

## Editorial

# Social media, bots and research performance

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Both in the promotion and in the analysis of public health, the social context is a key issue to consider. Over the last years, social media have revolutionized our social contexts by adding new forms of networking. The network characteristic is a powerful factor contributing to the rapid expansion of social media: beneficial or malignant impacts of networks tend to increase dramatically with the number of network users. For commercial network markets, this dynamic power is known to reinforce the strong players in the market and thus, to lead to highly concentrated markets, e.g. in mobile communication. In the political arena, politicians, parties and voters are carefully observing social media network activities, suspecting these might be used to gain critical mass in political opinion and in turn, political power.

In the promotion of public health, social media networks may have a role in selecting, shaping, communicating, conducting and evaluating strategies. For example, a first scoping review analyzed the use and effects of social media in weight management strategies in obese adults. It concluded that trials are needed to identify the effective way of action when using specific social media platforms.<sup>1</sup> The relevance of social media in public health strategies will obviously depend upon the population groups addressed and their involvement in social media—just think of different age groups. Other aspects include possible dynamics in health-related social media research: for example, growing use of big data analytics could change our understanding of how preventive strategies work. In addition, regulation is important, as future use of social media in public health research and promotion will require thorough consideration of the EU General Data Protection Regulation.

An issue that may thrill researchers is the interaction between social media and research performance. Performance measurement is a safe haven if you like controversy. Today's champion in the life sciences is the impact factor of the Science or the Social Science Citation Index. These indices are widely used for comparison, while use and comparability may be hotly debated. Other types of indicators, Altmetrics (<https://www.altmetric.com>) claim to capture the attention surrounding research outputs, by counting mention from various online resources including social media platforms such as Twitter and Facebook.

With the link to social media, interaction with bots may come into play. A bot is an automated programme with a large variety of purposes and ways of action. Applications include categories such as information collection, execution of actions that may include generation of clicks, generation of content itself such as comments and emulation of human communication—some bots even write poems and others fight each other for years editing articles on Wikipedia! For all types of purposes mentioned, both benevolent and malignant types of bots have been identified.<sup>2</sup>

So far, there is a lack of evidence on whether and how bots could manipulate the performance of published research. One example showed that automated Twitter accounts distributed links to scientific articles and even commented on the papers.<sup>3</sup> Another randomized empirical study compared exposure of public health

research papers to social media. This exposure did not increase the citation performance of the papers while it indicated wider dissemination.<sup>4</sup> To what extent successful use of social media in promoting public health, and research perception in social media are linked remains to be investigated.

A comprehensive but non-systematic review further explains why social media activity and traditional measures of research performance may not be so tightly connected. Results show that current scholarly use of social media and of Altmetrics is a very heterogeneous undertaking and includes among others, social networking, social bookmarking, social data sharing, video, blogging, Wikis and social recommending for identifying the most relevant scientific content.<sup>5</sup> By adding broader research perception, social media rather extend than threaten the traditional measurement of research performance. Concerning bots, it not fully clear which share they currently have in generating social media attention regarding public health research, and their future prospects require attention, too.

The aim to improve the health of populations makes social media a potentially important tool for public health research. Keeping in mind the power of network markets, the impact of diverse online platforms needs to be monitored and analyzed, both with respect to health promotion and to measuring and communicating research performance. Today, societal relevance makes up an important dimension of research impact beyond citations. If research evaluators would consider social media an important component of societal relevance, this would boost their future role as an indicator of research impact. It would strengthen those who successfully can spread their research in social media. Such developments could make smart interaction with social media an even more important task in the dissemination of public health research, and it could further stress the relevance to understand empirically the validity and impact of social media output in our field.

*Conflicts of interest:* None declared.

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