

VIEWPOINT

Addressing Health-Related Misinformation on Social Media

Wen-Ying Sylvia Chou, PhD, MPH

Health Communication and Informatics Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, Maryland.

April Oh, PhD

Health Communication and Informatics Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, Maryland.

William M. P. Klein, PhD

Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, Maryland.

Corresponding

Author: Wen-Ying Sylvia Chou, PhD, MPH, Division of Cancer Control and Population Sciences, National Cancer Institute, 9609 Medical Center Dr, 3E614, Rockville, MD 20892 (chouws@mail.nih.gov).

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The ubiquitous social media landscape has created an information ecosystem populated by a cacophony of opinion, true and false information, and an unprecedented quantity of data on many topics. Policy makers and the social media industry grapple with the challenge of curbing fake news, disinformation, and hate speech; and the field of medicine is similarly confronted with the spread of false, inaccurate, or incomplete health information.¹

From the discourse on the latest tobacco products, alcohol, and alternative therapies to skepticism about medical guidelines, misinformation on social media can have adverse effects on public health. For example, the social media rumors circulating during the Ebola outbreak in 2014 created hostility toward health workers, posing challenges to efforts to control the epidemic.² Another example is the increasingly prevalent antivaccine social media posts that seemingly legitimize debate about vaccine safety and could be contributing to reductions in vaccination rates and increases in vaccine-preventable disease.³

The spread of health-related misinformation is exacerbated by information silos and echo chamber effects. Social media feeds are personally curated and tailored to individual beliefs, partisan bias, and identity. Consequently, information silos are created in which the likelihood for exchange of differing viewpoints

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decreases, while the risk for amplifying misinformation within a closed network increases. However, research suggests there may be ways to lessen the echo chamber effects by deliberately enabling social learning and engagement of different perspectives.⁴

Regarding the diffusion of information, mounting evidence suggests that falsehoods spread more easily than truths online.⁵ Meanwhile, these trends are occurring at a time of low trust in institutions, with a 2016 Gallup report indicating that only 36% of individuals in the United States have adequate confidence in the medical system.⁶ Although the scientific community generally still enjoys relatively high levels of public trust, 1 in 5 individuals expresses skepticism about scientists.⁷ These realities make it a priority for medicine to identify and mitigate (when appropriate) health misinformation on

social media. This Viewpoint outlines a framework that includes priorities in research, public health, and clinical practice.

Gaps in Understanding the Effect of Health Misinformation

Health misinformation can be defined as a health-related claim of fact that is currently false due to a lack of scientific evidence. This misinformation may be abundant on social media and some evidence has linked the sharing of misinformation with health-related knowledge, attitudes, and beliefs. However, more research and data are needed to evaluate potential links between exposure to misinformation and health behaviors and outcomes.

In addition, there is little information about how to help clinicians respond to patients' false beliefs or misperceptions. Public health communicators similarly struggle to know whether and how to intervene when a health topic becomes misdirected by discourse characterized by falsehoods that are inconsistent with evidence-based medicine.

Developing a Framework for Research and Practice

Medical, public health, social science, and computer science experts must begin working together via interdisciplinary research to address health misinformation on social media, with a focus on the following themes.

Defining the Prevalence and Trends of Health Misinformation

Millions of users contribute to social media platforms daily, generating a massive archive of data for health communication surveillance. It is important to assess the

extent of misinformation related to critical vulnerable topics (ie, those topics for which misinformation is most likely to generate negative health consequences). For instance, vaccination, new tobacco products, and so called miracle cures generate large volumes of misinformation.

Deployment of innovative methods on a broader scale is needed (including natural language processing-assisted data mining, social network analysis, and online experimentation) to track the spread of misinformation. Surveillance endeavors must be nimble and adaptable to capture dynamic data and social media posts containing photos, images, and videos.

Understanding How Health Misinformation Is Shared

Receptivity to health misinformation can vary greatly depending on the motivations of the source of the

message (eg, promoting a disinformation campaign, endorsing a conspiracy theory, selling a product) as well as the recipient's social network, sociocultural identity and values, emotions (particularly fear and anger), levels of trust, and concomitant social media use patterns.

Visible attempts at creating and legitimizing controversies (eg, Russian bots generating a vaccine debate) may foster skepticism and mistrust in certain communities.³ Understanding the context of misinformation exchange (such as the social network in which the message is embedded) and the intrapersonal and interpersonal dynamics involved in the processing of the message can help determine the extent of the problem and suggest appropriate remedies.

Evaluating the Reach and Influence of Misinformation on Health

A key challenge for health and medicine is determining the threshold at which an intervention is needed to ameliorate the negative health consequences of misinformation. Assessing the reach and unique health consequences of a message for specific populations (eg, communities most vulnerable to misinformation) is important to inform when and how to respond.

A range of measurement and methodological approaches such as physiological measurements, real-time behavioral data (eg, ecologic momentary assessment), linkage to medical records, marketing research, and mixed-methods approaches offer promising solutions that can help improve understanding of how individuals evaluate and internalize a message. For example, observational studies (eg, eye tracking, functional magnetic resonance imaging, or cognitive interviews) can help assess how quickly people accept a claim before internalizing it.

Developing and Testing Interventions

It is necessary to determine when and how to intervene. How can clinicians and experts in communication create and sustain public trust in evidence-based health information? How can partnerships among clinicians, trusted social media influencers, and industry leaders be created? Can the public be taught health literacy to help them discern facts from opinions and falsehoods? Importantly, broader investments in health and science literacy and the cultivation of trust in the medical community may create more systemic improvements than attempts to debunk or correct individual pieces of misinformation on social media.

In addition, tangible support for clinicians is necessary as they continue to interact with patients who have been exposed to or have questions about health misinformation from social media. Understanding the underlying causes of patients' confusion, concern, and mistrust could help clinicians foster patient-centered communication, rather than dismissing patients' concerns or superficially categorizing them as skeptics.

Research is needed that informs the development of misinformation-related policies for health care organizations. These organizations should be prepared to use their social media presence to disseminate evidence-based information, counter misinformation, and build trust with the communities they serve.

It is also vital for social media platforms to develop and implement mechanisms for vetting and validating the credibility of information on their platforms. Misinformation has the potential to undermine progress in medicine and health care, and it requires a proactive approach for understanding its prevalence and potential influence rather than labeling misinformation as a fad or wishing it away.

ARTICLE INFORMATION

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