

# Social media platforms: a primer for researchers

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## Abstract

Social media platforms play an increasingly important role in research, education, and clinical practice. As an inseparable part of open science, these platforms may increase the visibility of research outputs and facilitate scholarly networking. The editors who ethically moderate Twitter, Facebook, and other popular social media accounts for their journals may engage influential authors in the post-publication communication and expand societal implications of their publications. Several social media aggregators track and generate alternative metrics which can be used by researchers for visualizing trending articles in their fields. More and more publishers showcase their achievements by displaying such metrics along with traditional citations. The Scopus database also tracks both metrics to offer a comprehensive coverage of the indexed articles' impact.

Understanding the advantages and limitations of various social media channels is essential for actively contributing to the post-publication communication, particularly in research-intensive fields such as rheumatology.

**Key words:** social media, periodicals as topic, publication ethics, rheumatology.

## Introduction

Social media platforms are essential for dissemination of information and engagement of scholars in science communication. With upgrades of online tools and the emergence of various digital technologies over the past decade, it has become easier to generate online information and reach scholars worldwide. Various digitized items, including articles, books, images, and videos, have become common objects for knowledge dissemination and professional discussion on specially designed networking sites.

The social media term of the Medical Subject Headings (MeSH), which was introduced in 2012, characterized user-generated content, high degree of interaction, and ease of integration with other sites as the main features of social media platforms (<https://www.ncbi.nlm.nih.gov/mesh/68061108>). As an example, social media plugins are now available on most journal sites, PubMed, and PubMed Central platforms to aid readers

to disseminate article links and attract the attention of the global scholarly community.

Students, researchers, and journal editors are now offered a wide variety of public and closed networking sites for voicing their concerns, learning, and undertaking research. The global market of drugs and medical technologies has also embraced the emerging opportunities to expand their online presence and actively promote various products.

Given the diversity of cultural traditions and predominant languages of scholarly writing, the attitudes toward public engagement and institutional use of social media vary globally [1, 2]. Some countries prioritize their local platforms, selectively use globally popular channels, and block sites which may be used for spreading undesirable and politically incorrect information. As a prime example, WeChat is a popular platform for networking, disseminating information, and building up online presence in China [3]. Some platforms popular in

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Anglophone countries are not used in China for scholarly purposes.

The current COVID-19 pandemic has brought to the fore online channels which are actively employed for microblogging and monitoring pandemic statistics, vaccine development, and global research issues [4]. The publishing enterprise has also switched toward online platforms with a potential to increase the quality research output. A recent survey of rheumatologists and other specialists identified quality peer review, open access, and social media promotion as the key factors of impactful publishing [5].

### Editorial guidance on social media

Over the past decade, social media have emerged as essential tools for scholarly activities. Individual users and research groups are now populating their professional niche on various blogs and online channels to evaluate published articles, reveal research misconduct, criticize their colleagues, and initiate self-cleaning, or retraction. As such, and to direct the attention of a relevant audience to online postings and manage post-publication communication, social media should be moderated by professionals with digital skills and understanding of the importance of constructive contributions at pre- and post-publication stages.

Although recommendations of global editorial associations still lack direct statements on etiquette and appropriate use of social media, there are some points in the updated documents of the International Committee of Medical Journal Editors (ICMJE) and the Committee on Publication Ethics (COPE) that highlight the role of journal editors in unbiased post-publication commenting and offering their readers a possibility to express their ideas and post comments [6, 7].

In line with these points, moderated journal blogs and social media accounts are required to aid publishers in upgrading their editorial policies and increasing the quality of publications. Authors may also actively promote their articles on social media to gain more visibility and contribute to the attractiveness of their target journals for the global scholarly community [8].

While there is no global consensus on social media, publishers and professional societies set their own instructions [9]. Networking, training, and maintaining societal communication are now perceived as the main benefits of online platforms in rheumatology that should be nurtured and ethically moderated [10].

Experts predict the growing importance of social media for rheumatology journals and suggest engaging in post-publication promotion more editors with digital skills and proper understanding of ethical norms and cultural differences [11]. A recent survey of rheumatolo-

gy authors ( $n = 102$ ) revealed a positive attitude of over two-thirds of respondents toward promotion of their articles on ResearchGate, Twitter, and Facebook [12]. Nearly half of the surveyees proposed to entrust post-publication promotion to editors with skills in designing graphical abstracts and operating with hashtags. Such editors with impressive track records on social media are increasingly recognized as the key figures in the publishing enterprise [13].

Contributions of social media editors are crucial in the time of the COVID-19 pandemic when distinguishing fact from fiction is a matter of professional performance, ethical stance, and influence on safe healthcare [14, 15].

### Social media platforms for scholarly activities

There are numerous online sites which can be employed by researchers, educators, and journal editors for disseminating scientific information, promoting articles, and analyzing the so-called societal impact (Table I). Various sites attract users with diverse interests and aims to share specific graphical and textual materials [16].

In the pre-pandemic period, higher education students were mainly relying on Facebook and Twitter for improving their language skills, undertaking research, and building up academic profiles that, on average, took 10–60 minutes daily [17]. A pre-pandemic analysis of online platforms in medical education pointed to blogs, wikis, Twitter, and Facebook postings as the main tools for engaging learners in an online environment and microblogging and essay writing as expected outcomes of social media activities [18]. A survey of 233 young rheumatologists, which was organized by the Emerging EULAR Network (EMEUNET), distinguished Facebook as the dominant platform of communication and processing news notes, clinical, and research updates for 91% of respondents [19].

The COVID-19 pandemic has brought new challenges for medical education, and prioritized platforms for videoconferencing such as Zoom [20]. Videoconferencing has become particularly useful for rheumatology education [21].

The quality, volume, and language of shared materials vary widely across social media. The users with advanced English skills, particularly those in Anglophone countries, are at an advantage as they benefit greatly from online learning and active contribution to the communication on popular channels such as Twitter [22]. Researcher and author activities on several blogs and social networking sites maximize their visibility and the impact of scholarly articles [23].

**Table I.** Examples of social media platforms for scholarly activities

Platforms	Advantages	Limitations
Twitter <a href="https://twitter.com/">https://twitter.com/</a>	It is the largest microblogging platform where users generate tweets, retweet, and like postings. The use of hashtags and Twitter handles increases the engagement of the account holders. Photo- and video-sharing services make the platform attractive for education and live streaming of meetings. Editors may moderate their journal accounts for boosting the immediate impact of publications	Limited number of characters in a tweet (280), numerous Twitter bots with indiscriminate automatic posts, limited use in non-Anglophone countries
Facebook <a href="https://www.facebook.com/">https://www.facebook.com/</a>	Globally popular, actively used for live streaming meetings, and interconnecting with Zoom, YouTube, and other video-sharing sites	Mostly used for personal and friendly communications, low weight in terms of alternative metrics
Instagram <a href="https://www.instagram.com/">https://www.instagram.com/</a>	This platform is employed for sharing photos, medical images, and videos. Journals that predominantly publish images may benefit from their active presence on this site	No weight for altmetric aggregate score calculation, small number of journals with Instagram accounts
YouTube <a href="https://www.youtube.com/">https://www.youtube.com/</a>	This is an online video-sharing platform with a variety of services for educators, researchers, and editors and navigation to many other online channels. Online meetings can be live streamed and archived on this site	Reliability and quality of posted videos vary widely. Some videos are promotional, misleading, and damaging for patient health
LinkedIn <a href="https://www.linkedin.com/">https://www.linkedin.com/</a>	It can be used for professional networking, career development, and job advertisements. Journals may set their accounts on this site to expand their reach to potential staff members	No weight for altmetric aggregate score calculation
Mendeley <a href="https://www.mendeley.com/">https://www.mendeley.com/</a>	Researchers use Mendeley bookmarking and reference management tools for building up personal libraries. This site can aid in evaluating collaborators' profiles. An analysis of bookmarking activities reveals interested users/scholars	Not included in altmetric aggregate score calculation
ResearchGate <a href="https://www.researchgate.net/">https://www.researchgate.net/</a>	This site is used for open archiving, networking, evaluating collaborators' profiles, and discussing scientific issues	The quality of archived materials is not reviewed, and the displayed author-level metric ("RG Score") is unacceptable for scholarly evaluation

## Social media metrics

Societal attention surrounding scholarly publications is currently tracked and measured by several aggregators of alternative metrics, or altmetrics, which process information in news outlets, blogs, and various networking and scholarly evaluation sites such as F1000, Publons, and PubMed. The aggregated information and resultant scores change in real time, reflecting societal attention trends and complementing traditional citation metrics [24].

There are three widely known companies that aggregate social media attention and complement citation metrics with snapshot altmetrics reports: Altmetric.com (<https://www.altmetric.com/>), Plum Analytics (PlumX; <https://plumanalytics.com/>) and Our Research (formerly known as ImpactStory; <https://our-research.org/>). Altmetric.com and PlumX reports may vary due to the differing counting of the same data sources and prioritized

extraction of information from blogs, news outlets, and tweets by the former and Mendeley by the latter [25].

Some publishers currently showcase the influence of their articles by displaying the Altmetric Attention Scores (AAS) and the donut rings generated by Altmetric.com. The AAS are calculated using an automated algorithm. This algorithm weighs high references in news outlets, blogs, policy documents, patents, and Wikipedia. Tweets and retweets are weighed less but often outnumber other social media activities. Processed from publicly moderated accounts, Facebook mentions weigh less than tweets [26].

Publishers and journal editors alike may adjust their editorial strategies in line with the trending articles, reports and other services offered by Altmetric.com. Researchers, in turn, may process the AAS to visualize the most influential articles and explore the most active post-publication promotion channels in their fields [27]. Finally, Scopus (Elsevier) indexing services process and

display altmetric information from PlumX which is reflected in variably sized and colored Plum Print circles [28].

## Social media ethics

The scarcity of instructions and ethics statements is partly responsible for unethical postings of images, texts, and promotion leaflets of drugs across social media. Separating personal and business accounts is the main strategy to minimize undesirable consequences of conflicting social media activities [9]. Personal photos, videos, and family communications should not appear on accounts intended for professional knowledge transfer and cooperation of society fellows. Business, or scholarly, accounts require their own sets of regulations and filtering by skilled moderators. While numerous journal accounts are increasingly occupying social media, it is expected that their instructions will soon include recommendations on editors' and authors' appropriate promotion activities.

Currently, there are only a few sets of ethics guidelines that regulate activities across academic disciplines with extensive social media presence such as dermatology and pathology. Protecting patient privacy and avoiding dissemination of sensitive and identifying images are central to maintaining professionalism on social media [29].

Social media editors should adhere to their publisher regulations and avoid re-posts of images with unmasked identities, even if such items are available from reputable journals. The Association of State and Provincial Psychology Boards (USA) issued its statements on appropriate use of social media in psychology practice and emphasized confidentiality, informed consent, risk management, competence of users, and avoidance of overlapping professional and personal activities, among other regulatory acts [30]. These statements can be adapted and enforced by editors of most clinical disciplines.

Filtering information and promoting reliable graphical and textual materials are warranted in the time of the COVID-19 pandemic since postings on drugs with no supporting evidence may have dire consequences [31].

## Conclusions

The open science movement and COVID-19 pandemic have made it urgent to employ reliable online channels for education, research, and practice [14, 32]. Some social media platforms have emerged as essential for scholarly communication and societal impact measurement. Of these, Twitter is perhaps the most popular channel with an immediate influence on post-publication promotion of most scholarly articles. Digital skills and awareness of the advantages and limitations of

Twitter and other popular platforms may help stakeholders of science communication to effectively contribute to the global growth of science.

Research-intensive disciplines such as rheumatology may benefit greatly from establishing globally visible social media accounts and expanding networks of engaged scholars [33]. By actively disseminating information on Twitter, Instagram, and Facebook, rheumatologists may instantly reach and maintain ties with different user groups such as patients, students, and researchers. A recent EMEUNET survey of 233 rheumatologists demonstrated that more than half of respondents preferred Facebook for developing collaborations and Twitter for journal club meetings [34].

The role of digital editors is increasingly important for moderating social media accounts and preventing unethical activities. Researchers, students, and educators should also be trained to professionally contribute to the social media discussions and ethically promote scholarly items [35]. Guidelines are warranted to improve the quality of social media activities and increase the visibility of influential research outputs.

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