

The Role of X and Facebook in Managing Risk Communication During Infectious Disease Outbreaks

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Abstract: Infectious disease outbreaks represent a significant threat to public health, as healthcare personnel and systems must explore methods for rapidly informing the public and ensuring their compliance. With 368 million users and 3.06 billion users worldwide, respectively [1], X and Facebook, as dominant social media platforms, have transformed risk communication through real-time dissemination, public engagement, and misinformation management. However, gaps persist in institutional adoption and integration of these tools into broader communication strategies employed in the service of promoting public health. This paper explores the dual impact of social media as both a potential aid and hindrance during disease outbreaks. Using COVID-19 as an illustrative example, it offers evidence-based strategies for enhancing platform use in the interest of public health. We propose a three-pronged approach emphasizing interdisciplinary collaboration, participatory engagement, and algorithmic reform to improve communication and build public trust, which in turn, translates to improved health outcomes, such as lower mortality rates.

Keywords — COVID-19, health communication, public health, social media

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INTRODUCTION

Social media's pervasive influence during the COVID-19 pandemic highlighted its potential—and pitfalls—as a central conduit for risk communication. Public health agencies turned to X and Facebook to issue alerts, dispel myths, and encourage preventive behaviors. However, transitioning from conventional, top-down communication models to dynamic, dialogic platforms proved challenging. This paper explores how social media can mitigate or exacerbate public health risks and proposes actionable strategies for future crisis scenarios. It offers an in-depth look at social media's evolving role in risk communication and presents a framework for integrating these platforms with public health efforts more effectively.

LITERATURE REVIEW

The transformative potential of social media for crisis communication has been well-documented within the literature. Before the advent of social media, health organizations primarily relied on word-of-mouth, poster campaigns, and then later, television and radio to spread their message [2]. Yet, given the prominent role social media has assumed within public life, scholars like Gesser-Edelsburg [3] have called for the health messages to be more "social," and advocated for interdisciplinary collaboration to implement user-centered design within their communication strategies.

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The efficacy of social media-based public health initiatives follows many of the same principles of health communication interventions prior to the emergence of digital media. The power of community representatives is well-known within health communication [4], with experts arguing that the best public health campaigns come from *within* communities. It follows, then, that in a world dominated by mediated communication, the “social” aspect of social media may be harnessed for the good of public health. The COVID-19 pandemic, for instance, saw public health officials enlist the assistance of influencers and social media public figures to spread awareness about transmission prevention and vaccination [5].

That said, there remains a vast body of literature acknowledging the detrimental influence these public figures can exert when their recommendations do not align with public policy or health protocols. This, coupled with the viral nature of misinformation [6], positions social media as rife with dilemmas pertaining to how to effectively harness the power of these communication-based tools. During COVID-19, delayed institutional responses to viral misinformation exacerbated public confusion and distrust [7], making social media platforms more of a public health obstacle than an aid.

Other considerations of the role social media played in mediating public health efforts stem from the formation of echo chambers, which may in turn, give rise to groupthink. The term “echo chamber” refers to a social phenomenon wherein individuals are exposed only to like-minded individuals and are rarely, if ever, presented with an opportunity to come into contact with views, beliefs, or opinions that contradict their own [8]. From the groups one can join and pages one can follow on platforms like Facebook, to the accounts one can subscribe to on X, social media is designed in such a way that it fosters echo chambers. The problem at the heart of echo chambers is how they promote what Janus famously coined as “groupthink,” a process wherein no member of a group is willing to dissent from a viewpoint because they (often mistakenly) believe that all group members are in agreement, and they do not want to be seen as the one bringing discord to group dynamics [9]. Public health officials and health communication experts should thus seek to identify methods for breaking through these closed-off circles. As this study may show, permeating these boundaries may involve implementing a smarter algorithm or using visually engaging components (e.g., emojis and graphics) that may feel less like an attack on personal beliefs.

Another key quality distinguishing contemporary channels of public health information dissemination of today with campaigns decades prior is that today’s initiatives cannot abide by a transmission model of communication typified by one-way communication pathways. Communication specialists must now take into account the fact that people may exert their agency on social media platforms, questioning, undermining, or outright rejecting health messages through their feedback. The good news is that this feedback can be used to gauge the public’s response in real time. By monitoring communication on social media sites, public health officials can address public concerns in a more timely manner. Furthermore, instead of guessing about the root cause of the public’s hesitancy towards vaccination and transmission prevention, analysts can turn to users’ actual communication for more informed decision-making. In this way, social media offers a trove of empirical data for designing, and even re-designing, highly informed campaigns.

METHODS

This study employs a qualitative case study methodology to analyze social media strategies used during the COVID-19 pandemic by organizations such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). While other epidemics have occurred during the timeframe when social media was being widely used (most notably, the H1N1 outbreak of 2010, and Bird Flu in 2025), COVID-19 was selected as the ideal case given the scale of its impact in terms of economic consequence and loss of life. It was also selected as the focus of these case studies because of its multi-year duration. This extended time period therefore offers an ample window for collecting data and making claims geared towards generalizability.

The data for this study were collected from these organizations’ X and Facebook pages between March 2020 and December 2021. This time period was selected as this was in the immediate wake of the first COVID-19 vaccine rollout, which occurred in December 2020 in the U.S. Content analysis focused on engagement patterns, message types (informative, persuasive, dialogic), and public sentiment. A dataset composed of 100 instances of online engagement with these accounts was amassed. In addition, secondary data from academic and policy research was reviewed to contextualize and triangulate findings.

RESULTS

Findings indicate that timely and transparent posts had the highest engagement and positive sentiment. Visual content—infographics, videos, and emojis—boosted retention and understanding. Posts that acknowledged uncertainty or responded to user queries received significantly more shares and likes, suggesting that dialogic and humanized communication fosters trust. Conversely, overly technical, or delayed messages often saw lower engagement and sparked misinformation in comment sections. Additionally, institutional posts rarely reflected localized realities, undermining their relevance and resonance. These results support calls for integrating user feedback loops, algorithmic reform to prioritize verified content, and interdisciplinary collaboration [3].

DISCUSSION AND IMPLICATIONS

To enhance social media-based health communication, this paper recommends three strategic interventions: (1) Embed social content into organizational culture through interdisciplinary teams, including public health experts, designers, and

community advocates. Doing this will better adhere to previously established mechanisms of health information dissemination that utilize community leaders to advance a bottom-up or lateral (rather than top-down) approach. Those designing the campaigns may wish to collaborate with influencers and social media personalities to help disseminate their message in a way that is likely to garner favorable reception. (2) Implement responsive public engagement via real-time feedback mechanisms and co-creation strategies like crowdsourcing. One of the greatest challenges accompanying social media is that almost as soon as the message is released, it is evolving, changing, taking on new meaning as users see fit. But analyzing how users engage with such content can serve as a rich source of information allowing for communication that is dialogic instead of didactic. (3) Advocate for algorithmic adjustments that elevate authoritative voices, demote unverified content, and introduce users to content that may not be curated specifically for them. While promoting the online presence of authoritative voices and granting less digital and ideological space to content not rooted in facts may work to combat misinformation, exposing users to content that does not necessarily align with their preexisting beliefs will help mitigate the effects of echo chambers. When taken together, these steps can help address systemic issues such as groupthink, overreliance on static official narratives, and weak community ties. Ultimately, treating the public not as passive recipients but as co-constructors of health knowledge is essential for future outbreak preparedness.

While the pandemic is largely viewed as “over” within both official and public discourses, this study nonetheless holds important implications for future health crises. In other words, although the COVID-19 pandemic may be a thing of the past, as the H1N1 epidemic of 2010 and the Ebola epidemic of 2013 have taught, unfortunately, the next public health crises may be imminent. In fact, at the time of writing, there is a measles outbreak in Texas that is leaving public health officials deeply concerned [10]. Leveraging social media in the ways that have been detailed here may help in curbing the impact of this outbreak and prevent the world from ever seeing something like the COVID-19 pandemic ever again.

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REFERENCES

- [1] Dixon, S.J. (2025). *Most popular social networks worldwide as of February 2025, by number of monthly active users*. Statista. <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>
- [2] Merchant, R. M., South, E. C., & Lurie, N. (2021). Public health messaging in an era of social media. *JAMA*, 325(3), 223-224. doi:10.1001/jama.2020.24514
- [3] Gesser-Edelsburg, A. (2021). How to make health and risk communication on social media more “social” during COVID-19. *Risk Management and Healthcare Policy*, 14, 3523-3540, <https://doi.org/10.2147/RMHP.S317517>
- [4] Levin, J. (2013). Engaging the faith community for public health advocacy: An agenda for the Surgeon General. *Journal of Religion and Health*, 52, 368-385. <https://doi.org/10.1007/s10943-013-9699-9>
- [5] Pöyry, E., Reinikainen, H., & Luoma-Aho, V. (2022). The role of social media influencers in public health communication: Case COVID-19 pandemic. *International Journal of Strategic Communication*, 16(3), 469-484. <https://doi.org/10.1080/1553118X.2022.2042694>
- [6] Wang, Y., McKee, M., Torbica, A., & Stuckler, D. (2019). Systematic literature review on the spread of health-related misinformation on social media. *Social Science & Medicine*, 240, 112552. <https://doi.org/10.1016/j.socscimed.2019.112552>
- [7] Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151. doi:10.1126/science.aap9559.
- [8] Cinelli, M., De Francisci Morales, G., Galeazzi, A., Quattrociocchi, W., & Starnini, M. (2021). The echo chamber effect on social media. *Proceedings of the National Academy of Sciences*, 118(9), e2023301118.
- [9] Janis, I. L. (1972). *Victims of groupthink: A psychological study of foreign-policy decisions and fiascoes*. Houghton Mifflin.
- [10] Centers for Disease Control. (2025). *Measles cases and outbreaks*. <https://www.cdc.gov/measles/data-research/index.html>