

Social Media and Healthcare Technology

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Abstract

The growth of social media is changing the way individuals approach healthcare and has offered new opportunities to understand health-related interactions at all levels, from the micro to the macro. The Social Media and Healthcare Technology mini-track presents research papers addressing a broad range of social media use within healthcare and healthcare research; including macro analytics, the potential of social media for intervention delivery, and the use of data mining and analytics to understand rare diseases and epidemic outbreaks.

1. Introduction

Advances in technology, computational science and analytics are changing the healthcare landscape. New models of artificial intelligence, data mining and classification are being tested in multiple applications in healthcare including integrating information systems and patient records, geocoding health-related data, improved surveillance and predictive modeling and supporting medical decision making and policy. Social media, in particular, offers both a method of reaching out to diverse populations to improve health and offer information and interventions to improve health, while also providing a rich source of data for potential surveillance and, with the application of data analytics, understanding how social media influences health behavior across and within populations. Social media use is widespread across the globe and can be used as an effective delivery medium to promote patient engagement.

The reach of social media is staggering. For example, Facebook had over 2.4 billion users as of January 2019 – about 1/3 of the total world population [1], and over half a billion tweets are sent daily by over 330 million active Twitter users [2].

Social media can amplify positive word of mouth, making it an important channel for health care organizations seeking to attract and retain patients. For example, a recent study showed that 41% of

people said social media would affect their choice of a doctor, hospital, or medical facility [3]. However, as much as social media can facilitate the spread of health-related knowledge and positive health behaviors, it can also be a catalyst for misinformation, prompting individuals to avoid taking positive action to protect their health such as has been seen in the anti-vax movement [4]. Similarly, concerns have been raised regarding a film on Netflix, Amazon, Apple, and Vimeo platforms reporting that certain dental treatments are linked to serious systemic pathologies, against any scientific evidence. These examples highlight how social networking initiated by a small number of users, or opinions made widely available via media platforms, can lead to large scale consequences in healthcare decision making [5].

The papers presented in the 2020 HICSS Social Media and Health Care mini-track present an analysis of the use of social media by specific populations and an examination of the use of data analytics to develop insights into rare disease populations and communicable disease outbreaks.

The paper by Boit and El-Gayar used social media text analytics to examine the public discourse and emergent themes surrounding Malaria conversations on Twitter. Malaria is a life-threatening parasitic disease, common in subtropical and tropical climates caused by mosquitoes. Each year, several hundred thousand of people die from Malaria infections. The analytic approach taken by these authors and results of their research shed light into the opinions of public health officials and the nature of conversations surrounding malaria outbreaks. Their methods using a multi-dimensional analysis of social media data offers a new direction for future research that can inform public policy decisions surrounding epidemics and other health emergencies.

A second paper in this session presents the work of Mombini and colleagues concerning rare medical disorders. Rare diseases affect millions across the globe but are often poorly understood by local clinicians because of their relative rarity. Thus, individuals with rare diseases and medical conditions

often use social media platforms to seek out others with similar problems. Mombini et al. use machine learning analytics to test whether they could use unstructured data from social media platforms to help individuals with rare medical conditions find relevant information more efficiently.

The paper by van den Berg et al found examined social media use and its potential for preventing HIV and other sexually transmitted infections. Social media use was at near saturation levels with nearly all study participants using some form of social media and over three quarters spending at least 1 hour daily engaged with social media. Their results suggest that social media may be an ideal way to deliver targeted interventions to the college student population because they are very comfortable with technology-mediated communications.

The work of Ranney and colleagues analyzes patterns of communication and conflict among adolescent users of social media. Using qualitative methods, they coded over 1900 communications and were able to distinguish distinct patterns in social messaging surrounding interpersonal conflict and responses to conflict. Results of their study provide insights that may better inform automated analysis of problematic communication such as cyberbullying and online harassment, and may help inform the development of automated just-in-time adaptive interventions to prevent hostile interactions from escalating

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