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2021
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Gagliardone, I., Diepeveen, S., Findlay, K., Olaniran, S., Pohjonen, M., & Tallam, E. (2021). Demystifying the COVID-19 Infodemic: Conspiracies, Context, and the Agency of Users. Social Media and Society, 7(3). https://doi.org/10.1177/20563051211044233

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Social Media + Society
July-September 2021: 1–16
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DOI: 10.1177/20563051211044233
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Demystifying the COVID-19 Infodemic: Conspiracies, Context, and the Agency of Users

Iginio Gagliardone[1], Stephanie Diepeveen[2], Kyle Findlay[1], Samuel Olaniran[1], Matti Pohjonen[3], and Edwin Tallam[4]

Abstract

This article presents new empirical insights into what people do with conspiracy theories during crises. By suppressing the impulse to distinguish between truth and falsehood, which has characterized most scholarship on the COVID-19 "infodemic," and engaging with claims surrounding two popular COVID-19 conspiracies—on 5G and on Bill Gates—in South Africa and Nigeria, we illustrate how conspiracies morph as they interact with different socio-political contexts. Drawing on a mixed-method analysis of more than 6 million tweets, we examine how, in each country, conspiracies have uniquely intersected with longer-term discourses and political projects. In Nigeria, the two conspiracies were both seized as opportunities to extend criticism to the ruling party. In South Africa, they produced distinctive responses: while the 5G conspiracy had limited buy-in, the Gates conspiracy resonated with deep-rooted resentment toward the West, corporate interests, and what is seen as a paternalistic attitude of some external actors toward Africa. These findings stress the importance of taking conspiracy theories seriously, rather than dismissing them simply as negative externalities of digital ecosystems. Situating conspiracies in specific dynamics of trust and mistrust can make an important difference when designing responses that are not limited to broadcasting truthful information, but can also enable interventions that account for deeply rooted sentiments of suspicion toward specific issues and actors, which can vary significantly across communities.

Keywords

conspiracy theories, mis/disinformation, Africa, COVID-19, social media

The idea of COVID-19 presenting as an "infodemic" has captured popular and scholarly attention, amid global efforts to understand how information and mis/disinformation related to the virus have spread online. The academic community has taken up this concept as an opportunity to apply emerging tools in digital media research to a global problem, in ways that display a remarkable progress made in the analysis of large datasets to map new trends almost in real time, but also expose limitations in researching mis/disinformation and conspiracy theories. Normative and technocentric approaches have prevailed, relying on supposedly neat distinctions between truth and falsehood stretching across the globe and paying more attention to how technical specificities set different social networking platforms apart (Cinelli et al., 2020), rather than how distinct social formations process and use this information for different purposes.

In this article, we stress the need to complement these existing (and prevailing) efforts with analyses of the "infodemic" that are able to account both for its global nature and its radical situatedness, recognizing culturally and politically rooted dynamics of trust and mistrust that drive social media communities and how they shape responses to different types of information (Madrid-Morales et al., 2021; Seo & Faris, 2021).

Through a comparative analysis of the spread of two of the most researched conspiracy theories emerging around COVID-19 in Nigeria and South Africa, this article illustrates significant differences in how social media users have made sense and made use of conspiracies for different

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purposes. The first conspiracy theory we analyze, and the first to emerge, revolves around accusations that the introduction of 5G—the fifth-generation technology standard for broadband cellular networks—was either the cause of COVID-19 or has been accelerating its spread (Ahmed et al., 2020; Bruns et al., 2020). A second conspiracy theory points at alleged plots by Bill Gates to take advantage of vaccines against COVID-19 to implement a global surveillance regime (Havey, 2020; Shahsavari et al., 2020).

Our focus on Nigeria and South Africa as case studies offers a unique and telling entry into the intersection of global and situated dynamics of conspiracies, and was motivated by numerous factors. Nigeria and South Africa have been among the first countries in Sub-Saharan African to record COVID-19 cases ("Coronavirus: Nigeria Confirms First Case in Sub-Saharan Africa," 2020; South African Government, 2020). Together with Kenya, they host the largest populations of internet users on the African continent, and have attracted global attention for their use of social media for mass mobilization (e.g., #Rhodesmustfall and #feesmustfall in South Africa; #bringbackourgirls and #endsars in Nigeria). Studying the "infodemic" in Africa fills an important gap in the literature which, unsurprisingly, has tended to focus on the Global North, even though it is a global phenomenon. At the same time, our approach is aimed not only at deepening the understanding of the "infodemic" in specific locations, but it also at offering insights that are relevant for the study of mis/disinformation on a conceptual and methodological level by expanding empirical vantages through which mis/disinformation dynamics are interrogated.

The comparative analysis of the 5G and Gates conspiracies uncovered significant differences in how social media users made sense and made use of conspiracies for different purposes. In Nigeria, a more *opportunistic* approach prevailed for both conspiracies, with political actors—especially in the opposition—using global controversies as a tool to negatively portray the incumbent government as guilty of corruption and incompetence. This differed with South Africa where the 5G conspiracy minimally intersected with debates on the causes and consequences of the virus, and did not lead to specific criticism targeting the government and its response. The figure of Bill Gates, in contrast, triggered a more *existential* response, which pitched the West and corporate interests against aspirations of African populations to rely on local knowledge and resources, without external agents dictating a course of action.

This finding does not constitute a simplistic recognition that different dynamics prevail in how each country's population relates to information flows, thus reductively replacing a technologically deterministic approach with a more socially or culturally deterministic one. Rather, we stress the need to better understand why different conspiracies gain appeal within and across national contexts, and how conspiracies are strategically enacted to articulate specific types of contestations and grievances. Focusing on different countries and/or conspiracies may require the generation of distinct categories to capture how idiosyncratic socio-political histories interject with global flows of information. This categorization is not relevant only to understand responses emerging in specific regional contexts. As Cheruiyot and Ferrer-Conill (2021) argue, research focusing on the non-West (or Majority Countries in their terminology) should not be automatically pigeonholed into area studies or assumed to be generalizable only within a specific geographical remit. Decentering knowledge globally requires research to approach examples from the Global South on an equal epistemological footing as legitimate forms of theory building.

The article is divided into four sections. The first section engages with literature on COVID-19 and the "infodemic," as well as broader theoretical debates on mis/disinformation and conspiracy theories. The second section introduces our mixed-methods approach to identify and analyze interaction networks and community dynamics together with substantive claims made by users engaging with the conspiracy theories. The third section empirically shows how the 5G and Gates conspiracies intersected with social media community dynamics and cultures of trust/mistrust. We conclude by discussing the findings and suggesting how further comparative research can explore conspiracies that have blossomed around the COVID-19 "infodemic" in different parts of the world.

Conspiracies, Social Media, and COVID-19

Following the rapid onset of the pandemic and proliferation of rumors, falsehoods, and half-truths on social media, a corpus of studies has emerged to make sense of the spread of information and mis/disinformation around COVID-19 (Havey, 2020; Shahsavari et al., 2020). This research has been noteworthy in its use of computational methods, facilitated by the availability of large datasets of social media communications, which have offered opportunities to apply existing strategies to analyze user interactions and detect prejudicial language or false information (Chen et al., 2020), and to develop and train machine learning models to perform those tasks (Vidgen et al., 2020; Ziems et al., 2020). Publications on COVID-19 and social media have also mapped onto the geographic spread of the virus, initially confined to China before progressively affecting populations globally. In the first wave of research, attention focused on the prevalence and spread of prejudice against Chinese and East Asian communities (Abidin & Zeng, 2020; Vidgen et al., 2020; Ziems et al., 2020). As the epidemic turned into a pandemic, research became more diverse. This has included mapping transnational flows of misleading information (Ahmed et al., 2020; Ferrara, 2020; Sharma et al., 2020), developing new classifications of false information (Sharma et al., 2020), using conspiracy theories as an entry point into the "infodemic" (Bruns et al., 2020; Gruzd & Mai,

2020), and looking at actor–network relationships behind conspiracies on different social media platforms (Shahsavari et al., 2020).

While recognizing the broad empirical scope of these contributions, we stress three limitations in this body of scholarship, which inform our own conceptual and methodological choices.

The first limitation relates to the practice of looking for proxies to detect content considered false or misleading and map its spread, and the extent to which this provides insight into the COVID-19 "infodemic." These choices are motivated by the need to filter through and detect patterns in massive datasets, but the gains they allow also risk missing the depth of the phenomena being investigated. The use of sources flagged as untrustworthy—often by factchecking organizations—is common, and arguably more appropriate, in research on disinformation, whereby the intent to deceive is tied to specific goals. Clear cases exist where institutions have orchestrated sophisticated media campaigns to mislead users for political or commercial gains (Bradshaw & Howard, 2018). In South Africa, a highly notorious case involved the UK-based strategic communication firm Bell Pottinger, hired by the influential Gupta family to divert attention from corruption cases engulfing then-President Jacob Zuma and his factional allies. Bell Pottinger contributed to craft a campaign around "white monopoly capital" (WMC) as a strawman target, stressing the "monopolization" of the South African economy by a handful of white businessmen, such as the Rupert and Oppenheimer dynasties. However, in cases where an authoritative "ground truth" can be difficult to establish—or does not exist in the first place (such as during escalating political conflict)—these lists could become normatively loaded instruments used to distinguish not only between truth and falsehood, but also acceptable and non-acceptable forms of communication.

Communication is not a game of rational choice between truth and falsity, and users do not simply succumb to aptly crafted pieces of information aimed at swaying opinions. As Polletta and Callahan (2017) have vividly illustrated, a user's pleasure in reading stories about "people like me" can overcome the need to check validity. Sharing such stories can produce group solidarity and reinforce identity. Studies relying excessively on sources flagged as official and non-official, or trustworthy and untrustworthy, may risk reproducing a fracture of the kind provocatively identified by Stanley Fish (1997) in the case of hate speech, between a community of "self-identified rational thinkers" and one of "emotional believers," with the former recognizing the latter as unfit to participate in rational public debate. Over time, this approach may deepen that fracture, contributing little to understanding why users produce and share information, and dividing communities into opposing camps that do not recognize one another's legitimacy but rather focus on surface-level characteristics of the ostensible falsehoods shared by the "other side" (Gagliardone, 2019; Pohjonen & Udupa, 2017).

These risks are more pronounced with conspiracy theories. A number of articles about COVID-19 and social media have used conspiracies as a kind of catachrestic proxy for debates on mis/disinformation (Ahmed et al., 2020; Shahsavari et al., 2020). This equivocation between mis/disinformation and conspiracy theories risks obscuring the nature of conspiracies as a kind of mythical narrative, where factual validity, however defined, is not necessarily central to how it is read or assigned value. Conspiracy theories and mis/disinformation offer different analytical lenses to understanding information flows. Mis/disinformation is linked to the detectable and often direct presence of falsehood, often shared with nefarious or political intentions (Seo & Faris, 2021). Conspiracies can hold the promise of truth to the person who engages with them, and arguably operate in an epistemological register in which the binary between truth and falsity is obfuscated under a complex layer of hidden truths, and signs to interpret this hidden truth or what some researchers have called the "hermeneutic veil" (Carey, 2017; see also Butter & Knight, 2020). Conspiracies can operate with more complex or hidden realities or meaning (Boltanski, 2014), which could be intended to bring clarity, as much as to deceive.

We argue that conspiracies hold a distinct place in information flows in relation to COVID-19, which is less about mis/dis-information, and more about collective identity formation and storytelling. We consider conspiracies as sensationalized stories that play a significant role in shared "meaning making," rather than "false stories" that can be normatively dismissed in opposition to some factual state of affairs. By taking conspiracies as "discursive tropes" that can articulate broader social and political motivations and grievances, we avoid operating from the reductionist binary of fact versus fiction, a binary that often fails to align with the actual ambiguity of the information environment in which we find ourselves during COVID-19 (Nielsen et al., 2020).

The second limitation we note concerns the center/periphery mentality that tends to underpin research with a global scope. This implies that conspiracy theories emerging from countries that dominate the global flows of information will be useful in understanding other, often radically different, socio-political contexts, or that they will display sufficiently isomorphic patterns that can be explained though models trained largely in those countries. This, we argue, problematically presupposes that the "infodemic" exhibits some universal "features of communication with little cultural variation" (Pohjonen & Udupa, 2017, p. 1174), which allow researchers to supersize their analysis globally despite diverse social, political, and communicative milieus in which the "infodemic" is found. We align with moves to illuminate and confront center/periphery dynamics beyond COVID-19 (Mignolo, 2014; Srinivasan et al., 2019; Willems, 2014), and begin from vantage points from within the Global South to shed light on the diverse ways that people actively engage with different media (Mare et al., 2019; Willems & Mano,

2016), for example considering rumor and fake news are forms of collective sense making with specific socio-political contexts (Chandra & Pal, 2019; Wasserman, 2020). In so doing, we highlight a broader conceptual confusion between approaching dis/misinformation, and conspiracy theories as *concepts*, around which a specific operational definition can be found and then applied in research to different scenarios; and approaching them as social *phenomena*, which inevitably take on the colors and nuances of the political milieu in which they occur.

Center/periphery dynamics should not be considered only in geographic terms, pitching more powerful and connected countries against less resourced ones, but also in terms of power imbalances supposedly connecting producers and receivers of pieces of information related to a given conspiracy. As this article shows, individuals far removed from the centers where messages originate do not simply succumb to these messages, becoming passive nodes for their repetition and amplification. Instead, they *do* specific things with those conspiracies, which are relevant to the universe of meaning to which they belong, and which may advance specific interests. In this way, the figure of Bill Gates becomes an opportunity to criticize and contest the West's patronizing approach toward Africa, or concerns around the deployment of 5G become a chance for opposition politicians to criticize a government from a new angle.

Finally, we highlight a third limitation related to the normative reading of the "infodemic." Research frameworks used to interrogate the spread of false information and conspiracy theories around COVID-19 have tended to refer to these phenomena as a "peril" (Cinelli et al., 2020) or a "plague" (Ferrara et al., 2020) that "poses a serious health risk" (Sharma et al., 2020) rather than part of the many communicative tactics available to individuals globally. These frameworks are rooted in an ideal of the internet as a beacon for political participation, a space where negative externalities to online business-as-usual—for example, mis/disinformation, or similarly hate speech—should not be present. Yet, often studies rely on datasets that only collect content identified as mis/disinformation, or conspiracy theories—without locating such content within the larger array of communicative strategies enacted by individuals, groups, and institutions to disseminate and negotiate information in times of crisis. This risks magnifying the very aspects that are considered aberrant, and disregarding forms of communication around the pandemic that could contribute to an image of the internet that, to some extent, adheres to the ideal. In other words, the absence of data that can contextualize the relevance of the "infodemic" as a partial, even if significant, part of broader social media dynamics risks providing an even bleaker picture of the status of online communication, which can, at worst, take on the characteristics of a new "moral panic" about the information disorder globally (Jungherr & Schroeder, 2021). This limitation reflects broader academic fashions. The first decades of research on online communication were dominated by a framing of the internet as a positive multiplier of social and economic development, making it harder to detect and study phenomena that contradicted that ideal. The rapid rise of more "negative" sides of online communication such as mis/disinformation or hate speech in the scholarly agenda (Kapantai et al., 2020; Paz et al., 2020) may produce a specular effect. In turn, this may prevent developing a deeper understanding of the innovative and creative strategies adopted by various actors to make sense of a crisis and develop guides for action.

We designed our approach to take into account these limitations in scholarship on the "infodemic" in order to interrogate conspiracy theories on Twitter.

First, rather than looking for categorical markers to identify information as more or less trustworthy, we qualitatively engaged with users' substantive issues around specific conspiracies. Links to sources were used as an opportunity to explore the network of discourses and actors emerging around each conspiracy in each country. Users were not interpreted as passive recipients of or nodes for spreading malicious information, but as individuals who could actively make use of a conspiracy as part of wider personal and social projects. Our attention to what people *do* with information was also designed to counter assumed power imbalances between actors who share information and passive recipients.

Second, we interrogated how global conspiracy theories might reflect the political milieu in which they circulate by orienting our study outside of countries that dominate global information flows—Nigeria and South Africa. We developed a methodological framework that allowed us to isolate national conversations. This was facilitated by the popular trend on Twitter during COVID-19 to identify national debates through unique hashtags. We did not rely on uncertain geo-coded information available through the Twitter API, but instead focused on hashtags and search words that were exclusive to the two countries. In Nigeria, this sample selection was facilitated by the popularity of the #Covid19Nigeria hashtag. In South Africa, this was made easier by the popular #Covid19SA hashtag.

Third, we located the conspiracy theories in the broader communicative context around COVID-19, quantifying their significance in relation to overall conversations on COVID-19 in each national context, and identifying the communities in which each conspiracy proved most popular.

Methodology: Studying Conspiracies and Communities in Context

Our research deployed a mixed-method research approach that combined computational analysis of publicly available datasets from Twitter with qualitative observation of the communicative context and dynamics of selected social media conversations and communities in Nigeria and South Africa. Data were collected using Twitter's public REST

API, which allows the collection of up to 72,000 public tweets per hour. This made it a cost-effective method for researchers to collect bulk data as it did not require purchasing expensive access to historical Twitter data.

Search queries made up of relevant hashtags and phrases were created for each country. Tweets containing these hashtags or phrases were downloaded into each country's dataset (South Africa query: #Covid19SA OR #Covid19InSA OR #Covid19InSouthAfrica, [. . .], "Covid AND South AND Africa" OR "Covid19 AND South AND Africa," [. . .]; Nigeria query: #CoronaInNG OR #CoronaInNigeria OR #CoronaNigeria, [. . .], "Corona AND Nigeria" OR "Coronavirus AND Nigeria," [. . .]). These specific hashtags and search terms were chosen because they allowed the research to delimit a country-specific sample for both countries, which is normally challenging given the transnational nature of Twitter conversations and the difficulty to geomarcate national boundaries in them.

For comparison purposes, each dataset was filtered down to a two-month period, starting one week before each country's first official lockdown. In South Africa, this represented the period of 19 March to 19 May 2020 (the first lockdown in South African started on 27 March), within which 3,214,265 tweets generated by 713,824 unique users were included. In Nigeria, this was the period of 23 March to 23 May 2020 (the first lockdown in Nigeria started on 31 March), and included 3,625,842 tweets generated by 663,183 unique users. Due to processing limitations, a random sample of 3,000,000 Nigerian tweets were used in the final analysis. This timeframe covers the early months of COVID-19 in Africa, providing for insight into the early formation and spread of conspiracies. This choice, at the same time, has implications on the possibility of generalizing findings beyond that corpus of tweets we collected. For example, references to 5G spiked in South Africa several months after our research, alongside an event where a councilor belonging to the ANC, South Africa's ruling party, mentioned in an audio clip that "we need to take action against this disease. It is not Covid. We are getting this thing from 5G towers, installed during this period in preparation of the second wave" (Matiwane, 2021). This represents a limitation of our study, but it is also a reminder of the different types of contingencies—geographical, socio-political, and temporal—that affect how a conspiracy takes root, or not, among communities of users.

The datasets collected using these queries were then qualitatively interrogated by the researchers to identify the most popular keywords, phrases and hashtags related to COVID-19 and different conspiracies relevant to both countries. An initial list of topics was compiled based on researchers' reading of news coverage, knowledge of conspiracy theories and an evaluation of the top 100 hashtags used in each dataset. Based on this initial analysis, a topic taxonomy was created in order to tag the tweets with topics of interest. The final topics chosen for the research were the 5G and the Gates conspiracy because (1) they were related specifically to discussions around COVID-19; and (2) the occurrence of other conspiracies in the dataset was low making it difficult to compare debates in both Nigeria and South Africa.

For each topic, a list of keywords and phrases relating to that topic was created. Tweets containing at least one of the keywords or phrases were tagged as pertaining to that topic. For example, the below tagging rules were used to identify the two most prominent conspiracy theories across both countries. The tags were combined into a single regular expression query for each topic.

- Gates conspiracy: "bill AND gates" OR #billgates OR #gatesvfoundation OR melinda OR "gates AND foundation" OR GAVI OR "the Vaccine AND Alliance" OR USAID OR "US AND AID"
- 5G conspiracy: 5G

Twitter datasets were analyzed and visualized as "interaction networks." Interaction networks capture who interacts with whom on Twitter via retweeting and @mentioning each other in their tweets. Retweets are a way of passing information on by sharing another user's tweet with one's own followers, while @mentions occur when an author directly addresses another Twitter user by including the other user's username (with the @-symbol prefix) in a tweet. Each Twitter user that authored a tweet or was mentioned within another user's tweet is represented as a "node" in the interaction network. Nodes are connected together via "edges" whenever they interact with each other. The weight of the edge between nodes represents the number of interactions between those two nodes (i.e., number of retweets and/or @ mentions). The Louvain Modularity algorithm (Blondel et al., 2008) was used to identify specific community clusters within the network, and these are represented in different colors within the network visualizations. Finally, node size indicates the number of retweets and @mentions that that node received which has been used as a rough proxy for the level of influence for that node.

To preserve the anonymity of users involved in conspiracy theories, we removed the Twitter handles in the graphs included in the following sections, apart from those who can clearly be identified as public figures or institutions (e.g., ministers, opposition politicians, media outlets) or subsequently removed by Twitter as bots or sock puppets. We also paraphrased posts in ways that maintain the core meaning, but prevent from easily identifying tweets through reverse searches.

Results: The Reception and Use of Conspiracy Theories in South Africa and Nigeria

Conspiracy theories were located within wider interaction networks in each country to assess whether they played a central or peripheral role in communications around COVID-19.

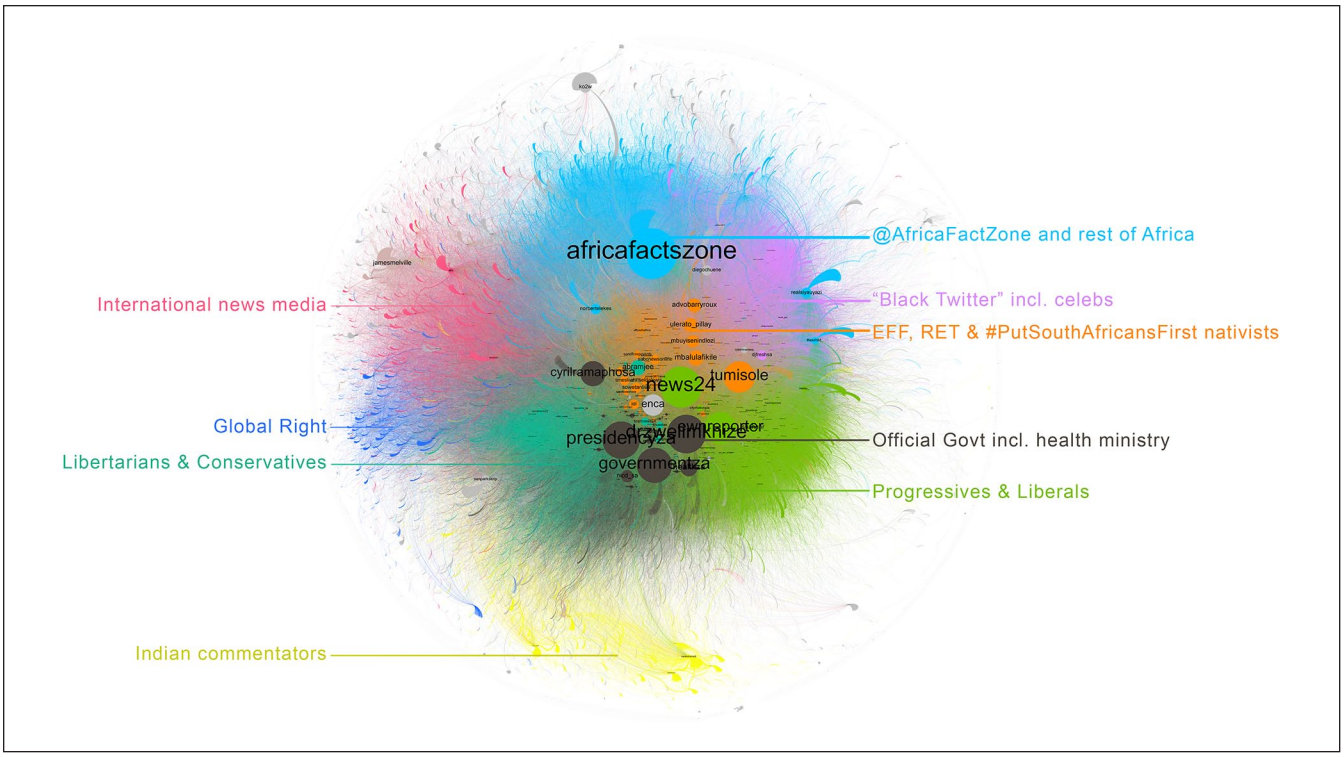


Figure 1. Community networks in South Africa (node color indicates different communities and size indicates influence in the network).

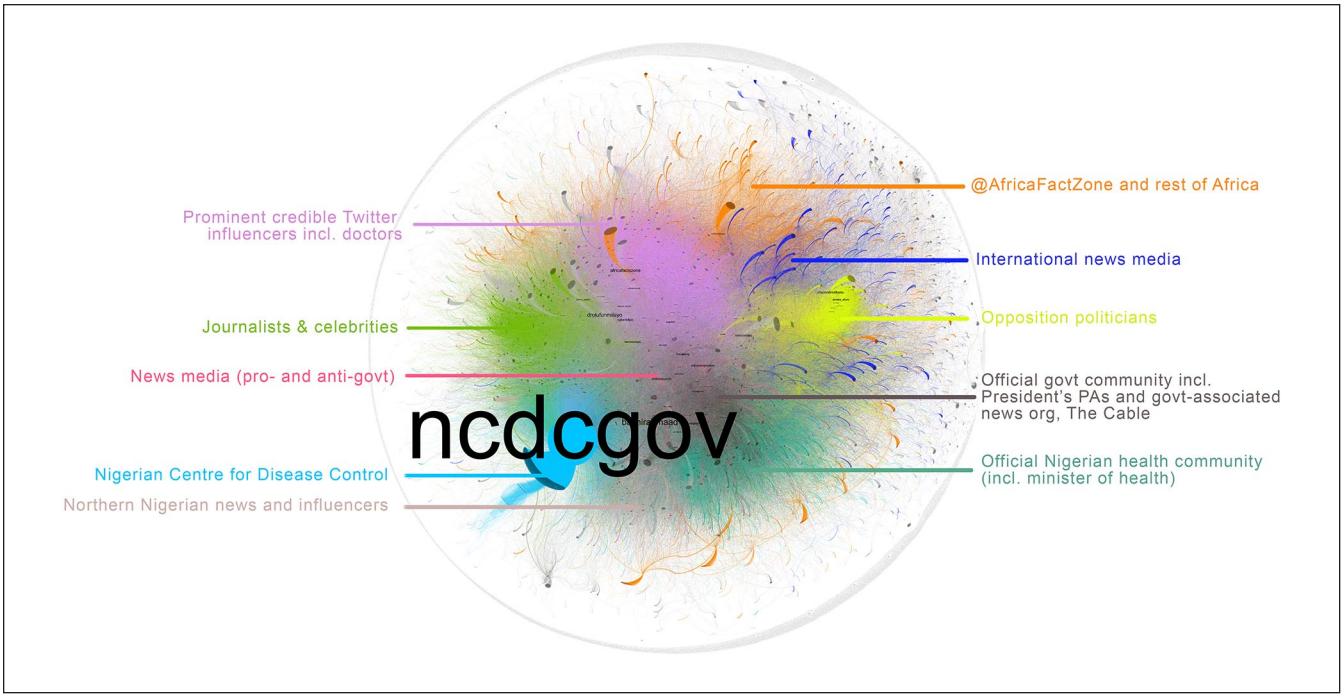


Figure 2. Community networks in Nigeria.

Figures 1 and 2 offer a snapshot of the Twitter communities that engaged in conversations on COVID-19 in South Africa and Nigeria, respectively. Communities are defined by the accounts that dominated conversations, and cluster around prominent Twitter accounts. Communities that are adjacent and overlapping indicate more interactions between them.

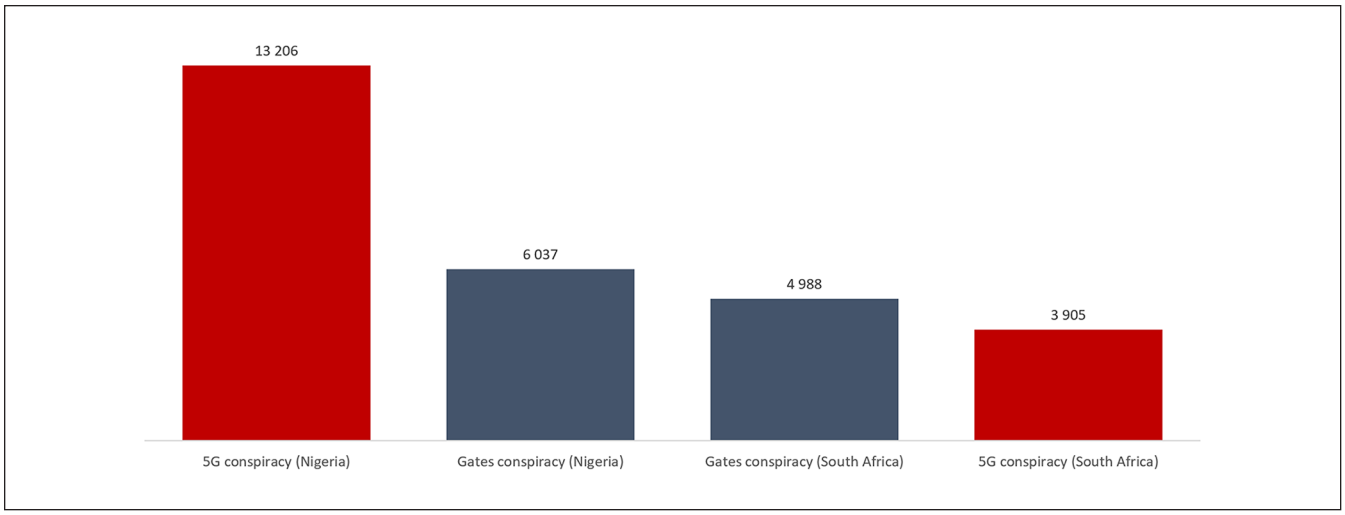


Figure 3. Tweets related to conspiracy theories in South Africa and Nigeria.

The top nine communities identified in South Africa are:

- At the center of the map:
  1. Official government accounts including the health ministry;
  2. Progressive and liberal accounts;
  3. Economic Freedom Fighters (EFF), Radical Economic Transformers (RET), and nativist accounts;
  4. Libertarian and conservative accounts.
- Toward the outer edges of the map in different directions:
  5. International news media;
  6. Africa Facts Zone and accounts from elsewhere on the continent;
  7. "Black twitter" (a relatively apolitical community made up of black South Africans born after the end of apartheid) which includes celebrities;
  8. Indian commentators;
  9. The global right.

The communities that emerged in the Nigeria network map include:

- At the center of the map:
  1. Medical professionals and prominent credible Twitter influencers popular for constructive commentaries on topical issues;
  2. Journalists;
  3. Creative content producers;
  4. Sponsored celebrities piloted interactions.
- Toward the outer edges of the map in different directions:
  5. Regional news media outlets who support the Nigerian president who is from that part of the country;
  6. African news media led by AfricaFactsZone and some international media outlets;
  7. Nigeria Centre for Disease Control (NCDC), the country's national public health institute, which was in charge of all COVID-19 information dissemination, and which sits in relative isolation off to the side of the network;
  8. The Health Ministry including the Minister of Health;
  9. The Nigerian President and key government sponsored accounts, for example, his personal assistants;
  10. Opposition politicians, including Indigenous People of Biafra (IPOB) activists.

Despite attention to conspiracy theories in scholarship, media and popular imagination, they represented a small fraction of the conversations on COVID-19 in our sample. Conspiracy theories were more pervasive in Nigeria, where they also tended to be shared across a wider spectrum of communities, than in South Africa (Figure 3). However, in both cases they existed in clusters away from the center of conversations. This is not to discount conspiracies as having potentially important roles in COVID-19-related information circuits in either country. Rather, it counters normative assessments of information flows around COVID through social media as an overwhelming peril or problem.

Interestingly, interrogation of qualitative dynamics around where and how conspiracies appeared show distinct dynamics in the two countries, intersecting with existing debates and modes of communication. The following sections examine how the conspiracies unfolded on Twitter in Nigeria and South Africa in different ways, sometimes reproducing global narratives and other times taking on nationally-specific political tones. In Nigeria, the global conspiracies examined—Bill Gates and 5G—tended to be appropriated

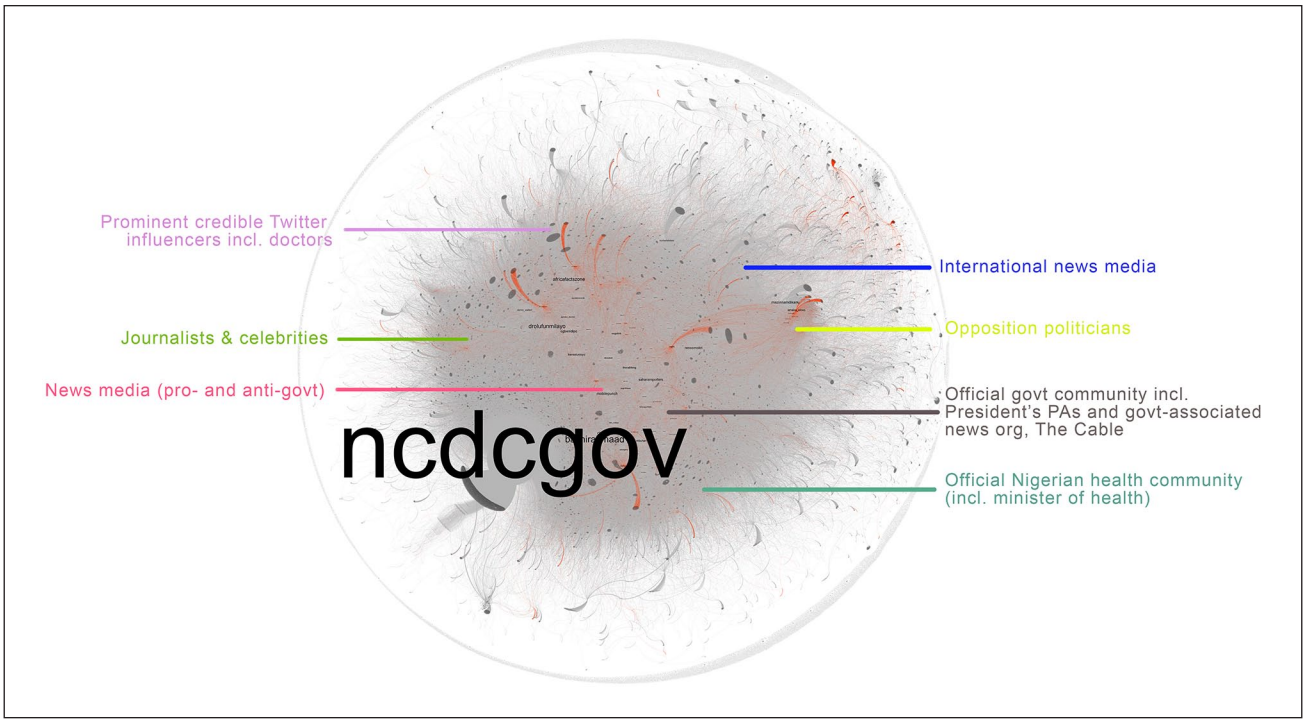


Figure 4. Community networks in Nigeria, highlighting only mentions of 5G.

by party politics. They were used to cast a negative light on the government and its actions, and denounce alleged corruption cases, and less so to point to shady global plots. In South Africa, on the contrary, the 5G and Gates conspiracies produced distinctive responses. While the 5G conspiracy had limited buy-in, the Gates conspiracy resonated with deep-rooted sentiments of resentment toward the West and corporate interests accused of benefiting from experimenting on African citizens' lives. Interrogating these differences within their national contexts also offers an opportunity to question assumptions about users succumbing to mis/disinformation, and brings to light what users and groups *do* with conspiracies, displaying their often overlooked agency in appropriating conspiracies to support wider political projects.

Falling Flat and Firing at: 5G Conspiracy in South Africa and Nigeria

Globally, in the early months of the COVID-19 pandemic, conspiracies circulated that the origins and spread of the virus correlated with the introduction of 5G network technology. These included allegations that 5G technology made people more susceptible to the virus or directly transmitted the virus, to conspiracy theories that 5G was part of an elaborate plan to track people using microchips injected with the vaccine. In April 2020, 5G and its links to COVID-19 gained traction in South Africa and Nigeria. Yet, why and how 5G conspiracies attracted attention, and the extent to which this was fueled by global social media platforms, like Twitter, varied within and across the two countries. Figures 4 and 5 show how the 5G conspiracy featured in COVID-19-related tweets in Nigeria and South Africa. Neither case shows a substantial proportion of attention to 5G conspiracies among communities at the core of communication flows, and closer interrogation of where and how the conspiracy appeared reveals multiple versions of the 5G conspiracy circulated.

In South Africa, most tweets on 5G and COVID-19 were disseminated by accounts that had engaged in trolling behavior (and were later suspended by Twitter—for example, felix_ninelives in Figure 6) or by relatively marginal users who seemingly embraced globally familiar versions of the conspiracy, standing behind claims of harm caused by 5G in general, or claims that its rollout was responsible for the virus' spread. Tweets reported incidents not directly related to the virus, but which occurred during the lockdown, such as the deaths of "bats and birds in farms" near newly installed 5G masts, and advanced accusations that if liberal international media like *The Guardian* "say there is no connection between 5G and COVID-19, this is a reason to look more closely into it" since "whatever they print is a lie," reproducing popular tropes among the far-right of liberal international media advancing the interests of global elites.

In Nigeria, the association between COVID-19 and 5G produced a wider spectrum of responses. Associations ranged from users addressing both Bill Gates and China as terrorists using 5G to "reduce the population of the world and control the world economy by themselves"; to personalized responses indicating "we can as well blame the lack of power

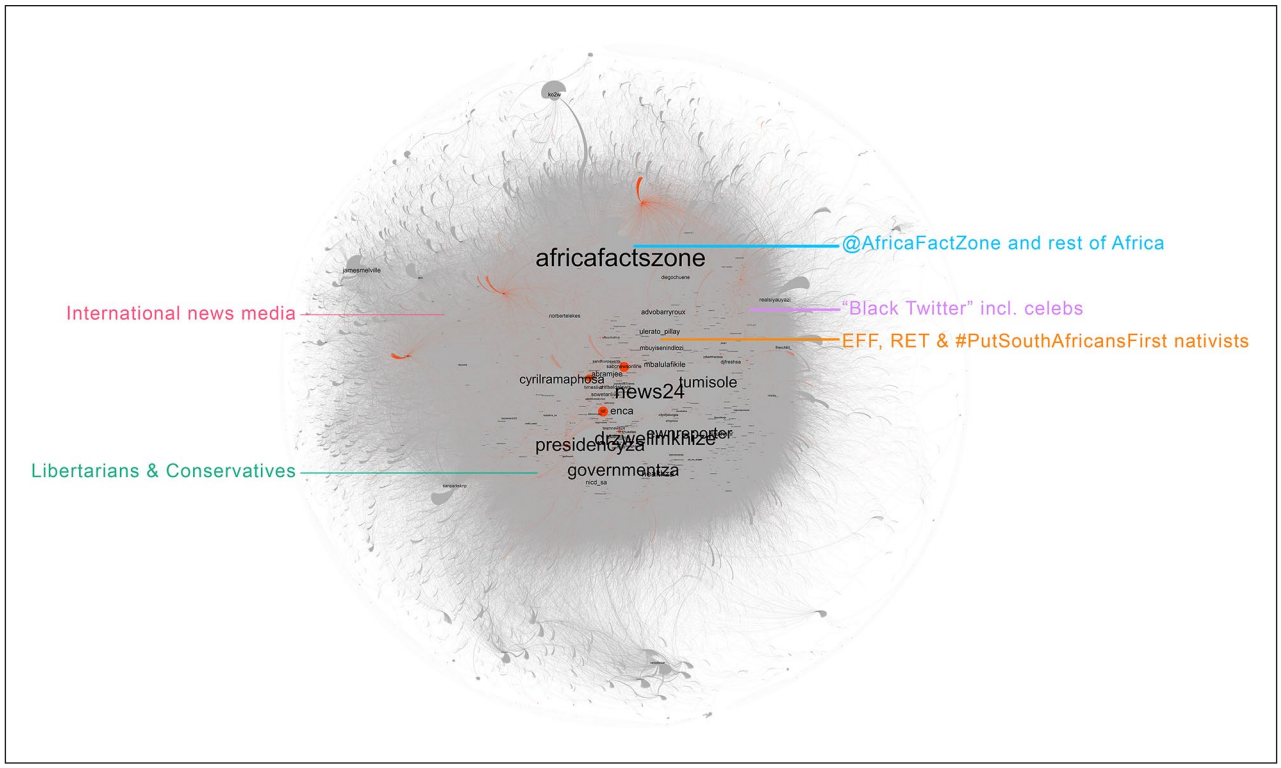


Figure 5. Community networks in South Africa, highlighting only mentions of 5G.

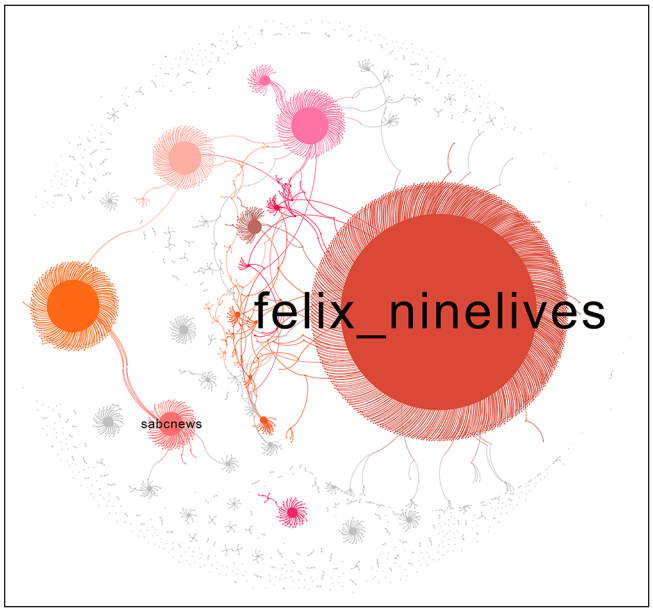


Figure 6. Interaction networks for 5G conspiracy in South Africa.

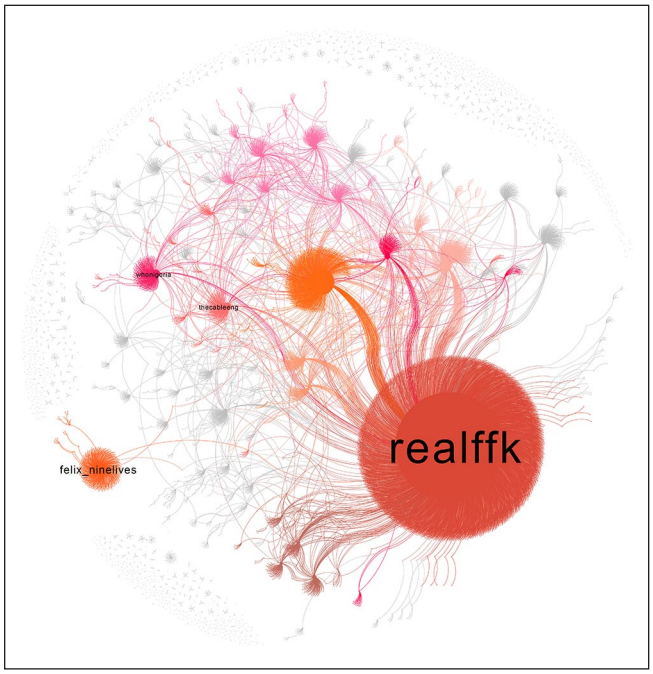


Figure 7. Interaction networks for 5G conspiracy in Nigeria.

on 5G. In fact, 5G is the main reason my neighbor always beat me on FIFA20"; to users rebuking 5G as a cause of COVID-19, but pointing to other health implications and admitting "those saying No to 5G in Nigeria might have a point." Despite this variation, there was a significant concentration in terms of "what" and "who" dominated these communications (Figure 7). 5G conspiracies in Nigeria were

more directly shaped by local politics, intersecting with debates between government and opposition politicians. Within the Twitter communities identified, Femi Fani-Kayode, @realffk, a former minister and public affairs analyst produced the most reactions, connecting 5G, COVID-19, and anti-Chinese sentiments:

> Mr. President, Do NOT allow 5G in Nigeria & if you have already done so burn it. Do NOT accept face masks & other accessories from the Chinese to help prevent COVID-19. Do NOT accept any anti-COVID-19 vaccines from ANYONE. @realffk 04/04/2020

Fani-Kayode's comment came on the back of viral social media claims that Nigerian President Buhari had accepted $1bn from China to install 5G in some parts of the country. His tweet amplified an allegation against the President, while simultaneously warning the president to not accept products from China. Concerns about financial aid from China were already circulating among Nigerians, and public opinion indicated mixed feelings about Nigeria's perceived overdependence on China's financial aids, and debt accrued from interest free loans and concessional loans under the Buhari administration (Kazeem, 2020). Reflecting these concerns, while berating the president for not addressing the nation since the first COVID-19 case on February 28, Fani-Kayode tweeted:

> not only do you refuse to formally address our people & offer them hope on the Covid 19 plague but you have also refused to close our borders. Instead you have declared them open to the Chinese, Europeans, Iranians, Italians, Americans & all other afflicted nations. Shame on you!

5G and COVID-19 were thus incorporated into narratives of bad leadership and questionable decision-making processes of the Buhari-led government, familiar within wider political commentary. Femi-Kayode's popular tweets helped to drive the politicization of 5G conspiracies on Twitter. Questioning the extent to which President Buhari valued Nigerians' lives, he tweeted:

> If cows had been the ones affected by #coronavirus & were dying all over the world Buhari would have done a national broadcast by now & told us that what we are facing is the greatest tragedy in world history. Which type of leader puts the lives of cows before that of human beings?

These tweets compounded upon criticism from early stages of the COVID-19 lockdown toward the government's response to COVID-19. Buhari's strategy was accused of being belated, passive and lacking control.

These reactions to and appropriations of claims connecting 5G and COVID-19 in Nigeria point to what we describe as an *opportunistic* use of conspiracy theories. This defies the perception of passive audiences being fed false information, and brings to light strategies of political actors who seize a conspiracy as ammunition in a localized political confrontation. New associations are created, specific to the Nigerian context. The pre-existing anxiety created by a feeling of overdependence on Chinese debt, for example, is distinct from more generic anti-Chinese sentiments mapped in literature on COVID-19 and social media (Vidgen et al., 2020; Ziems et al., 2020). While still carrying racial undertones, its roots in structural challenges faced by the country allow political entrepreneurs to frame references to China as a political issue, rather than personal attacks.

Comparing conversations inspired by the 5G conspiracy in South Africa and Nigeria return distinctive images of how claims relating 5G and COVID-19 were received and used. In South Africa an arguably thinner, and more globally familiar, version of the conspiracy circulated. It revolved around the technology and its potential harmful effects, and was appropriated by users apparently disconnected from local politics. It pointed to global plots as the threat. In Nigeria, while these sentiments were not absent, the 5G conspiracy was for the most part inscribed into locally rooted contestations about the Nigerian government, taken up by opposition politicians to further their interests and longer-term agendas.

Plotting against Africa or enriching the cronies: Bill Gates conspiracies in South Africa and Nigeria

The Gates conspiracy—or conspiracies, as a variety of intentions and meanings were attributed to the figure of Bill Gates—produced yet another distinctive pattern of responses in South Africa and Nigeria. Similar to 5G, globally, the figure of Bill Gates has become a focal point in conspiracies about the origins, spread and vaccination program of COVID-19. Conspiracies have speculated Gates was part of an elaborate plan to create the pandemic and/or that he aimed to use a vaccination program for ulterior motivations including personal profit, control through tracking people, and an intention to eliminate proportions of the global population. In Nigeria and South Africa, conspiracies about Bill Gates displayed significant differences with how the 5G conspiracy was received in the two countries, especially in South Africa, but also some continuities. Global and local factors informed people's engagement with conspiracies in both familiar and new ways (Figures 8 and 9).

In South Africa, conspiracies alleging Bill Gates' involvement in the spread of COVID-19 and interests in the production of a vaccine were not only the most popular, but intersected with powerful and deep-rooted feelings of resentment toward the West meddling in African affairs. They produced heated exchanges within a densely knit network of users (Figure 10), mutually reinforcing one another's views and racing to add new details to showcase Gates' influence

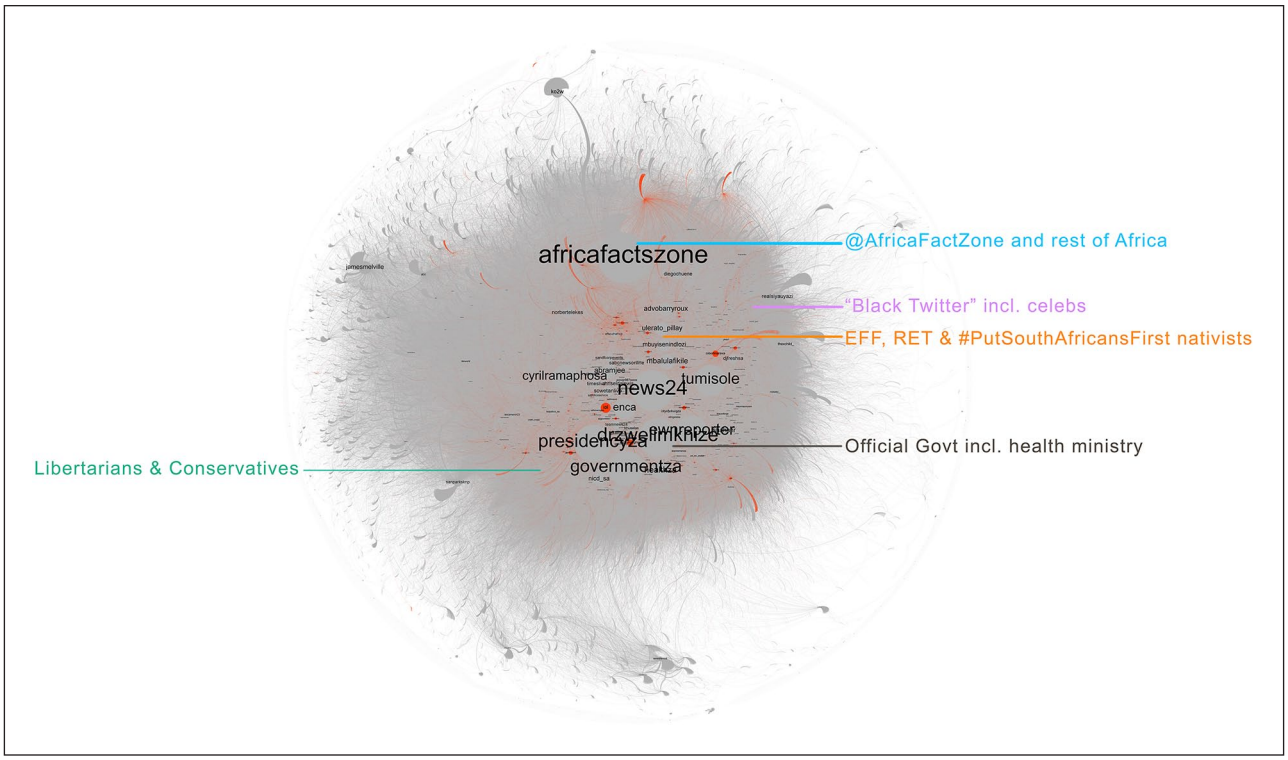


Figure 8. Community networks in South Africa, highlighting only mentions of Bill Gates.

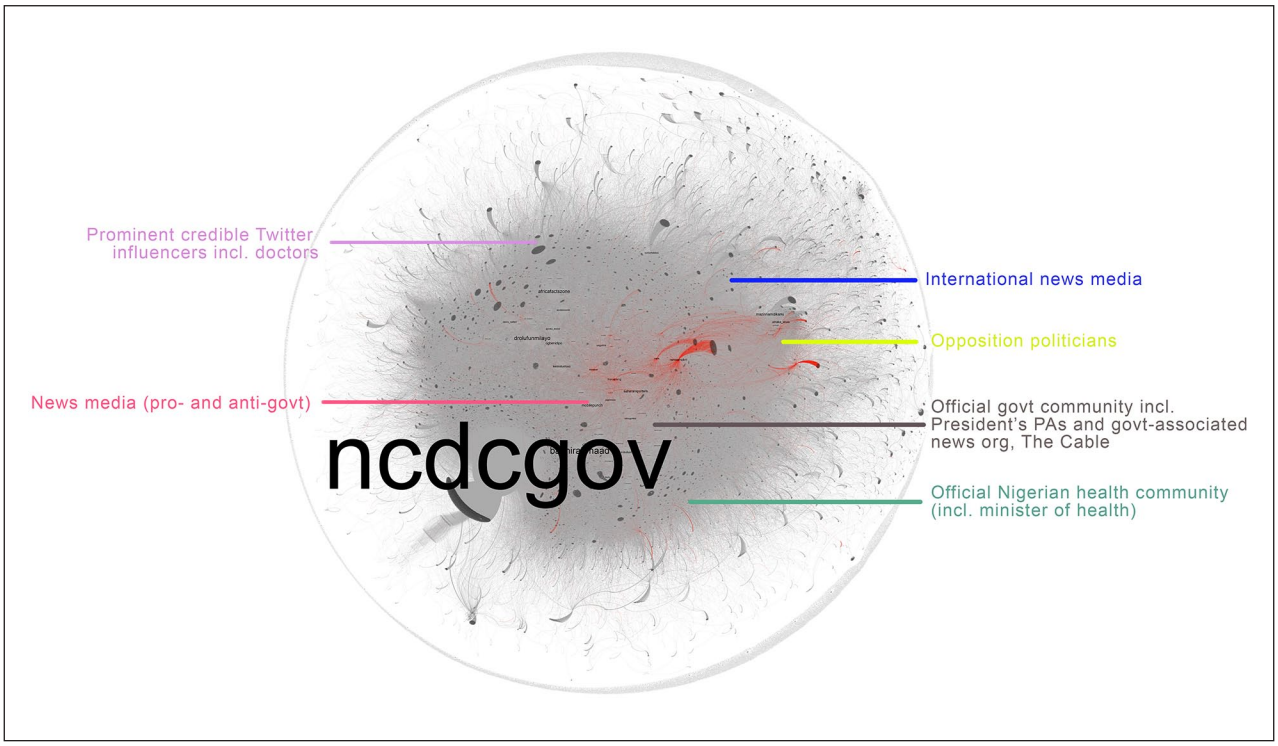


Figure 9. Community networks in Nigeria, highlighting only mentions of Bill Gates.



Figure 10. Interaction networks for Bill Gates conspiracy in South Africa.

and hidden agenda. Tweets evoked a series of interrelated tropes, from disdain for "white saviors," to shady plans to depopulate Africa, to the use of new tech to control African citizens. In some of the most popular posts, Gates is accused of being a "white supremacist" with a "Jesus complex," inciting users to "keep him out" of Africa. His philanthropic agenda is strongly challenged, citing his interest to "test his vaccines in poor communities" or treat African citizens as "lab rats." Concerns expressed by institutions like the WHO that poorer countries may not benefit in a timely fashion from new vaccines are turned on their head, claiming "Bill Gates must vaccinate his children and Americans first," or should "force his vaccine onto Europe, and not onto us." Gates' legacy in tech and interests in health are used to advance even more sinister plots, propagating globally circulating allegations that suggest Gates is "developing chips that can show if a person has been vaccinated for Corona, which will dissolve under the skin, leaving quantum dots for identification." Vaccines are framed as a vehicle for "mass surveillance," suggesting they can contain "nano particles" that will give "unmatched power" to "governments and tech billionaires."

Suspicion toward Gates often extends to larger plots by the West, America, or the 1%, claiming "the West is exaggerating COVID-19 trying to convince Africa to take Bill Gates vaccine," or citing David Icke's claims that COVID-19 is part of "a plan by 1% rich to control the world." Resistance toward the West and Western interests also takes the shape of exhortations to develop new types of alliances, suggesting, for example, that "if Africans are to be vaccinated, vaccines should come from Cuba and Russia, countries that supported our struggle for liberation, and not Americans with a nefarious agenda to destroy Africans." Users within the network tend not only to be suspicious of new vaccines to combat COVID-19, but also share a larger anti-vaxx agenda. Claims go from refusals to "do western meds" and turn to traditional cures instead (e.g., "Moringa," "Madagascar Covid Organic cure") to accusations that vaccines are part of a plot to "depopulate Africa" and make "people infertile." Kissinger's Memorandum 200—a declassified report by the United States National Security Council framing population growth in least developed countries as a threat to US national security and suggesting population control measures—was summoned by an account later suspended by Twitter to assert vaccines are part of a "genocidal" plan to "curtail Africa's population."

As this corpus of reactions suggests, differently from 5G, the figure of Bill Gates provoked a more emotive response among South African users. The impassioned, often angry, responses evoked by Gates in portions of the South African Twittersphere share what can be referred to as an *existential* appropriation of the conspiracy. Bill Gates almost ceases to be a specific person and becomes what can be recognized, with Laclau, as an "empty signifier," erased in its particularity to represent a much larger system. By doing so, attacks on Gates, perceived negatively as the other, allow for the creation of an intra-group solidarity and a sense of shared meaning defined by difference and opposition. Articulations of the conspiracy that resonate with versions circulated globally—that is, references to nano particles and chips—appear in the tweets, indicating universalized claims and local realities can indeed coexist. But even here, where global articulations of Gates conspiracies resonate, they take on original meanings. Tweets associate global articulations with elements of a narrative that is specific to South Africa and to Africa. This turns a more generic fear of mass surveillance into a more sinister attempt to depopulate the continent.

Similar to the 5G conspiracy in Nigeria, South African political leaders are dragged into conversations about Gates and COVID-19. However, in South Africa, the Bill Gates conspiracy is not used by opposition figures to cast a negative light on the government and reap political gains—as seen in Nigeria. Allegations of shady connections between Gates and the South African President or the ruling party come from either ordinary users or influencers with no formal links with political parties. This points to a more generic sense of mistrust toward those in power. Current South African President Cyril Ramaphosa is called "one big fool" for letting Bill Gates test his "vaccine during #SouthAfricaLockdown," or, worse, is said to have refused to "implement early measures in agreement with Bill Gates to get as many infected and then sell the vaccine." Some users attack the ANC, South Africa's ruling party, posting they "did not vote it into power to have American citizens dictate to us" and praised the leadership of former president Jacob Zuma, as he "never sucked up to the West and gambled with African lives for money" (Figure 11).

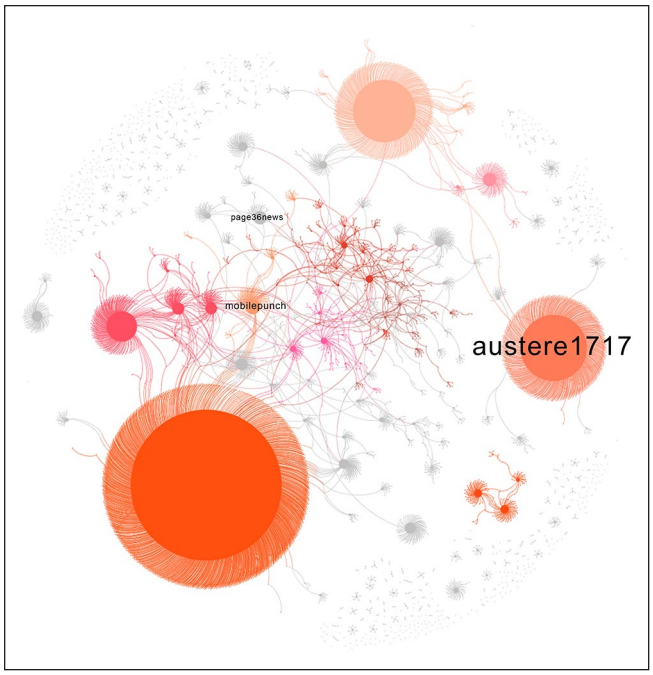


Figure 11. Interaction networks for Bill Gates conspiracy in Nigeria.

In Nigeria, Gates conspiracies shared some of the anti-western sentiment visible in South Africa, alongside the *opportunistic* use of the conspiracy observed around 5G. Two narratives coexisted and connected, one denouncing an alleged attack on Africans by Gates and the West, the other pinpointing the Nigerian government as the problem. Similar to South Africa, the "Gates vaccine" was described as "lethal and toxic to depopulate Africa." However, different from South Africa, users tended to focus on specific policies, deals and alleged corruption cases, denounced for their likelihood to benefit or enrich the few.

The "Control of Infectious Diseases bill," discussed in the Nigerian parliament at the onset of the pandemic and ultimately rejected by opposition legislators, was labeled the "foreign-sponsored bill," citing an "intercepted human intelligence report" and alleging the House leadership was offered a US$10 million bribe by Gates "for the speedy passage of a forced vaccination program for COVID-19." Some politicians went on to demand Gates' arrest for "crimes against humanity." Anti-western sentiments creeped into the narratives, with questions about "an unknown experimental drug allegedly being injected into people," referring to media reports of the commencement of clinical vaccine trials in Nigeria. The Bill produced heated exchanges among a polarized public with users amplifying messages that resonated with their preferred political party, some calling on the government to "return the billions of dollars collected," and others praising its early attempts to explore a vaccination strategy, praying "the vaccine works."

As observed for the 5G conspiracy, Nigerian users discussing Bill Gates expressed suspicion toward the government's handling of the pandemic, as it affects finances, treatment, and equipment. When COVID-19 aid donations were moved from Lagos to Abuja, and the IMF approved US$3.4 billion emergency fund to support the oil-dependent nation's efforts to limit the pandemic amid sharply falling oil prices, the concern was "it's never going to be about the everyday Nigerian." Citizens feared the ruling class could hoard test kits, ventilators and other equipment, and loot financial aid. Some users twisted the January 2019 US75 million Incentive Financing fund from the Gates Foundation, meant to strengthen routine immunization and broaden primary health care services in Nigeria, to deceive unsuspecting users. This earlier disbursement of aid was presented as a reason that the NCDC and APC government could not reject COVID-19 vaccine trials in the country.

Melinda Gates was also brought into the conversation, when she issued a statement predicting COVID-19 doom for Northern Nigeria. Her statement that the region "remains high risk for COVID-19" due to extreme poverty and illiteracy was termed a negative "prophecy," and attracted remarks combining local concerns with poverty and poor health services with concerns about a global, anti-African threat. A user referred to Melinda Gates as "Queen of Narnia" and an "advocate of world depopulation." Others seemed to come to her defense, pointing to how she "was talking about how low medical facilities will affect Africa, you people are saying she is wicked and wants bad for Africa." Nigeria had one of the lowest number of tests carried out in Africa per 1 million citizens. "We have not enough ventilators if they are needed, we can only hope this doesn't get bad," another tweet read.

More so than with the 5G conspiracy, the global and national dimensions of Gates conspiracies intertwined in Nigeria, revealing some similar narratives to South Africa's Twittersphere. Yet, while generalized narratives took hold in both countries, why and how they did so reflect variation in users' responses given their political contexts and frames of reference. In Nigeria, Gates became caught up in concerns over domestic political legislation, service delivery, and corruption. In South Africa, more *existential* concerns about Western disinterest and even malevolence toward the African continent circulated.

Conclusion: Incorporating Agency and Context Into Responses to the Infodemic

The growing body of research on the "infodemic" that has mirrored the viral pandemic has reflected a tendency to "get something done" in the face of potentially harmful repercussions. This has led to a burst of methodological innovation, especially in computational methods. Yet, the urgency to explain and propose solutions to combat the infodemic has ended up reproducing dominant ways of approaching

conspiracies. In this article, we identified and confronted three limitations in scholarship on conspiracies and social media: a tendency to look at conspiracies through the lens of falsehood versus fact; a view that reproduces a center/periphery dichotomy; and a reliance on datasets that risk fueling a sense of a moral panic. The research strategy we adopted to respond to these challenges, and the findings from our analysis, contribute empirically and conceptually to debates on the COVID-19 infodemic and related forms of communication.

Empirically, by comparing 5G and Gates conspiracies in Nigeria and South Africa, and engaging with substantive claims made by users—rather than flagging posts along a continuum of credibility divorced from context—this article showed how elements characterizing each conspiracy interacted with discourses and political projects distinct to online sub-communities in each country. In Nigeria, both conspiracies were transformed into what we have called in this article an *opportunistic* response to debates on government corruption and the political opposition to it. 5G conspiracies were taken up by opposition politicians as justification of the government's ill-will to citizens, compounding upon stories of other forms of negligence in the government COVID-19 response. In South Africa, in contrast, while the 5G conspiracy produced limited reactions, of a kind that marginally intersected with local political debates, the Gates conspiracy triggered what we referred to as an *existential* response, whereby debates were articulated in the broader suspicion of foreign or Western interference into African affairs and the need for more locally-grounded narratives and frameworks of knowledge. *Opportunistic* and *existential* should be considered neither as typologies that uniquely pertain to the cases of Nigeria and South Africa—they can be extended to describe similar uses and responses in other socio-political contexts; nor as templates that can apply to any context. Instead, we consider the patterns through which conspiracies gained meaning in the two countries as different conditions of possibility for digital engagement. The Nigerian case shows how these different conditions of possibility could coexist, with *opportunistic* and *existential* tendencies evident in popular narratives about Bill Gates. The two broad tendencies through which the conspiracies gained traction within these country-contexts indicates different entry points from which to interrogate social media content within socio-political realities.

This comparison gives way to some wider implications about how and why conspiracies around a crisis take hold. In Nigeria, distinctive qualities of each conspiracy appeared to matter less than the opportunity they offered to direct criticism to the government from yet another front. In South Africa, the ability of each conspiracy to resonate with, and allow for an amplification of discourses already circulating within communities, seemed to carry more weight. In both cases, what could be done with the conspiracies, rather than an uncritical acceptance of a conspiracy's claims, was essential in shaping communications. This rootedness in localized socio-political realities does not mean, however, that the 5G and Gates conspiracies lost their qualities of transnational phenomena. As our analysis illustrates, traits characterizing these conspiracies across countries co-existed and overlapped with more localized arguments. They were either embraced by users seemingly more connected with transnational networks and interested in globally relevant claims (e.g., 5G as a health hazard), or as embedded in larger discourses that, as a whole, advanced arguments of national or regional relevance (e.g., nanoparticles hidden in vaccines as a threat not only for surveilling individuals globally, but, in the case of Africa, to advance a plan to depopulate the continent).

Our findings offer an opportunity to formulate new questions and hypotheses to explore how conspiracies morph as they intersect with socio-political realities. This perspective is less concerned with detecting whether, and to which extent, the same hashtags or keywords are present at different locations and whether the posts containing them carry elements allowing to rank their credibility. It can be of greater help, instead, to explore *how* different users or communities relate to specific conspiracies and *how* they connect the claims characterizing these conspiracies with other narratives at a local and/or global level. In combination with other, more distinctly ethnographic forms of inquiry, such a perspective can also help to explain *why* different users or communities attach importance to specific conspiracies and what consequences this may have.

At a more conceptual level, we distanced ourselves from the often presupposed, but rarely fully articulated, theorization of the online public sphere as a space from which it is possible—or at least desirable—to purge impurities or falsehoods as negative externalities that are opposed to some authentic or truthful state of affairs. The decision to dial down the impulse to distinguish between truth and falsehood, and engage with a variety of claims surrounding the conspiracies, allowed us to highlight some important shortcomings and contradictions in research focused on detecting false messages or sources with low credibility. Can criticisms of Western historical interference in South African affairs or criticisms of corrupt government practices in Nigeria—even if they, on the surface, piggyback global conspiratorial narratives—be simply dismissed as false? Or are the categories themselves fuzzier and more difficult to define?

These more nuanced observations of conspiracies in context provide a foundation for designing campaigns oriented toward building public trust around COVID-19 responses. Looking forward to the COVID-19 pandemic, vaccination campaigns are emerging as a new front in the COVID-19 infodemic, playing off uncertainties about their efficacy, side effects and associated interests. Vaccine hesitancy is a challenge globally, including in Africa. In early 2021, polls in South Africa indicated that half of the population would refuse the vaccine (Cocks, 2021), with similar levels of vaccine hesitancy found in a poll by the National Primary Healthcare Development Agency in Nigeria (Usigbe, 2021).

By interrogating the narratives that accompany vaccine hesitancy in context, we suggest the potential to structure campaigns that target what people actually *do* with conspiracies, as opposed to relaying factual information that fails to account for the diverse uses of conspiracies in practice and the meanings they hold for those who engage with them.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research was supported by the Cambridge-Africa ALBORADA Fund.

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