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Chapter 4

Rethinking the Infodemic: Social Media and Offline Action in the COVID-19 Pandemic



Leonardo W. Heyerdahl, Benedetta Lana, and Tamara Giles-Vernick

Abstract In parallel with the COVID-19 pandemic, an infodemic—an information epidemic—challenges human populations across the planet. Often framed as an enemy to be conquered, infodemics endanger public health because inaccurate or erroneous information spreads quickly on a large scale, triggers potentially harmful behaviours, and generates stress and anxiety. Much infodemics research privileges the investigation of online information creation and circulation, as well as measures to counter erroneous information. Less examined, however, are the offline effects of an infodemic. This chapter surveys how infodemic analysts have evaluated interactions between online information and offline practice. It examines studies focusing on the harmful content of the online informational ecosystem and containment efforts, and then explores social sciences contributions, which broadly identify factors contributing to public interpretation and offline practices. We conclude with a concrete example of an anthropological study exploring the interplay of online information and offline practice during the COVID-19 pandemic.

Keywords Infodemic · COVID-19 · Social media · Red Cross

1 Introduction

In parallel with the COVID-19 pandemic, an *infodemic*—an information epidemic—challenges human populations across the planet. Characterized as “excessive” and rapidly disseminating information that unintentionally or intentionally misleads the public about diverse aspects of the pandemic (Ratzan et al. 2020; Sharma et al. 2020), the infodemic is often framed as an enemy to be conquered. It endangers public health because inaccurate or erroneous information spreads quickly on a large scale, triggers potentially harmful behaviours, and generates profound stress and anxiety. From 2020, this infodemic appears to have catalyzed distrust and denial of COVID-19, uses of dangerous or ineffective remedies, and the destruction of telecommunications

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towers based on claims linking 5G networks with viral transmission (Biasio et al. 2020; Dubey et al. 2020; Gallotti et al. 2020; Naeem et al. 2020). Little wonder, then, that WHO Director-General Tedros Adhanom Ghebreyesus said of the COVID-19 pandemic: “We’re not just fighting an epidemic; we’re fighting an infodemic. Fake news spreads faster and more easily than this virus and is just as dangerous” (Zarocostas 2020).

Infodemics are complex phenomena, emerging in part from online information that is disseminated through diverse media available to publics, and from the interconnectedness and deregulation of the world wide web. Social media platforms and their public data offer useful and illuminating opportunities for studying informational dynamics on a large scale (Ceron et al. 2014; Greco and Polli 2019; Pelagalli et al. 2017). This opportunity, then, has led many infodemics researchers to privilege investigating online information creation, circulation, and change. Less examined, however, are the offline effects of an infodemic. Specifically, in focusing on online informational dynamics, infodemics specialists have attended far less to how lay publics interpret excessive, rapidly circulating information, how they make decisions about that information, and how their decisions translate into harmful behaviours. Indeed, as anthropologist Meg Stalcup has observed about the Zika infodemic in Brazil, it is frequently assumed that “what happens on social media ramifies in actions and feelings” (Stalcup 2020 p.10), without careful attention to the processes by which this takes place.

In this chapter, we survey how infodemic analysts have evaluated interactions between online information and offline practice. We begin by examining investigations that focus on the harmful content of the online informational ecosystem and containment efforts. We then examine the social sciences contributions, which broadly identify factors contributing to public interpretations and their offline practices. We conclude with a concrete example of an anthropological study exploring the interplay of online information and offline practice during the COVID-19 pandemic.

2 Rumours, Fake News, Conspiracy Theories, and Other Online Content

Infodemiology, “the science of distribution and determinants of information in an electronic medium, specifically the Internet, or in a population, with the ultimate aim to inform public health and public policy”, principally analyzes and ultimately seeks to manage online content. Emerging in the early 2000s as a multidisciplinary field, infodemiology developed rapidly over the following two decades, evaluating rapidly circulating information so as to facilitate effective public health management of online information (Eysenbach 2002, 2009). Infodemiology studies, for instance, have tracked rumours and fake news during the first SARS outbreak and the Ebola and Zika epidemics (Anwar et al. 2020; Safarnejad et al. 2020; Stalcup 2020).

A second branch of investigation, infoveillance, monitors health-related information that is promulgated by mass and social media, and it highlights distinctions between misinformation (misleading information, but not deliberately designed to manipulate) and disinformation (information deliberately developed or spread to manipulate users) Confronted with expanding “fake news”, public health specialists have employed infoveillance investigations to understand better the place of readers and users in spreading information (Bunker 2020; Gallotti et al. 2020; Pulido et al. 2020); to trace the activities of social media companies, TV channels, newspapers and public authorities in regulating the information arena (Donovan 2020; Mackey et al. 2020; Naeem et al. 2020); and to evaluate the impact and diffusion of specific information (Islam et al. 2020; Rovetta and Bhagavathula 2020).

In parallel with this expansion of infoveillance to monitor and regulate media platform content, risk communication studies have developed guidelines and communications techniques for actors to convey official messages. Their techniques range from limiting the negative effects of pre-prints, preliminary observations, and other unreviewed information (Casigliani et al. 2020), to calling for more responsible, scientifically-grounded, journalism (Anwar et al. 2020), to designing appealing social media posts that relay information and attract the readers’ attentions (King and Lazard 2020).

These infodemic and infoveillance studies all address the supply of information, in that they focus first on information quality (evidence-based, derived from reliable sources) to achieve effective public health management and, second, on containing misinformation or disinformation. At times, supply-oriented management can involve the deletion of reports, claims, or advice designated as misinformation or disinformation. In the past year, two infodemic management frameworks, one by the World Health Organization and a second from infodemiology field founder Gunther Eysenbach, have integrated both dimensions of information quality and mis/disinformation containment (Eysenbach 2020; Tangcharoensathien et al. 2020). The underlying assumption of these reports is that online users, provided with appropriate content, would be well-informed and thus would comply with correct guidelines and measures relating to COVID-19.

Moreover, these frameworks are anchored by a further assumption about official, authoritative messages to be communicated to lay publics: that alternative messages challenge this authority. Infodemics thus constitute a security issue and must be controlled. Yet at the heart of this assumption is a fundamental problem. In a pandemic caused by a new and rapidly changing pathogen, where scientific and public health knowledge are rapidly changing, what is “true” or “false”? Is it possible to delineate clearly what types of knowledge should be monitored, controlled or censored? (Marin 2020; Southwell et al. 2019).

In contrast to these supply-oriented approaches that would channel accurate information to users, demand-oriented approaches seek to educate users in health literacy so that they can distinguish between “good” and “bad” information. Over the past decade, health literacy studies have sought to cultivate in diverse populations the capacity to search, select, and appraise health-related information and thus to enhance certain health behaviours (Britt et al. 2017; Lee et al. 2020). COVID-19 health literacy

studies, for instance, have assessed readers' and users' skills in performing effective searches, understanding information, and adopting health behaviours conducive to good health; they have also recommended strategies to educate publics to select critically and to interpret health advice and information (in the COVID-19 context see, e.g.: Biasio et al. 2020; Okan et al. 2020; Rosário et al. 2020; Sentell et al. 2020). Although the health literacy approach has had its sceptics (Brown et al. 2012; Neter and Brainin 2019), this approach has catalyzed a host of "demand-side" strategies to educate lay publics. Emerging from decades-old social psychological "inoculation theory" (Compton 2013; McGuire 1964), "debunking" demonstrates that specific information is false; "social inoculation", also referred to as "pre-bunking", anticipates misinformation and disinformation by exposing users to weak, deconstructed forms of misinformation, to arm users with the critical skills to identify appropriate information and detect manipulation attempts or gaps in logic. (Compton et al. 2016; Cook et al. 2017; Lewandowsky and Van Der Linden 2021).

These infodemics approaches make important contributions to analyses of information flows and to the design of frameworks for public health management during public health emergencies. But they assume that the quality of information and public awareness of the processes that produce this information determine human behaviours. Insights from other social sciences disciplines, including psychology, anthropology, and history, suggest that complex, interacting factors shape what people believe and do in practice.

3 How Does an Information Ecosystem Affect Human Practice?

Efforts to characterize and evaluate the influence that an information ecosystem has on how certain populations feel, think, and act, remain relatively less studied than information ecosystems themselves. Nonetheless, behavioural investigations have figured prominently here, prior to and during the COVID-19 pandemic.

Drawing from psychology, behavioral studies assess the information ecosystem's effects on human psychological states, to illuminate emotional responses to infodemics and to link these responses to specific types of media used (Centola 2010; Doornwaard et al. 2015; Marino et al. 2018; Martínez-Ferrer et al. 2018; Moreno and Whitehill 2014; Saran et al. 2018; Tran et al. 2017). More recently in the COVID-19 pandemic, Luo et al. (2020) and Bala et al. (2021) have evaluated the effects of social media exposure on preventive and health behaviours through cross-sectional surveys, concluding that social media platforms offer important health guidance for lay publics, but that information overload can lead to stress and "cyberchondria" (distress caused by excessive consultation of online sites). Another investigation analyzed rumours, stigma, and conspiracy theories related to COVID-19 and accounts of the real-life effects of online news reporting, finding a correlation between infodemics and violence (Islam et al. 2020). Using social listening of Twitter and call logs

of a US regional poison control centre, Chary and colleagues linked online advice of using bleach as COVID-19 prophylaxis and emergency phone calls for bleach poisoning (Chary et al. 2020).

Although such studies usefully identify psychological effects of online sources and posit compelling correlations with offline behaviour, they leave certain questions unanswered. We have no insight into how actors obtained and interpreted the specific online narratives, nor how they acted on that information. Nor do they address the socio-political logics that may influence a user's choice of information sources or the reasons that the user might seize upon certain misinformation. In addition, because these studies categorize information as true or false, they do not grasp the volatility of medical claims to truth in a pandemic. Knowledge can change rapidly during a pandemic, and as Eysenbach has argued, we are often working with best available evidence rather than stable medical facts (Eysenbach 2020).

Other social scientists have sought to excavate these concerns. Anthropologists and historians take seriously "rumours", considering them to be "more than simply stories which are not true" (Kaler 2009). The term "rumour" itself can be problematic, potentially mobilized by authorities to dismiss stories that they found destabilizing (Geissler and Pool 2006). Yet the contributions of these scholars has been important: they have been less preoccupied by the veracity of claims than in using the claims to better understand specific social groups' perceptions, values, and worldviews (Ceyssens 1975; Fairhead et al. 2006; Geissler and Pool 2006; Graboyes 2015; Kaler 2004, 2009; Scheper-Hughes 2001; Tappan 2014; White 2000). From rumours of blood theft to those of sterility, these stories offer insight into distrust and critique of biomedical research, as well as broader reflections on the plural inequalities inherited from the colonial period. More broadly, field-based qualitative social sciences like anthropology and history situate a social group's specific understandings and practices within their broader socio-cultural, political, and economic contexts (Geissler and Pool 2005).

Although none of the foregoing studies addresses how online claims shape human offline practices, this anthropological insistence of evaluating all online claims, regardless of their veracity, to illuminate how people gather, interpret, and act on such claims have made their way into infodemics research, including that related to the COVID-19 pandemic (Durand and Cunha 2020; Kozinets 2015; Krieg et al. 2017; Larson 2020; Stalcup 2020). In our research in France, too, we are pursuing such an approach. In the Paris region, we investigated whether the COVID-19 infodemic has had any effect on the risk perceptions, engagement in field activities, and protective practices of French Red Cross (FRC) volunteers in the Paris region (Heyerdahl et al. 2021). Specifically, we have tracked Twitter discussions and selected traditional media for seven months, evaluating all claims and debates about non-pharmaceutical protection measures. We also conducted interviews with FRC workers and volunteers. Thus far, although social and traditional media debates about viral risks and non-pharmaceutical interventions appear to aggravate anxieties among FRC volunteers and workers, their decisions to continue Red Cross field activities and daily protection practices like wearing masks appear to be affected by other factors that

were not related to the infodemic. Familial and social obligations, gender expectations, financial pressures, FRC rules and communications, state regulations, and relations with co-workers all shaped their decisions.

The benefits of this type of approach provides insight into why individuals and social groups do not trust authoritative information sources. Building trust by cultivating dialogue, Heidi Larson (2020) has effectively contended, may do more to facilitate trust than fighting misinformation.

4 Conclusion

The COVID-19 infodemic has catalyzed considerable scholarly and public health attention, and the expanding literatures of infodemiology and infoveillance have extended our collective understanding of the dynamics and circulation of claims, stories, and advice—some true and some not. How this information epidemic shapes human action offline, however, remains less well understood. Drawing insights from anthropology and history to examine how and why social groups seek out and interpret certain claims, stories, and advice, and how they act on them, offers a fruitful avenue for more rigorous and robust tracing of online influences on offline behaviors.

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