, and only a small amount of bot-like or automated behaviour, suggesting that the information pollution in relation to COVID-19 is spreading in other ways.

- Information pollution spreads through communities of shared interests

The media spectrum

Media content accounts for an exceedingly high amount of the online public debate. Major international news outlets were strongly represented in the discussions, although media from the region was unable to achieve a similar appeal across the region. These outlets follow, for the most part, high standards of professionalism. However, the content they produce is at times taken out of context or reframed to serve as the basis for misleading information. Other types of media information pollution include media sites that, while mainstream, may have populist leanings or may use exaggerated reporting styles, while at the end of the spectrum are junk media sites, with articles that are unfounded and false, often using clickbait-style headlines. Many of these appear to have been created with the express intent of distributing COVID-related disinformation and are connected to similar pre-existing junk news sites. Given the general challenges to traditional media business models in the digital age, as well as the additional financial pressures that media outlets have come under since the pandemic, low-quality media and junk media sites are often able to find an audience for their free information content.

- Populations need to be able to evaluate the quality of variable media offerings
- Few media outlets from the region have regionwide impact
- International media are invaluable partners in disseminating accurate information

Regulation of social media companies is a challenge

The issue of problematic content on social media poses both internal challenges for social media companies and questions for governments. Ranking algorithms often prioritise sensational,

extremist and divisive content, while social media platforms struggle to enforce their own policies; many violations go unaddressed, particularly in the context of developing countries and regarding content in languages other than English, where monitoring capacity appears to be weaker.

Some 16% of problematic public profiles identified by this study had been deactivated on Twitter by the end of the research period. This shows that some social media companies are attempting to take some responsibility for the content published on their platforms, even if it is insufficient. However, this does not mean that these profiles have disappeared from the online space, as many will have moved to other platforms where there is even less oversight and encouraged their followers to join them there.

Given the cross-border nature of social media networks and the ease with which information pollution spreads between countries and from one language into another, it is clear that this issue cannot be tackled effectively at the country level alone, nor can the growing number of competing social media companies be left to regulate themselves.

- Regulation of social media companies is becoming an urgent issue that cannot be tackled at the country level alone
- Internal mechanisms to regulate social media content have a role but are insufficient

Recommendations

Based on the above conclusions, the following principles, short-term and long-term actions are offered to governments, UNDP Country Offices and other stakeholders as recommendations for countering information pollution on COVID-19 and vaccines in the LAC region.

Principles

- **Human-rights based approach.** All work in this area should be carried out with human rights at the fore. As has been identified, much information pollution comes from sources with no malign intent. It is important that any solutions do not unfairly stigmatise users for legitimate use of the internet or unduly interfere with users' human rights.
- **Work with multiple stakeholders.** This can include government agencies, media, social media companies, civil society, religious and community leaders, as well as influencers such as personalities from sports and entertainment who could amplify positive messages.
- **Use multi-faceted approaches.** As a complex phenomenon, protecting the public against information pollution will involve multiple interventions, aimed at both short-term and longer-term solutions and involving different stakeholders.
- **Ensure inclusion of marginalized and under-represented groups,** as well as women and youth. Involving these groups will help in the design of policies and programmes that ensure their needs and vulnerabilities are effectively addressed.
- **Ensure interventions are evidence-based.** It is easy to make assumptions about information pollution, but in this relatively new area trends change quickly and vary from country to country..

Actions

Short term:

- **Convene key stakeholders at the national level**, to discuss the findings of this and other relevant research to develop country-specific strategies for further research and countering disinformation initiatives.
- **Country-wide mapping**, particularly in countries such as Brazil, which are acknowledged not to have been fully covered by this study. Although automated data collection from public sources has its limits due to the constraints outlined earlier, it can be combined with other research methods such as focus groups and perception studies as useful ways of gathering complementary data to help with developing country-specific approaches.
- **Continued monitoring**, to ensure that emerging narratives and new sources of information pollution continue to be identified.
- **Improving public communication** where information gaps and vulnerabilities are identified. This includes providing easily understandable scientific information to rebut false narratives, in partnership with various stakeholders. This also includes the amplification of communications on UN and WHO initiatives to help the public identify accurate information on COVID-19 and vaccines.
- **Supporting fact-checking initiatives**, including media and civil society initiatives. Providing information hotlines including on social media can help provide quick responses to emerging issues. Supporting cross-border co-operation between fact-checking initiatives can proactively identify potential disinformation narratives before they penetrate the digital conversation in a country.
- **Support to journalists and media**, including through specific training on COVID-19 and vaccine-related topics, as well as information pollution.
- **Encouraging stakeholders to report violations** directly to social media platforms. Spreading awareness about what steps can be taken to report disinformation may increase the effectiveness of these mechanisms as well as highlight any weaknesses in existing policies.

Long term:

- **Supporting media plurality** and professionalism addressing a range of structural factors including media market structure, social and political dynamics, safety of journalists and leverage the potential of media coalitions for access of information and prevention of information pollution including at the local, regional and international level.
- **Improving media literacy** through long-term education policies and programmes.
- **Improving digital/online literacy** through long-term education policies and programmes.
- **Further research into driving and enabling factors of information pollution**
- **Advocating for a global alliance of governments and other stakeholders to work together on social media regulation as a priority**, in the face of the growing number of completing platforms and the inadequacies of self-regulation. Care will be needed to ensure rights such as privacy and freedom of expression are protected while online safety and action to tackle public harm is assured.

- **Engaging with social media companies to encourage the further enhancement and enforcement of their content policies, within a human-rights framework**, and to ensure that algorithms and other structural factors do not amplify information pollution.
- **Improving governance and transparency**, to reduce the distrust of public institutions that creates space for disinformation
- **Support states in developing human rights compliant internet governance policies**
- **Build resilience to future information pollution crises** by building capacity in social listening and information pollution detection systems to be ready to face new challenges when they occur.
- **Developing evaluation criteria and mechanisms** for initiatives aimed at addressing information pollution, to learn lessons about the most effective strategies and adapt where necessary.

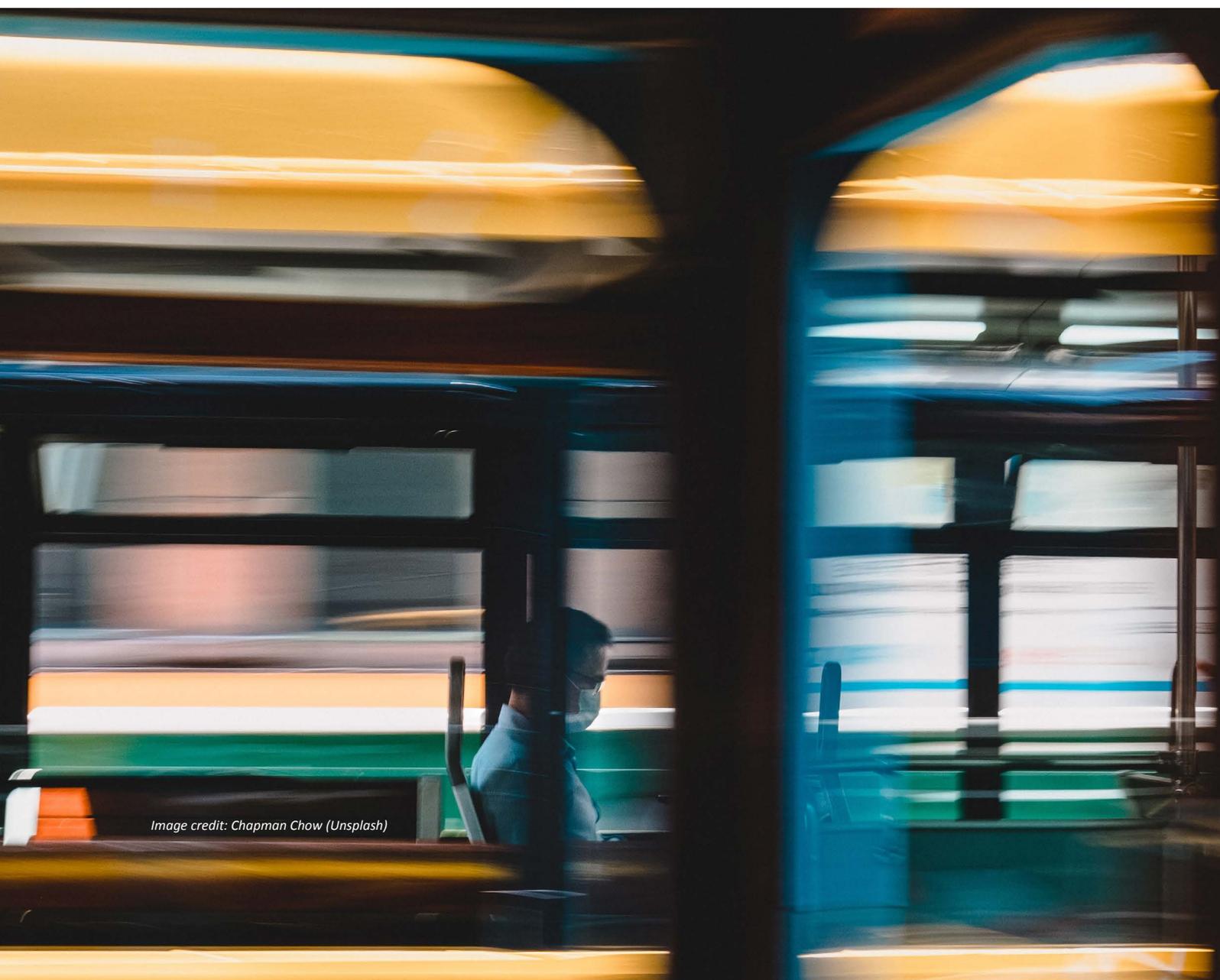


Image credit: Chapman Chow (Unsplash)

4

Annex

Country	Top 3 information pollution narratives	Top 3 information pollution vaccine narratives	% of information pollution originating from abroad
Antigua and Barbuda	-The pandemic was planned (45%) -Vaccines (32%) -Social distancing and mask rejection (8%)	-Vaccine rejection (25%) -Vaccines use microchips (25%) -Vaccine-related deaths (15%)	
Argentina	-The pandemic was planned (41%) -Vaccines (28%) -Alternative treatments (16%)	-Vaccine rejection (32%) -Vaccine-related deaths (19%) -Vaccine side effects (19%)	
Bahamas	-The pandemic was planned (54%) - Vaccines (23%) - Social distancing and mask rejection (8%)	-Vaccines use microchips (33%) -Vaccine rejection (32%) -Vaccine alters DNA (17%)	55.7%
Barbados	-The pandemic was planned (42%) -Vaccines (29%) -Alternative treatments (11%)	-Vaccine side effects (25%) -Vaccines use microchips (25%) -Vaccine rejection (17%)	52.7%
Bolivia	-The pandemic was planned (52%) -Vaccines (19%) -Alternative treatments (16%)	-Vaccine-related deaths (28%) -Vaccine rejection (20%) -Vaccine side effects (18%)	62.4%
Brazil	-Alternative treatments (34%) -The pandemic was planned (32%) -Vaccines (22%)	-Vaccine side effects (34%) -Vaccine rejection (18%) - Vaccines use microchips (15%)	64.0%
Cayman Islands	-The pandemic was planned (58%) -Vaccines (28%) -Alternative treatments (7%)	-Vaccine side effects (23%) -Vaccines use microchips (22%) -Vaccine alters DNA (20%)	
Chile	-The pandemic was planned (52%) -Vaccines (25%) -Social distancing and mask rejection (8%)	-Vaccine rejection (32%) -Vaccine-related deaths (18%) -Vaccine side effects (15%) -Vaccine alters DNA (15%)	
Colombia	-The pandemic was planned (45%) -Vaccines (23%) -Alternative treatments (16%)	-Vaccine alters DNA (15%) -Vaccine-related deaths (20%) -Vaccine rejection (19%)	59.5%
Costa Rica	-The pandemic was planned (46%) -Vaccines (34%) -Alternative treatments (7%)	-Vaccine alters DNA (33%) -Vaccines use microchips (17%) -Vaccine side effects (16%)	71.4%
Cuba	-The pandemic was planned (58%) -Vaccines (24%) -Alternative treatments (8%)	-Vaccine-related deaths (25%) -Vaccines use microchips (22%) -Vaccine alters DNA (20%)	68.8%

Dominica	-The pandemic was planned (50%) -Vaccines (31%) -Alternative treatments (7%)	-Vaccine rejection (26%) -Vaccine side effects (22%) -Vaccines use microchips (22%)	
Dominican Republic	-The pandemic was planned (37%) -Alternative treatments (36%) -Vaccines (17%)	-Vaccine-related deaths (33%) -Vaccine rejection (16%) -Vaccine side effects (16%) -Vaccines use microchips (16%)	46.3%
Ecuador	-The pandemic was planned (43%) -Alternative treatments (30%) -Vaccines (19%)	-Vaccine alters DNA (23%) -Vaccine-related deaths (20%) -Vaccine side effects (19%)	65.9%
El Salvador	-The pandemic was planned (51%) -Vaccines (24%) -Alternative treatments (17%)	-Vaccine side effects (28%) -Vaccine rejection (19%) -Vaccine-related deaths (17%) -Vaccine alters DNA (23%)	66.2%
Guatemala	-The pandemic was planned (54%) -Vaccines (21%) -Alternative treatments (11%)	-Vaccine-related deaths (29%) -Vaccines use microchips (24%) -Vaccine alters DNA (19%)	54.7%
Guyana	-The pandemic was planned (46%) -Vaccines (35%) -Alternative treatments (9%) -Social distancing and mask rejection (9%)	-Vaccines use microchips (37%) -Vaccine alters DNA (22%) -Vaccine rejection (18%)	
Haiti	-The pandemic was planned (53%) -Vaccines (31%) -Test efficiency (6%)	-Vaccines use microchips (24%) -Vaccine alters DNA (22%) -Vaccine rejection (20%)	
Honduras	-Alternative treatments (45%) -The pandemic was planned (33%) - Vaccines (16%)	-Vaccine-related deaths (23%) -Vaccine alters DNA (22%) -Vaccines use microchips (19%)	54.9%
Jamaica	-The pandemic was planned (51%) -Vaccines (32%) -Alternative treatments (5%) -Social distancing and mask rejection (5%)	-Vaccines use microchips (26%) -Vaccine alters DNA (20%) -Vaccine rejection (18%)	72.7%
Mexico	-The pandemic was planned (42%) -Vaccines (27%) -Alternative treatments (18%)	-Vaccines use microchips (23%) -Vaccine rejection (21%) -Vaccine alters DNA (20%)	56.7%
Nicaragua	-The pandemic was planned (57%) -Vaccines (25%) -Alternative treatments (9%)	-Vaccine-related deaths (31%) -Vaccine side effects (24%) -Vaccine alters DNA (19%)	
Panama	-Alternative treatments (40%) -The pandemic was planned (32%) - Vaccines (14%)	-Vaccine-related deaths (25%) -Vaccine side effects (25%) -Vaccine alters DNA (19%)	42.8%
Paraguay	-The pandemic was planned (49%) -Vaccines (21%) -Alternative treatments (20%)	-Vaccine-related deaths (34%) - Vaccine side effects (19%) - Vaccine alters DNA (17%)	
Peru	-Alternative treatments (42%) -The pandemic was planned (28%) - Vaccines (18%)	-Vaccine rejection (27%) -Vaccine alters DNA (24%) -Vaccines use microchips (17%)	
Puerto Rico	-The pandemic was planned (49%) -Vaccines (28%) -Alternative treatments (9%)	-Vaccines use microchips (26%) -Vaccine alters DNA (20%) -Vaccine rejection (17%) -Vaccine side effects (17%)	

Saint Lucia	-The pandemic was planned (51%) -Vaccines (33%) -Social distancing and mask rejection (6%)	-Vaccine rejection (28%) -Vaccines use microchips (24%) -Vaccine-related deaths (16%)	
Trinidad and Tobago	-The pandemic was planned (47%) -Vaccines (31%) -Alternative treatments (11%)	-Vaccine side effects (27%) -Vaccines use microchips (22%) -Vaccine rejection (17%) -Vaccine alters DNA (17%)	
Uruguay	-The pandemic was planned (51%) -Vaccines (26%) -Alternative treatments (8%)	-Vaccine rejection (25%) -Vaccine-related deaths (20%) -Vaccine side effects (19%) -COVID-19 vaccine alters DNA (19%)	
Venezuela	-The pandemic was planned (70%) -Vaccines (15%) -Alternative treatments (9%)	-Vaccine-related deaths (34%) -Vaccine side effects (25%) -Vaccine alters DNA (16%)	45.3%

Source: Constella Intelligence



U	N
D	P