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Social media can have an impact on how we manage and investigate the COVID-19 pandemic

Carlos Cuello-Garciaa,b,*, Giordano Pérez-Gaxiolac, Ludo van Amelsvoortd

aWorld Health Organization Collaborating Center for Infectious Diseases, Research Methods and Recommendations, Michael G. DeGroote Cochrane Canada & McMaster GRADE Centres, Hamilton, Ontario, Canada
bDepartment of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada
cDepartment of Evidence Based Medicine, Hospital Pediátrico de Sinaloa, Cochrane Mexico, Culiacan, Sinaloa, Mexico
dDepartment of Epidemiology, CAPRHI Care and Public Health Research Institute, Maastricht University, Maastricht, the Netherlands

Accepted 24 June 2020; Published online 27 June 2020

1. Background

With more than 3.8 billion people using social media around the world [1], it is not surprising how the significant amount of information received through these platforms affects how we perceive and cope with the current COVID-19 pandemic [2]. Even before the outbreak, patients, clinicians, and scientists were frequently obtaining health and science-related information from Twitter, Facebook, or other social media channels [3].

With the advent of these technologies, health-care professionals are nowadays able to communicate among each other and with different stakeholders across the wide-ranging fields of medicine [4]. Similarly, scientists from all fields are able to rapidly interconnect and disseminate their research findings, thus increasing their scientific outreach and supporting easy access to information beyond the hindrances of the past.

Social media is now more than ever part of a big extent for example, how we use it to cope with social distancing and although it can give opportunities for better communication, it can certainly have its shortcomings and dangers.

In this commentary, we describe and explore the use of social media and science during the pandemic: first, we briefly explore the role social media has on the current wave of information and misinformation (also called an “infodemic” [5] or “infoxication”) that affects billions and offer guidance toward their optimal use. Second, we address social media as a health technology intervention or tool that merits more research to improve our understanding of the COVID-19 pandemic.

2. Misinformation: problems and opportunities

The term misinformation, the same as the term ‘fake news’, is not new [6], yet today especially takes big significance due to its “virulent” effect and all the entailed consequences. With just one tweet, powerful “influencers”—from head of states to celebrities—can affect people’s lives by disseminating scientific news without veto or fact-checking to an audience of millions. From endorsing the use of hydroxychloroquine to recommending parenteral light or disinfectants as potential treatments for the virus [7,8], they brandish a powerful weapon and must be accountable and have a responsibility for introspection before using it.

Initial evidence suggests that the use of social media as a source of information about COVID-19 has been correlated with stronger beliefs in conspiracy theories and with less-protective behaviors during the pandemic [9]. Certainly, more than half of people on social media have encountered some to a lot of information about the COVID-19 pandemic which, for them, seemed completely made up [2]. Just in YouTube, the second most commonly used social media platform (second to Facebook), more than a quarter of the most viewed videos related to COVID-19 contained misleading information, representing more than 62 million views [10].

The World Health Organization is acting by enhancing its communication efforts to properly address rapidly spreading rumors and questions from the public obtained in social media channels, also using search optimization strategies within the social media platforms to guide anyone asking questions about the pandemic by redirecting them to reliable sources [5]. Similarly, social media platforms themselves are including alerts or ‘warnings’ with links to reliable sources and fact checkers when searching for information on COVID-19 and other health-related issues [11].
Although these represent good first steps, more is needed on the research efforts to understand the origins and spread of misinformation. Social media is an inevitable part of today’s information channels. The risk of negative health effects (including death) from misguided health news in this pandemic is real [12].

Health professionals and scientists are unavoidably active social participants and have a responsibility to enter the arena. Here, we expand on some advice/proposals for scientists obtained from different experts to counteract misinformation [13–15]:

- Scientists should engage in social media. Sharing research knowledge with peers and learners is not only natural but also desirable; furthermore, new evidence provides more certainty that social media can increase visibility and citations over time [16]. Sharing science is perfectly achievable, and several strategies that take advantage of social network technology can help (e.g., Tweetorials, Reddit’s ‘explain-it-like-I’m-5’, ‘ask-me-anything’ sessions, videos, etc.) [17,18].
- Assist and advocate for expert fact-checking. The scientist is the single greatest ‘weapon’ to counteract ‘fake news.’ Whether by serving as a professional fact-checker for a news network, or by crowdsourcing (the use of multiple minds to reach a common goal of better knowledge) on any of these platforms, their shared knowledge will always be the best source to scrutinize the news [19].
- Interact in social media channels with nonexperts (public) to raise the alarm when detecting misinformation by sharing the evidence or, if such is the case, by pointing out the scarcity of evidence and how we should make sensible recommendations under these circumstances—by weighing the desirable and undesirable consequences [20]. This includes teaching patients about science and how to deal with distressing interactions; for example, handling ‘online trolls’ by ignoring them, responding with facts, blocking them, and so forth. Guidelines and policies on this issue are available [21].
- Use, whenever possible, traditional media (TV or radio) to provide evidence-based information and reach a broader audience. This will eventually trickle down to social media users.

Advantages and disadvantages of social media use in clinical epidemiology and for other relevant stakeholders are summarized in Table 1. In addition, for each of the three groups, key advice is provided on how to shift the effects of social media use in a positive direction.

3. Research methods and social media

Social media is another technology that behaves in many situations as a health intervention or exposure, and as such, it should be well planned, designed, and evaluated in the pool of studies addressing the pandemic. There are several areas of research in social media that justify more exploration.

3.1. Research on misinformation

Current research on misinformation in social media focuses on better detecting its sources and how to efficiently counteract them to lessen any possible harm [15]. Certain gaps in research, however, should be explored, including the detection of susceptible populations and the sociodemographic and ideological asymmetries in the intention to spread misinformation [6]. This will certainly benefit from an interdisciplinary approach. For example, social scientists could team up with artificial intelligence (AI) scientists and clinicians to understand ideologies and susceptible populations to design and study better interventions.

3.2. Big data and data mining

Another opportunity of research comes with the association of social media with big data, data mining, and surveillance [22] that it can be used to better detect patterns of future outbreaks or consecutive (second) waves of a pandemic. AI can be added to this promising partnership as a powerful tool that can help develop, for instance, data-driven algorithms (using text mining or topic modeling) and insight-led methods to acquire patient and consumer’s experiences of health and illness, for example, to discover and manage “filter bubbles” or “community clusters” that reinforce confirmation bias [23,24]. AI can assist with this and other future developments as a robust computational research tool. It is encouraging to see that nowadays the most common use of AI for patients and health-care consumers are secondary analyses of social media data [25]. This field is still in its early stages and it is not free of error, but it is an area worth exploring.

3.3. Research planning and conduction

Other ways social media is being used by researchers is as an application to help them recruit patients or populations that are hard to reach (e.g., rare diseases) or are very specific to their research needs (e.g., military veterans, teenagers, etc.). There are promising findings about obtaining representative group demographics for their research purposes in areas such as cancer and mental health; most studies, however, focus on study recruitment rather than retention [26,27]. Finally, there is currently an explosion of research papers related to COVID-19, and worries about quantity over quality, research waste, and duplication are justified [28,29]. Social media and other technologies could help in this area by properly monitoring, filtering, and sharing research.

3.4. Knowledge translation

Disseminating health policies and valid information for the purpose of reducing the knowledge translation gap is
another advantage that scientists and clinicians can make use of and deserves further examination [30]. Social media platforms can have a role in improving several steps in the knowledge transfer cycle; for example, researchers can assess barriers to knowledge use, tailor and implement interventions, monitor knowledge use, or by researching negative and positive behaviors once a health intervention is being disseminated so they obtain feedback and continue the cycle.

4. Conclusions

The importance of increasing and improving research on a technology that is having a massive impact in the current pandemic cannot be overstated. As of the writing of this commentary, a search on clinicaltrials.gov yields only four studies related to COVID-19 and social media (out of 1,546 related to COVID-19). All are surveys or observational studies aiming to explore behaviors and monitor the impact and spread of misinformation.

Clinicians and researchers are using social media to share recommendations and explain the decisions being made in times of the COVID-19 pandemic, no matter if there is enough, scarce, or even no evidence at all [20]. They are the frontline not only in hospitals and laboratories but also in the cyberworld. Fact-checking of online content is certainly rapidly evolving, and its impact can be perceived when it is even creating major political disputes [31].

Social media is in no way a cure for misinformation, but it is widely used and is here to stay. Just sharing facts will not change behaviors, and more needs to be done. The research methodology to address social media’s role in health policy and individual health decisions has yet to be defined, but it is worthy of examination by using a multidisciplinary approach to obtain better research methods and dissemination.

CRediT authorship contribution statement

Carlos Cuello-Garcia: Conceptualization, Writing - original draft. Giordano Pérez-Gaxiola: Writing - review & editing. Ludo van Amelsvoort: Writing - review & editing.

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