

Diagnosing the Philippine infodemic: Content analysis of Rappler's science and health fact-checks, 2020-2023

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Much Philippine disinformation research has focused on electoral fake news. Equally important to scrutinize is the infodemic that has continued to plague the country even before the COVID-19 pandemic. This study explored the role of fact-checking in combating infodemic during the pandemic by analyzing 435 science and health-related fact-checks published between January 2020 and July 2023 by Rappler, one of the leading fact-checking news agencies in the Asia-Pacific region and one of only a few signatories of the International Fact-Checking Network (IFCN) in the country. The analysis revealed key trends in the information environment during this period, with the majority of fact-checks focused on COVID-19 and related health issues, including vaccine hesitancy, pseudoscientific claims, and conspiracy theories. Fact-checking efforts spiked in early 2020, aligning with the onset of the pandemic in the Philippines, and gradually declined as the country moved towards recovery. The study also examined the platforms where misinformation proliferated, with Facebook being the most prominent, though other media channels such as television also played a role. Rappler's fact-checking was conducted primarily in English, though recent efforts to localize in Filipino have emerged. The study highlights the importance of citizen journalism in the fact-checking process, with volunteers contributing significantly to the fight against misinformation. The findings suggest that continuous, multilingual, and cross-platform fact-checking is crucial in addressing misinformation. Furthermore, public awareness campaigns and enhanced digital literacy are needed to mitigate the spread of false information. The study concludes by emphasizing the need for sustained fact-checking efforts and government support to manage future infodemics.

Keywords: information disorder, science journalism, disinformation studies, fake news, media and information literacy

INTRODUCTION

Infodemic in the Philippines

The Philippines has endured a public health information crisis long before the COVID-19 pandemic (Lasco & Yu, 2021; Yu, Lasco, & David, 2021). In 2016, Dengvaxia, a vaccine designed to prevent dengue fever, was hailed as a medical breakthrough. The government launched a massive immunization campaign targeting over 800,000 school children. But what began as a promising public health initiative quickly spiraled into chaos. In November 2017, Dengvaxia's developer, Sanofi Pasteur, released a report claiming that their vaccine might cause severe illness in those who had not previously contracted dengue, sparking public outcry. Media outlets, politicians, and social media influencers pounced on the issue. This was exacerbated by reports of several deaths of vaccinated children, whose families claimed that Dengvaxia was the cause. However, investigations conducted by the Philippine General Hospital (PGH) concluded that there was no scientific proof that the vaccine caused the deaths of the children (University of the Philippines, 2018). Soon, the narrative shifted from cautious concern to outright panic as a cacophony of voices subverted the scientific authority of PGH.

By 2018, the country saw a resurgence of measles and polio, diseases long thought to be under control, as well as an outbreak of pertussis or whooping cough, as parents refused to vaccinate their children out of fear (UNICEF.org, 2024). This mistrust persisted into the COVID-19 pandemic, complicating efforts to curb the virus. Vaccine hesitancy slowed down recovery efforts, contributing to higher infection rates and more deaths. The Dengvaxia debacle revealed the powerful, dangerous consequences of misinformation, highlighting the urgent need to understand and address the infodemic, defined as the overabundance of information, both accurate and false, that makes it difficult for individuals to find trustworthy sources and reliable guidance (Zielinski, 2021). This infodemic adds a significant layer of complexity to public health efforts.

Many thinkers likewise have theorized this phenomenon, which has been christened with more specific names such as "disinfodemic" (Posetti & Bontcheva, 2020A), which is defined as "COVID-19 disinformation that confusion about medical science with immediate impact on every person on the planet, and upon whole societies. It is more toxic and more deadly than disinformation about other subjects" (p.2).

Wardle and Derakhshan (2017) have also explored the notion of “information disorder,” which has three types, namely misinformation, disinformation, and malinformation. These concepts are commonly tackled in fact-checking and media and information literacy campaigns. Misinformation is false or inaccurate information shared without the intent to deceive. People often spread misinformation unknowingly, such as sharing incorrect health advice or outdated news, believing it to be true. Disinformation, on the other hand, is intentionally false information spread to mislead or manipulate. Its goal is often to create confusion or push certain political or ideological agendas.

For example, during elections or public health crises, bad actors may deliberately circulate fake news or deceptive claims to sway public opinion. Malinformation involves the use of true information with the intent to cause harm. While the content itself is accurate, it is weaponized to damage reputations, invade privacy, or incite conflict. An example would be leaking private emails or sensitive data to discredit someone or cause distress. The critical difference lies in intent: misinformation is unintentional, disinformation is deliberate deception, and malinformation uses truth to harm.

In relation to this, Kandel (2020) had even enumerated the symptoms of this information disorder and how to manage it. Monsees (2023), in a study involving the US, Germany, and Czechia, pointed out the ill effects of fake news and its profound impact on democracy around the world, tarnishing the ability of citizens to think critically.

Then there is “infodemiology” (Zielinski, 2021), which is the study of the spread and impact of health-related information, particularly during public health crises. It combines “information” and “epidemiology” to understand how misinformation, disinformation, and accurate information circulate, especially online, and how they affect public behavior and health outcomes. By analyzing patterns of information dissemination, infodemiology aims to identify, track, and mitigate the harmful effects of false information, helping to improve public health strategies, communication efforts, and policy responses during infodemics, such as the one experienced during the COVID-19 pandemic.

However, much of the existing literature on the infodemic has been centered on first-world, Western realities, where digital infrastructure and media landscapes are vastly different from those in developing nations. Studies from the United States, Europe, and other highly industrialized countries often focus on the role of social media platforms like Facebook and X in spreading dubious claims, examining their influence within relatively high-literacy, high-access populations. These studies also explore the effects of misinformation on public health campaigns, typically in environments where regulatory measures, media literacy programs, and public trust in institutions are relatively strong,

or at least, more developed. As a result, the insights and interventions derived from these contexts may not always translate effectively to countries in the Global South.

In contrast, the infodemic situation in nations within the Asia-Pacific region—particularly those in the Global South, like the Philippines—remains underexplored. These countries face unique challenges, including limited digital literacy, fragmented media ecosystems, and varying levels of public trust in government and media institutions (Yu, Lasco, & David, 2021; Samonte et al., 2020). Moreover, these regions often lack the robust regulatory frameworks and fact-checking infrastructures available in wealthier countries. While the infodemic has become a global phenomenon, the conditions under which misinformation spreads and its impact on public health are likely to differ in the Global South, where access to reliable information is often compromised by socioeconomic factors, and where misinformation can have more direct, immediate consequences.

The Philippines, with its high social media penetration, is particularly vulnerable to the, as revealed by one Philippine study on fake news susceptibility among youth voters (Deinla et al., 2021). Understanding the infodemic in the Philippine context requires exploring the country's experience with information disorder during the pandemic and beyond.

By focusing on the realities in countries like the Philippines, researchers and policymakers can develop more inclusive strategies for managing future infodemics that are grounded in the diverse social, cultural, and economic landscapes of the Asia-Pacific region.

Fact-check monitoring in the Philippines

To mitigate the effects of the infodemic, monitoring and fact-checking initiatives have become essential tools (WHO, 2021; Samonte et al., 2020; Posetti & Bontcheva, 2020B). The WHO, in many of its policy briefs, has emphasized the importance of these efforts in managing the spread of misinformation. Fact-checking organizations, like Rappler in the Philippines, play a vital role in curbing the influence of misinformation by providing the public with verified, accurate information. The generation of fact-checking data, in particular, is seen as an important asset in understanding how misinformation spreads and how best to counter it. The analysis of this data can help inform future efforts to combat disinformation and guide policy measures to improve public health communication.

By systematically analyzing the content of fact-checks, especially in the context of science and health-related misinformation during the COVID-19 pandemic, researchers can better understand the mechanisms that drive the spread of misinformation. This data can also support more targeted infodemic management strategies, including educational campaigns and policy interventions aimed at reducing misinformation's harmful impacts on public health.

Despite the growing global recognition of the infodemic, there remains a significant gap in research focusing on fact-check monitoring. Most existing studies explore the spread of misinformation or its effects on public opinion and health behaviors, but few delve into the systematic monitoring and evaluation of fact-checking efforts themselves. This is a crucial oversight, given that fact-checking serves as a primary line of defense against the infodemic. Without sufficient research into the effectiveness and reach of fact-checks, it becomes difficult to assess how well these interventions are curbing misinformation and protecting public health. Fact-check monitoring studies are critical for understanding not just the volume of misinformation but also how effectively it is being countered across different media ecosystems and populations. Understanding the nature of fact-checks—what claims are being debunked, how frequently, and on which platforms—provides valuable insight into the patterns of misinformation and helps fine-tune future strategies.

Only one Philippine fact-check monitoring study was found, which was conducted by Chua and Soriano (2020), involving the content analysis of fact-checks produced by member agencies of Tsek.ph, a fact-checking coalition that was formed for the 2019 Philippine General Elections. This is one of the main take off points of the current study, which adopted some of the content analysis measures in the study, such as the medium and platform where false claims were made, the sources and targets of such claims, the forms they took, and how they were rated by the agencies.

Another study employing similar content analysis measures was conducted by Patra and Padey (2021) involving nine fact-checking news agencies in India, which is one of only a few studies found in an Asian setting. This study was also supplemented by in-depth interviews among fact-checkers to get their insights on the goal of disinformation and its impact on society.

From a broader perspective, the media monitoring study conducted by Bunquin (2023) revealed that health and medicine were the fields frequently tackled by the science sections of leading print media in the Philippines.

In terms of classification of fake news, one notable study adopted by this paper was conducted by Tandoc, Lim, and Ling (2017). A highly cited study, it was a meta analysis of 34 scholarly works published from 2003 to 2017 that employed the term “fake news.” It surfaced six typologies of how the term “fake news” was operationalized in the study. These included news satire, news fabrication, photo manipulation, advertising and public relations, and propaganda. However, the works analyzed involved mostly developed countries, such as the United States, Australia, China, and Italy. Again, some of these typologies were adopted in this paper, but some were reworded to fit the claims analyzed.

The IFCN, as reported by Macaraeg (2020), also came up with a list of types of dubious claims in a year-end fact-check monitoring report it released in 2020, which involved 20 types. Although the list was exhaustive, it can be argued that these cannot be directly used in formal academic research as these are not yet refined coding categories. Nonetheless, some of these were adopted in the current study. The report is also not an original research article published in a peer-reviewed journal.

Lastly, the current study also adopted the four key disinfodemic format types and nine key themes of the disinfodemic put forward by Posetti and Bontcheva (2020A). This study hoped to generate empirical evidence for these concepts that they laid out.

During the height of COVID-19 pandemic, only two IFCN-listed news agencies in the Philippines—Rappler and VERA Files—were on the frontlines of the infodemic battle (Magsambol, 2018). This study exclusively examined Rappler's fact-checking efforts.

Moreover, Meta (2021) has explicitly stated that it does not conduct its own fact-checking, but instead relies on third-party partners like Rappler and VERA Files to monitor and flag misinformation across Facebook, Instagram, and WhatsApp.

While both agencies contributed significantly to the fight against the infodemic, Rappler demonstrated a particularly robust initiative. Rappler’s MovePH, a citizen journalism arm, bolstered these efforts through a Fact-Checking Mentorship Program for volunteers who assist in-house staff, a Facebook group with over 10,000 members for reporting fake posts, a national coalition called #FactsFirstPH, and monthly fact-checking webinars (Rappler.com, 2021; Meedan, 2021). These initiatives, which VERA Files did not have, reflect Rappler’s proactive and community-driven approach to tackling misinformation.

Additionally, as both Rappler and VERA Files are IFCN signatories, they frequently fact-check similar misinformation, reflecting complementary agendas. A notable example of

this redundancy is their joint investigation into two Filipino overseas vloggers spreading COVID-19 misinformation, with Rappler acknowledging VERA Files' contributions in the report (Pasion, 2023; Hanopol & Ancla, 2021).

The study's exclusive focus on Rappler allows for an in-depth examination of its distinctive fact-checking approach, providing valuable insights into the agency's role in the Philippine infodemic landscape.

Launched in 2018, Rappler Fact-Check (Rappler.com, 2017A) emerged in response to the growing spread of false information, particularly during the 2016 Philippine presidential elections. Since then, it has become one of the most prominent fact-checking organizations in the country, regularly debunking false claims on topics ranging from politics to public health. Rappler's fact-checks are aimed at combating viral falsehoods circulating on social media platforms, particularly Facebook, which is the dominant source of news for many Filipinos. Its fact-checking process involves rigorous research, verification from credible sources, and transparent reporting, all geared toward promoting media literacy and providing the public with accurate information.

In 2020, Rappler was included as a verified signatory of the International Fact-Checking Network (IFCN), a global network of fact-checkers managed by the Poynter Institute (Rappler.com, 2017B). This certification recognizes Rappler's adherence to IFCN's stringent Code of Principles, which includes commitments to non-partisanship, fairness, transparency of sources, and corrections policies. As an IFCN signatory, Rappler collaborates with other international fact-checkers and contributes to the global fight against misinformation. This inclusion also allows Rappler to participate in initiatives like Facebook's third-party fact-checking program, where its fact-checks help identify and reduce the spread of false content on the platform.

Rappler's role as an IFCN-certified agency positions it as a key player in managing the infodemic in the Philippines, particularly during critical events such as the COVID-19 pandemic and national elections. Its dedication to fact-checking is crucial in maintaining the integrity of public information and enhancing the accountability of both local and global misinformation efforts.

Much of the existing research on fact-checking, particularly in the Philippines, has largely focused on political and electoral fact-checking. This emphasis is understandable, given the contentious political climate and the pivotal role misinformation has played in influencing public opinion, especially during elections. Studies examining the veracity of political claims, the spread of disinformation targeting candidates, and the role of social

media in shaping political narratives have been critical in understanding the dynamics of misinformation in the Philippine context. Rappler, for instance, has been at the forefront of debunking false claims during election periods, making it a vital player in safeguarding the electoral process.

However, while political and electoral fact-checking has received substantial attention, the domains of health and science fact-checking have been comparatively under-researched. This gap is particularly concerning in light of the COVID-19 pandemic, where misinformation about health protocols, vaccines, and treatments proliferated and posed significant risks to public health. Health misinformation has led to dangerous consequences, such as vaccine hesitancy, the spread of unverified cures, and general public confusion about the pandemic. These issues highlight the critical need to examine health and science-related fact-checking efforts in more depth, as they play an essential role in combating not just political disinformation but also life-threatening misinformation that affects public health outcomes.

By studying health and science fact-checking, researchers can better understand how misinformation in these fields spreads, the types of false health claims that gain traction, and how fact-checking initiatives like those by Rappler can effectively counter them. Health fact-checking research is crucial in helping to improve public health communication, build trust in scientific information, and ensure that the public can make informed decisions during health crises, which have been recommended by existing research (Lasco & Yu, 2021; Yu, Lasco, & David, 2021;). Furthermore, in a science reportage monitoring study conducted by Bunquin (2020), it was found that health was the main science issue being covered by Philippine print media from 2017 to 2019.

This research also supports the four of the five items on WHO's (2021) public health research agenda for managing infodemics, namely measuring and monitoring the impact of infodemics during health emergencies, detecting and understanding the spread and impact of infodemics, evaluating infodemic interventions and strengthening the resilience of individuals and communities to infodemics, and promoting the development, adaptation, and application of tools for managing infodemics.

METHODOLOGY

This study utilized web scraping to collect all fact-checks published on Rappler.com's fact-checks section from 2017 to 2024. For analysis, only the 435 fact-checks related to

science and health, published between January 17, 2020 and July 21, 2023, were included. These dates align with Rappler's first COVID-19-related fact-check and the Philippine government's lifting of the State of Public Health Emergency due to COVID-19.

The study employed a census approach, meaning the entire population of relevant fact-checks within the above mentioned period was included, eliminating the need for random sampling. This was to ensure that the study was as comprehensive and robust as possible given that it analyzed only one news agency. This also entails that inferential statistics was no longer used, as descriptive statistics would suffice, as was the case in related fact-check studies (e.g., Chua & Soriano, 2020; Patra & Pandey, 2021; Bunquin, 2023).

To ensure accuracy in data collection, the fact-checks were systematically organized in a spreadsheet-based coding frame. Several rounds of data cleaning were conducted to correct any errors or inconsistencies in the dataset, ensuring that the analysis was based on reliable and complete information.

For data analysis, descriptive statistics were used to examine several variables and their respective categories. These variables were selected based on existing literature and were defined as follows:

- Kind of health fact-check: categorized as either "COVID-19" or "general health."
- Language: whether the fact-check was published in English or Filipino.
- Type of dubious claim: classified into six categories: Scam, Hoax, Conspiracy Theory, Pseudoscience, False Policy, or Propaganda.
- Form of the claim: whether the claim was presented in text, video, or photo format.
- Social media platform: where the dubious claims originated (e.g., Chat, Facebook, Instagram, TikTok, TV, Twitter, Webpage, YouTube).
- Fact-check rating: Rappler's rating of the claim, which could either be "False" or "Missing Context."
- Reason for fact-checking: the primary motivation behind fact-checking a claim, categorized as Virality, Reputation, Tool (flagged by Meta's fact-checking system), Submission (sent by readers), or Public Interest.
- Fact-check authorship: whether the fact-check was authored by Rappler staff or volunteers.

While the first three variables (kind of health fact-check, language, and type of claim) had a one-to-one correspondence with each fact-check, allowing their frequencies to total 435,

the other variables permitted multiple categories per fact-check. Consequently, frequencies for these variables exceeded 435. Additionally, for propaganda-related claims, the source and target of the claims were analyzed, and the political figures involved were identified and categorized (Duterte, Marcos, Robredo, Pangilinan, Hontiveros, or "Not Applicable").

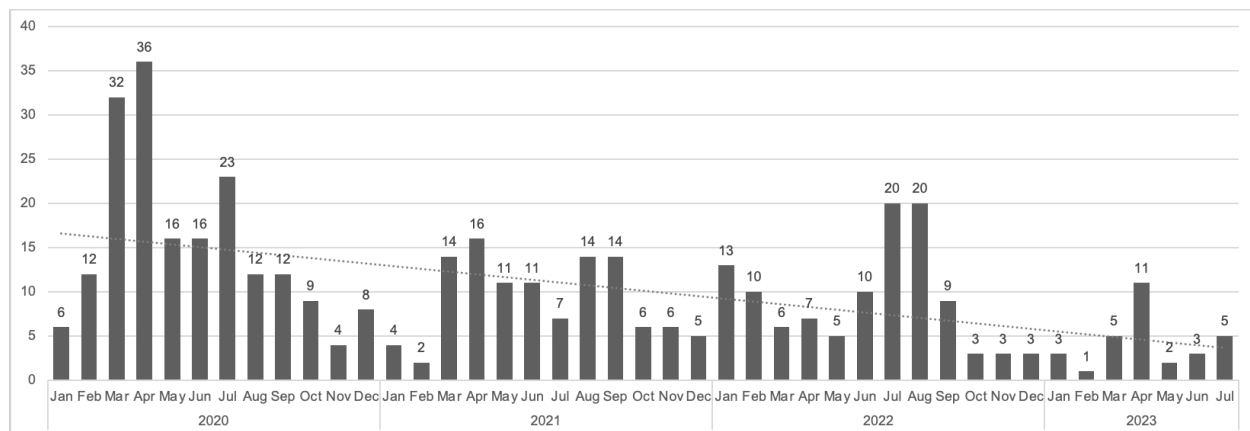
Intercoder reliability was established using Krippendorff's alpha to ensure the consistency of the content analysis. Two trained coders performed independent analyses, and three pre-analysis waves were conducted to refine the coding scheme. An acceptable Krippendorff's alpha score of 0.92 was achieved, exceeding the recommended threshold of 0.81 for content analysis reliability (Neuendorf, 2004).

FINDINGS AND DISCUSSIONS

Fact-Checking Trends

Figure 1

Trends in the frequency of Rappler's science and health fact-checking, January 2020 to July 2023



A total of 435 COVID-19 and health-related fact-checks published by Rappler.com were analyzed in this study.

Figure 1 illustrates the longitudinal trends in Rappler's fact-checking activity during the COVID-19 pandemic, showing a marked increase in fact-checks beginning in March 2020. This surge corresponded with the onset of the pandemic in the Philippines, when the first cases of COVID-19 were recorded. Rappler's role as an early responder was significant,

as they were among the first members of the IFCN to publish a COVID-19 fact-check (Macaraeg, 2020). Their first fact-check addressed a viral false claim about a supposed Severe Acute Respiratory Syndrome (SARS) case in Mandaluyong City, which spread unnecessary panic.

The data indicated a sharp increase in fact-checks in March and April 2020, with April seeing the highest number of reports (36 fact-checks). This spike aligned with the declaration of the Enhanced Community Quarantine (ECQ), a period marked by public anxiety and an explosion of misinformation. This trend demonstrated Rappler's ability to swiftly respond to information crises during pivotal moments in the pandemic, reflecting its role as a vigilant information watchdog. This pattern was consistent with the IFCN's 2020 monitoring report, which also observed the highest volume of fact-checking activity across signatory organizations during this period.

Interestingly, despite the decline in pandemic-related fact-checks over time, Rappler continued to maintain its fact-checking activity during the 2022 Philippine General Elections, incorporating health-related fact-checks into its broader political coverage. The elevated number of fact-checks during July and August 2022, shortly after the elections, underscored the intersection of public health misinformation with political narratives.

Overall, the trend showed a gradual decline in health-related fact-checking activity post-pandemic, likely reflecting the nation's recovery and the reduced intensity of health misinformation as the crisis subsided.

Kinds of Health Fact-Check and Language

Table 1

Frequency distribution of the kinds of health fact-check and language used by the fact-checks (N=435)

Variable	f	%
Kind of health fact-check		
<i>COVID-19</i>	323	74.3
<i>General health</i>	112	25.7
Language		
<i>English</i>	415	96.4
<i>Filipino</i>	20	4.6

Table 1 presents the distribution of fact-checks by type and language. The majority or 74.3% of fact-checks focused on COVID-19-related misinformation, while 25.7% covered general health misinformation. This highlighted Rappler's proactive stance in addressing not only pandemic-related falsehoods but also broader health scams, emphasizing the pervasive nature of health misinformation. The findings validated the initial speculation that the health crisis would expose a growing industry of health scams, particularly on social media platforms, where unverified health claims ran rampant.

In terms of language, English remained the dominant medium for Rappler's fact-checks (96.4%), despite recent efforts to localize content using regional languages, including Filipino (4.6%). This underscored both the reach of English-language media and the challenges of effectively translating technical health information into local languages. Science communication often involved simplifying complex terminologies, a task that became more difficult when direct translations into Filipino were not available. The

limited use of regional dialects suggested a need for further localization to make fact-checks more accessible to a broader audience, especially in rural areas.

Platforms

Figure 2
Distribution of platforms where dubious claims were made

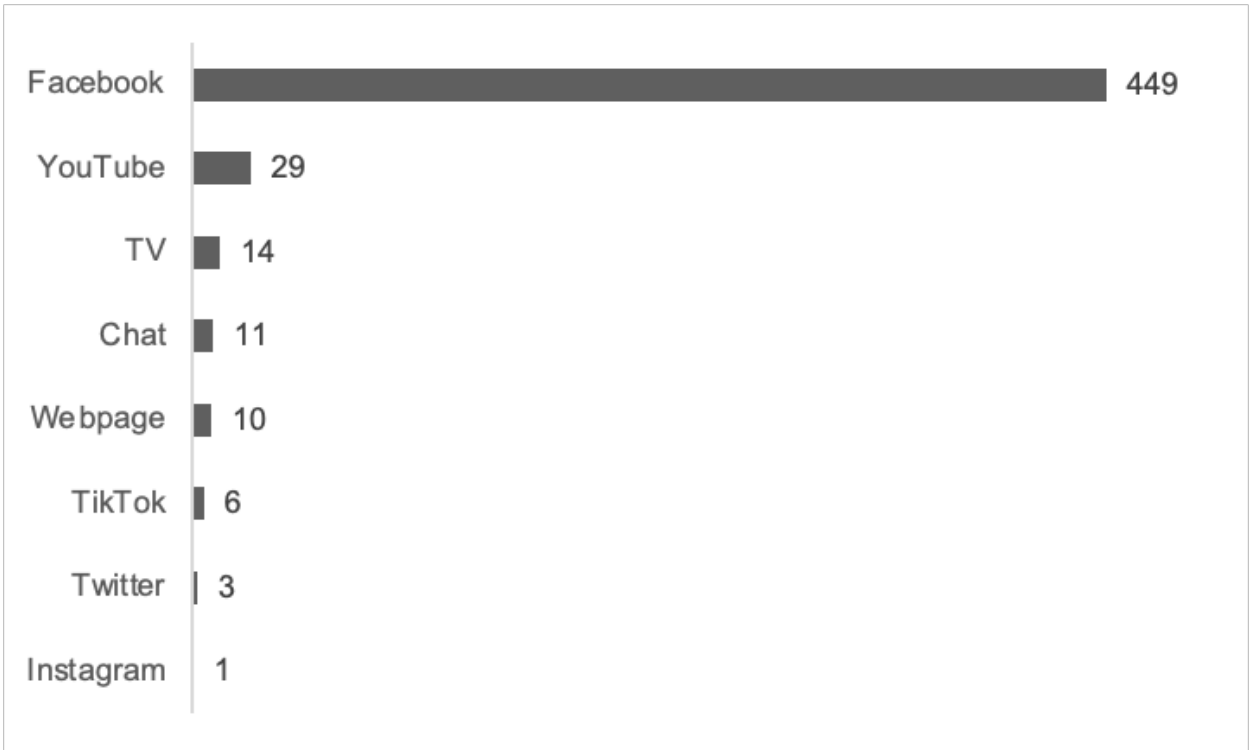


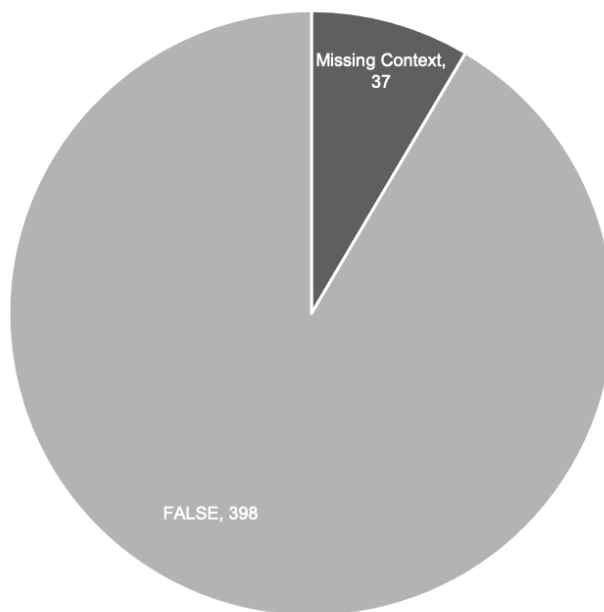
Figure 2 shows the distribution of platforms where false health claims were identified. Facebook emerged as the dominant platform, reflecting its widespread use in the Philippines and its central role in the dissemination of misinformation. This was consistent with Chua and Soriano’s (2020) study. While it was possible that misinformation was spread across multiple platforms, Rappler’s data primarily captured Facebook due to its prominence and Rappler’s focus on monitoring this platform. However, the fact that other platforms were less frequently recorded suggested that future research should explore the prevalence of misinformation on other social media and digital platforms. Notably, Rappler’s efforts extended beyond social media, with fact-

checks covering false claims made on television, particularly during President Duterte's late-night addresses. This highlighted the importance of scrutinizing traditional media, where public officials' statements can significantly shape public perceptions, often with limited immediate rebuttal.

Fact-Check Rating

Figure 3

Distribution of fact-check ratings



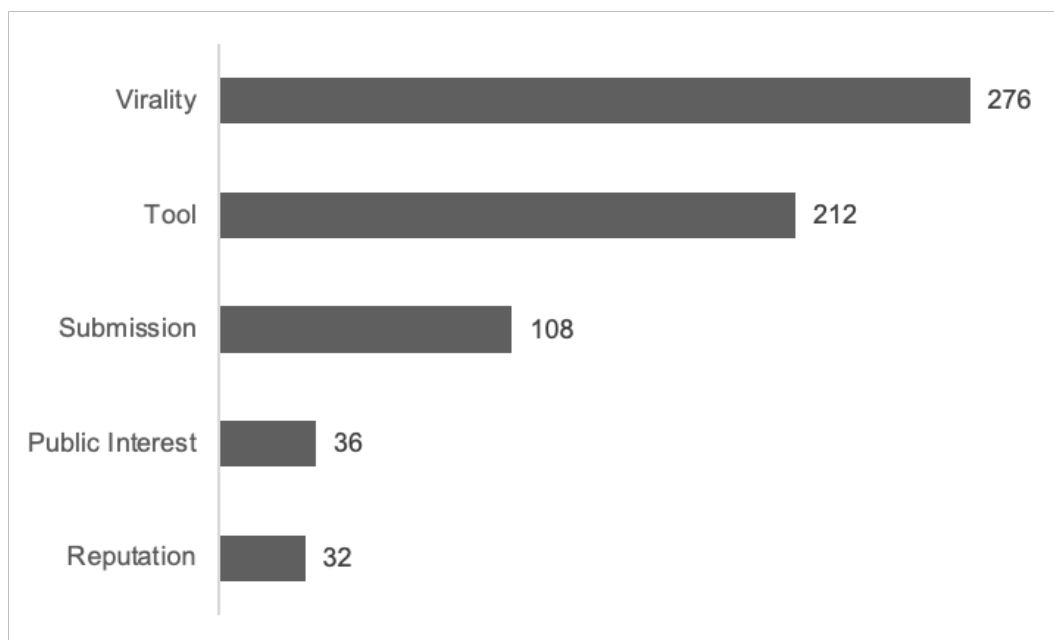
Rappler utilized a six-category rating system for fact-checking dubious claims (Rappler.com, 2023). However, Figure 3 shows that, of the 435 fact-checks analyzed, only two categories—"false" and "missing context"—were commonly used for health-related fact-checks. The other categories maybe more extensively used in Rappler's political and

electoral fact-checking efforts. While other ratings such as "altered photo" or "manipulated video" were observed, their occurrence was rare that they were subsumed into the "missing context" category to avoid outliers in the analysis. The absence of ratings like "satire" suggested that satirical or humorous misinformation was less prevalent in health-related misinformation during the period studied, with most claims falling under outright falsehoods or misleading information lacking proper context.

Reasons for Fact-Checking Claims

Figure 4

Distribution of the reasons why dubious claims were fact-check



Per Rappler's fact-checking protocols (Rappler.com, 2017), the primary reasons for fact-checking, as shown in Figure 4, were the virality of claims and Meta's fact-checking flagging system, both of which underscored the reactive nature of Rappler's fact-checking process. Claims that had gained traction online or had been flagged by algorithms were prioritized. However, the study also revealed the significance of reader submissions

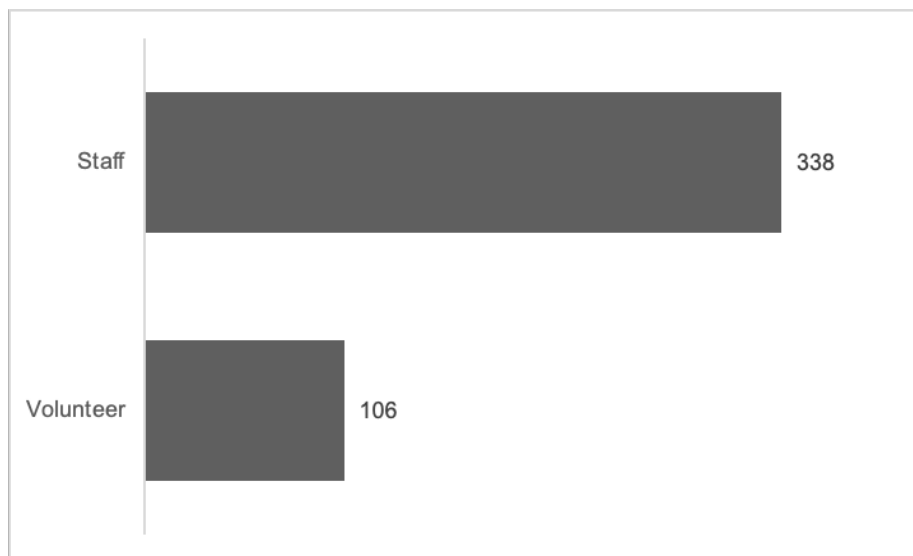
through platforms like the "Fact-Checking in the Philippines" Facebook group, emphasizing the role of citizen journalism in countering misinformation. This participatory model of fact-checking supported the notion that empowering citizens to report dubious claims could bolster the fight against misinformation.

Additionally, some claims were fact-checked due to their potential public interest, even before they had the chance to go viral. This preemptive strategy, particularly for claims involving mass confusion, showed a forward-thinking approach to preventing misinformation from spreading.

Authorship of Fact-Checks

Figure 5

Distribution of authorship



As Figure 5 indicates, most of the fact-checks were authored by Rappler staff, though volunteers played a notable role in supporting fact-checking efforts. The engagement of citizen journalists through Rappler's Move.PH initiative was particularly noteworthy, as it demonstrated the organization's ability to mobilize a network of volunteers and leverage their contributions in the battle against disinformation. This collaborative approach also highlighted the increasing role of community-driven journalism in the digital age.

Types of Dubious Claims

Figure 6

Distribution of the types of dubious claims

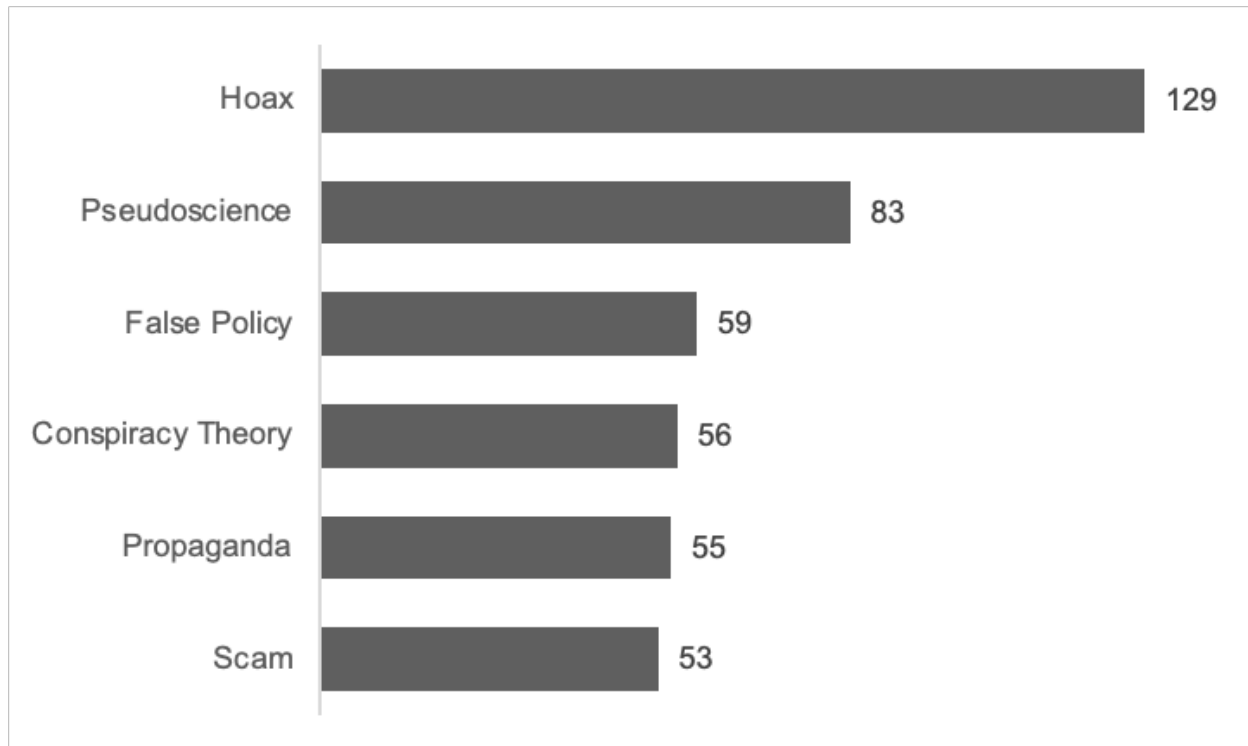


Figure 6 outlines the types of dubious claims fact-checked by Rappler. The terms used in the analysis were derived from related literature (e.g., Macaraeg, 2020). Majority of these are hoaxes, which are outrageous, fabricated claims that created unnecessary fear or panic by presenting an impending danger, such as an imminent health catastrophe or conspiracy. These claims often misinterpreted scientific findings or used extreme scenarios to discourage people from supporting legitimate health policies or scientific evidence. By fostering fear and distrust, hoaxes aimed to demonize science, promoted misconceptions, and undermined public health measures. Extreme examples of hoaxes included was a supposed "Zombie apocalypse" or vaccine-related genocide. These outlandish claims were often rooted in anti-vaccination narratives and pandemic denial, all of which were widespread during the pandemic.

Second was pseudoscience content, which involved promoting incorrect or unverified solutions to health problems. These fake solutions lacked scientific evidence and often claimed miraculous cures or treatments that were either ineffective or harmful. Pseudoscience may have also arisen from the misinterpretation of research results, presenting dubious claims as fact. They typically asserted positive or negative health effects that were not supported by legitimate scientific research, misleading the public and potentially endangering lives. These claims, while not entirely fabricated like hoaxes, lacked scientific support and capitalized on people's fears and desires for quick solutions during a health crisis. The emergence of such scams on social media further pointed to the need for more rigorous health communication and public education efforts.

Third involved dubious claims containing false policies. These were announcements or policies supposedly issued by public officials. These claims may suggest leniency or changes in health measures, such as community quarantine restrictions or reopening plans, causing confusion among the public. By spreading inaccurate information, these claims could undermine official health guidelines and hinder efforts to control public health emergencies.

Fourth were conspiracy theories, which suggested that powerful individuals or groups were intentionally creating crises or health problems so they could sell solutions, such as vaccines or medications, to the public. These narratives often painted elites, corporations, or governments as manipulating the public for financial gain, fueling mistrust in health authorities and scientific institutions. Staple subjects in these posts included Bill Gates and the vaccine developers Pfizer and Moderna.

Fifth was content containing propaganda. In the context of health disinformation, propaganda was used to malign or discredit political candidates, often linking them to mishandling health crises or spreading false narratives about their actions during a pandemic. These claims may exaggerate or fabricate health-related issues to tarnish the reputation of opponents, often for political gain, especially during election periods. The number one target of such attacks, as discussed in the succeeding, were former Vice President Leni Robredo and her Angat Buhay program.

Last was scam content. These claims were designed to deceive people into purchasing fraudulent products or services, often by using misleading endorsements from well-known figures. The goal was to profit from false promises, such as miracle cures or health supplements, without any scientific backing. Scams often exploited people's health fears or desires for quick solutions, particularly during crises like the COVID-19 pandemic.

It was also worth noting the relevance of unveiling the architects of health disinformation, just like what Ong and Cabañes (2019) did in their groundbreaking study. It was observed in the study that there had been influencers who persistently and passionately spread dubious health claims online and outrightly discredited science and health authorities. Worse was that their content consistently achieved viral status. Who were these people? What were their motives? Who were they working for? Were they part of a health disinformation troll farm just like political trolls? If so, then the workings of such disinformation operations must be exposed.

Sources and targets of propaganda

Figure 7

Distribution of the perpetrators of propaganda-related fact-check (N=57)

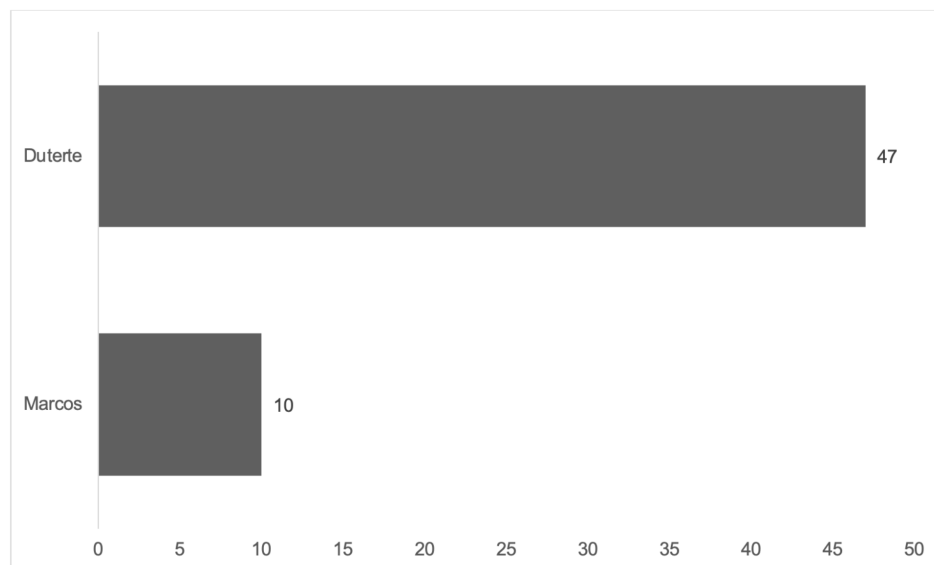
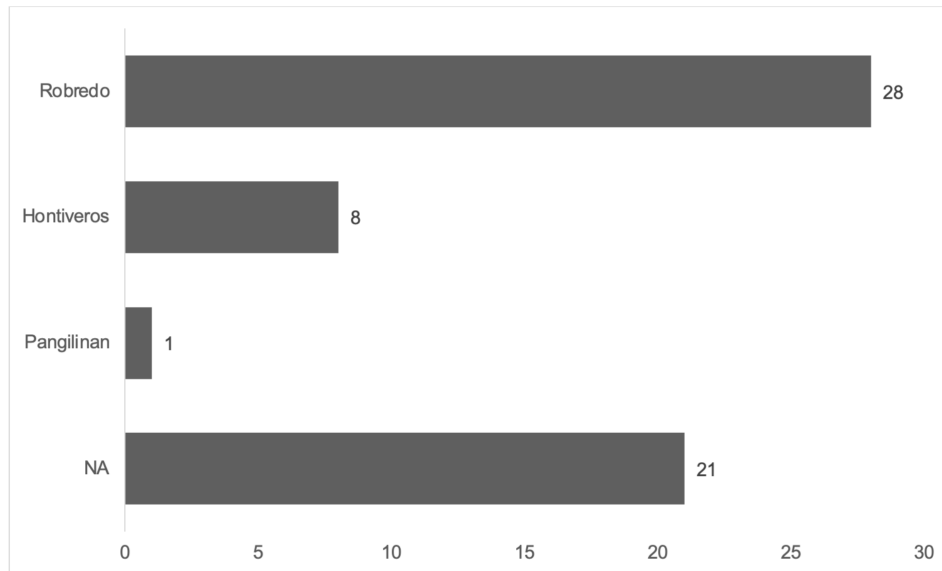


Figure 8

Distribution of the targets of propaganda-related fact-checks (N=58)



Figures 7 and 8 indicate the perpetrators and the targets of the propaganda-related claims from Figure 6. Note that the total number of perpetrators and targets exceeded the total number of propaganda-related fact checks (N=55) because there had been multiple sources and targets reflected in some of the fact-checks.

The findings indicated in these figures supported an analysis conducted by Vera Files (Retona, 2021) and Chua and Soriano (2021) that Robredo in particular and the opposition in general were the “favorite” target of disinformation campaigns. Indeed, Robredo and her Angat Buhay Program were heavily bombarded by such propaganda. It can also be seen that other members of the opposition, such as Hontiveros and Pangilinan, were also targeted. However, a substantial number of fact-checks were classified as “NA”, because the claims made in such fact-checks did not necessarily malign any political figure. Instead, such claims involved projecting a good image of either Marcos Jr. or the Dutertes.

On the other hand, in contrast to the Vera Files report, this study found that the Dutertes and not Marcos Jr. were the primary source of health disinformation. This is maybe a notable difference between electoral and health fact-checking.

CONCLUSION

This study analyzed 435 health-related fact-checks published on Rappler.com between January 2020 and July 2023, revealing key insights into the nature and evolution of misinformation during the COVID-19 pandemic and beyond. The findings demonstrated that Rappler played a critical role in combating misinformation, particularly during the height of the pandemic, with a significant spike in fact-checks during the early months of 2020. The trend gradually declined as the Philippines entered its recovery phase, yet Rappler remained proactive in health fact-checking, even during political periods such as the 2022 Philippine General Election.

Several trends were identified: COVID-19 fact-checks dominated the data, indicating the critical role of accurate information in managing public health crises. English remained the dominant language of fact-checks, although efforts to localize in Filipino showed the importance of reaching broader audiences. Platforms like Facebook were the primary sources of dubious claims, but claims on other platforms, including television, suggest a wider landscape of misinformation.

Dubious health claims fell into various categories, with hoaxes, pseudoscience, and conspiracy theories being the most prevalent. Many of these claims targeted vaccines and pandemic policies, underscoring the challenges of misinformation on public health and policy responses. The robust role of citizen journalism, facilitated by Rappler's engagement with volunteers, further highlighted the value of community-driven fact-checking efforts.

LIMITATIONS AND RECOMMENDATIONS OF THE STUDY

In terms of fact-checking research and disinformation studies, this paper had three limitations. Rappler has been into fact-checking since 2017. Hence, it is recommended for future research to conduct a full-blown monitoring study of Rappler's entire fact-check archive to be able to uncover the bigger impact of its fact-checking initiatives. Second, Vera Files is another IFCN signatory and Meta third party partner. It would also be ideal to scrutinize the agency's fact-checking efforts. Though it is recommended, to avoid doing the same analysis, to analyze not just VERA Files, but *Tsek.ph*, a larger fact-checking

coalition in which VERA Files is a member. Rappler is not a member of this coalition as it was leading its own initiative through #FactsFirstPH.

And most importantly, it would also be good to study the agenda-setting impact of Rappler's health fact-checks to assess their effectiveness in educating the public about false science and health information. This could also allow for most robust statistical analysis to be performed. However, a measure of the public sentiments on the fact-checks must be obtained, such as social media likes, shares, views, and comments, which is a tedious task.

The research reveals significant findings, particularly in the analysis of dubious claims, which exposed how certain influencers purposefully spread disinformation and actively oppose science-backed health advice and policies. These influencers often use their platforms to disseminate misleading or false information, creating confusion and undermining public trust in scientific institutions. By promoting narratives that deny the efficacy of vaccines, discourage adherence to health protocols, or foster conspiracy theories about global health crises, these figures contribute to the infodemic, endangering public health efforts. Understanding the role of these influencers is crucial for future research. Just as scholars have examined political trolls and their influence in manipulating public opinion, the architects of health science disinformation need to be scrutinized. Identifying key actors in the dissemination of health-related falsehoods helps expose their motives—whether financial, ideological, or political—and reveals the methods they use to manipulate their audiences. This knowledge can then inform the development of targeted interventions to counteract disinformation campaigns and protect public health.

Moreover, by studying these disinformation architects, researchers can develop more effective strategies for monitoring and mitigating the spread of false health information. Similar to political disinformation, health-related falsehoods can have far-reaching consequences, as seen in vaccine hesitancy and the resistance to pandemic recovery measures. In this context, research on the influencers behind health disinformation is essential to combating the growing infodemic and ensuring that science-backed policies are trusted and followed.

In terms of media and information literacy campaigns, to effectively combat misinformation in the future, sustained fact-checking efforts are essential, even beyond the immediate concerns of the COVID-19 pandemic. Although the number of health fact-checks has declined as the country recovers from the crisis, misinformation is a persistent

issue that evolves with new health challenges. Fact-checking organizations like Rappler should continue to monitor health-related misinformation, expanding their coverage to include a broader range of health topics. This will ensure the public remains informed and protected from the potential harm caused by false health claims.

Moreover, while English remains the dominant language in Rappler's fact-checks, the importance of multilingual fact-checking cannot be overstated. Expanding the use of local languages and dialects in fact-checking reports would make these efforts more accessible to a wider segment of the population, particularly in rural areas where English is less commonly spoken. By localizing content, fact-checking can have a more significant impact in reaching underserved communities and improving overall public understanding of critical health issues.

Given the rapidly shifting digital landscape, it is also crucial for fact-checkers to diversify the platforms they monitor. Although Facebook continues to be a major source of misinformation, other platforms like TikTok, YouTube, and Instagram are rising in influence, especially among younger audiences. Expanding the scope of platform monitoring will ensure a more comprehensive response to the spread of misinformation across different media channels, thereby preventing harmful narratives from gaining traction in overlooked areas of the digital ecosystem.

Rappler's collaboration with citizen journalists has proven effective in enhancing fact-checking efforts, and further investments in training programs, mentorships, and fellowships can broaden the reach of these initiatives. Engaging more volunteers and expanding citizen journalism networks will help scale the fight against misinformation, particularly on less-monitored platforms or in communities with lower access to fact-checking resources. Empowering citizens to actively participate in fact-checking not only increases the quantity of reports but also strengthens community-driven responses to disinformation.

In addition to these initiatives, there is a pressing need for enhanced public awareness campaigns and digital literacy programs. By educating the public on how to identify and critically assess misinformation, especially concerning health-related topics, the spread of false claims can be mitigated. Collaboration between media organizations, educational institutions, and government agencies can bolster these efforts, creating a more informed and resilient public that is less susceptible to the effects of disinformation.

Finally, policymakers should recognize the importance of fact-checking as a tool in managing public health crises and other social challenges. Government support for independent fact-checking initiatives is crucial for ensuring their sustainability. By integrating fact-checking into national health strategies and providing funding for these efforts, governments can ensure a faster, more coordinated response to future infodemics, safeguarding public health and preventing the spread of harmful misinformation.

All of these are consistent with recommendations by such reputable agencies such as the WHO (2021) and DOH (Samonte et al., 2020).

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