

Medical journalism and social media: A boon and a bane?

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Social media has become ubiquitous; medical research and journalism are no strangers to its pervasive influence.¹ As the use of social media continues to increase among health professionals, it is no surprise that medical journals have joined in. After all, medical journals are edited, reviewed, written and, we hope, read by physicians. A central characteristic of social media is that the content is highly accessible and can be shared quickly. The net result of this is the viral potential of social media, defined as the likelihood that users will rapidly reshare the content that they see in their own feeds.²

Journals in many specialties have participated in social media in a number of ways to varying degrees.³ Many journals simply broadcast new publications on their feeds. Others have opted for more aggressive steps, including blogs, podcasts, online journal clubs and Twitter chats; some journals take the “meta” step of publishing articles about physicians’ social media use, which are then shared, with great fanfare, on social media.⁴

Social networks can be divided into several groups, depending on connection methods, field of operations or expertise of those who participate in specific networks.⁵

- Social networks with personal physical connectivity (the disease-specific networks such as psoriasis, vitiligo and so on, transplant networks etc.)
- Global internet social networks (Facebook, Twitter etc.)
- Specific internet health-related social network (Health Care Forums, Healthcare Industry Forums etc.)
- Medical social internet networks for non-professionals (DailyStrength, CaringBridge, CarePages, MyFamilyHealth etc.)

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- Medical social internet networks for professionals (Rx-Derm, Acad_IADVL etc.)
- Scientific internet social networks (BiomedExperts, ResearchGate, Academia.edu, Kudos, Mendeley etc.)
- Social internet networks supported by professionals (HealthBoards, Spas and Hope Association of Disabled and diabetic Enurgi etc.)
- Scientific networks in the world’s biomedical literature databases (Current Contents, ISI Web of Knowledge, PubMed/Medline, PubMed Central, Ovid/EMBASE, EBSCO, Index Copernicus etc.).

IJDVL, after some soul-searching, has now decided to resuscitate its Twitter handle. We thought that this might be a good time to consider the different dimensions of interconnectivity between traditional medical publishing platforms like this journal and the various social media platforms and tools.

A Brief Historic Construct of the Changing Ethos of Traditional Medical Publishing

The first medical journal, *Philosophical Transactions*, was founded in 1665 by The Royal Society.⁶ Exactly 175 years later, in 1840, the Provincial Medical and Surgical Association created *The Provincial Medical and Surgical Journal*, known today as the British Medical Association and the *British Medical Journal (BMJ)*, respectively. The goal of *BMJ*, like so many other society journals that followed, was “to support medical professionals and organizations in improving the delivery of health care.”⁷

As the journals grew, readership extended beyond a society’s members through the use of libraries. One of the major contributions to the scientific literature was the creation of the

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Index Medicus in 1879 by the Surgeon General of the United States, John Shaw Billings. The index was published from 1879 to 2004 and was the precursor of MEDLINE, formerly known as MEDLARS Online, which was launched nearly 100 years later in 1971. Despite this electronic advancement, access to this online database was still limited to physicians and researchers through libraries.⁸

The coming of the World Wide Web in the early 1990s changed the publishing world forever. One by one, the journals came out with online versions. This advancement was soon followed, in June 1996, by the launch of PubMed, a free online version of MEDLINE.⁹

Although some journals, such as *Nature*, were founded partly on the principle “to place before the general public the grand results of scientific work and scientific discovery,” most medical journals considered the physician/clinician and researcher as their readership.¹⁰ This state of affairs continued till 1969 when Franz Ingelfinger, the Editor of the *New England Journal of Medicine (NEJM)*, created his famous rule. The Ingelfinger Rule, laying down the rule for prepublication in the editorial, “Definition of Sole Contribution,” stated: “Papers are submitted to the *Journal* with the understanding that they, or their essential substance, have been neither published nor submitted elsewhere (including news media and controlled-circulation publications). This restriction does not apply to (a) abstracts published in connection with meetings, or (b) press reports resulting from formal and public oral presentation.”¹¹ Arnold Relman, another former Editor of *NEJM* acknowledged in 1981 that the rule helped “to protect the newsworthiness” of an article. Relman noted: “Our policy is no different from that of many major newspapers and news magazines, which do not publish certain medical stories already given full coverage elsewhere.”¹²

Since that time, converging interests of consumption of the medical literature by physicians and the public have been acknowledged, and medical journals have evolved from simply being professional periodicals to publishers of research findings that can have wide interest to the general public. Several different modalities exist to help with the dissemination of medical information, including PubMed, electronic table of contents, print media, press releases, television news and many of the new forms of social media.⁹

There are several limitations of the traditional methods used to promote medical journal articles. Substantial resources are required to implement an effective media campaign. In addition, not every article published in a medical journal has the broad appeal required to make such an effort a worthwhile investment. Although an article may represent an important advancement to the medical community, it may not be considered as newsworthy by traditional media outlets. Finally, the steps needed to engage media take time, usually

several weeks, to implement from the beginning to the end of the process. A journal may need to delay publication of the article in order to accommodate promotion to the public in this way. Because of the competing priorities of medical journals and lay media, and to create a level-playing field, the principle of embargo had to be put in place, which is a set of agreements between the journal, the authors and the media that seek to take a balanced view of the interests of all stakeholders.¹³ The newest modality to engage the lay public, social media, provides journals with an opportunity to overcome many of these barriers.

Utility of Social Media to Medical Journals

Participating in social media offers journals a number of benefits, from simple self-promotion and improvement of journal metrics (page views, citations, impact factor and altmetrics) to potentially serving as a lever to increase knowledge translation, which would be their ultimate goal. At the simplest level, journals can use social media to raise awareness and readership of their content.³ The foremost goal for many journals is the ability to disseminate information rapidly to a worldwide audience far beyond the limited number of their subscribers. However, to an open access journal, such as *IJDVL*, this might not be such an important objective. Nevertheless, with social media, the audience size can quickly grow logarithmically to extend far beyond the bounds of the ivory tower, and this may be used to their advantage by open access journals too.

When a published research provokes opinion from readers, the traditional approach has been for the reader to write a letter to the editor. Such letters are assessed by the journal’s editorial team, and if found worthy, they are published in the journal. The turnaround time between publication of the original journal article and publication of the letter to the editor is usually a few months. With social media, the readers can share opinions and comments on articles immediately after reading the article, with no prepublication review of the comments by the journal’s editorial staff. Such posts and comments can take place either on the social media site of the journal itself or on any individual’s private social media page. This rapid mode of dissemination can greatly increase the reach of any given article and can allow public commentary to be shared quickly. However, it does allow individuals with obvious conflicts to share their opinions without disclosure.⁹ Thus postpublication peer-review in social media versus the traditional mode can be a trade-off between scientific bias and pace of publication, between unambiguous discourse and polite impersonal objectivity.¹⁴

Depending on how judiciously a journal engages the social media, such engagement may actually help improve the scientific process from start to finish. Social media participation may improve the peer-review process as new research findings are often disseminated and discussed online. Occasionally, online discussion around an article

in press may prompt formal revisions before official publication, or even withdrawal.¹⁵ Conference presenters and attendees share preliminary findings from their poster and abstract sessions, potentially generating meaningful community feedback while projects are still in development, honing projects into better products. In one extreme example, a researcher live-blogged her microbiology research, fostering peer-review contemporaneously with experiment, before publishing in more traditional routes.¹⁶ Many journals participate in discussion and critique of their own articles, often through journal blogs and podcasts. Broadcasting article analyses serves multiple purposes: one, as another broadcast stream, offering readers another avenue of exposure to new content; two, by offering content in an alternative format, some physicians who may never actually read an article may be open to succinct audio/-visual summaries or written blog summaries. Finally, critical analyses may better engage an audience compared with passive reading of the primary article, adding not just evaluation but also context.³

The opportunity to engage readers is the most apparent benefit for journals' social media participation. Promoting articles across multiple social media platforms should increase both the extent and depth of the journal readership. Such reader engagement may shorten the knowledge translation window. The social media environment also allows a better degree of cross-specialty sharing. Cross-speciality activities may engage researchers and encourage submissions and bring in reviewers from other specialities. By actively promoting their articles and engaging the online medical community, journals can improve their reach so that their articles show up on more health professionals' feeds. Increased cross-pollination may also help decrease physicians' knack for reinventing the wheel rather than learning from outside specialities.¹⁷

Challenges and Critique of Social Media Engagement

As with any newly developing area, journals that make their foray into social media will find numerous challenges. First, most methods of social media engagement are likely to transmit only superficial knowledge about a new article or new research. As a result, much context and nuance are lost or, at least, are difficult to convey in a limited format. The jury is still out as to what fraction of the readership of a tweet goes on to read the full article, and relatedly, what fraction who would otherwise read the full article proceed not to do so on the basis of the shallow exposure of a tweet. In this context, a number of critics have raised important questions on the accuracy and appropriateness of online medical education content.¹⁸

This brings us face-to-face with the first area of "conflict" between the principles of traditional medical publishing and the ethos of social media. We referred to this, briefly, in the previous section. Social media offers a platform to spread knowledge of any kind. It appears to impart no value to concepts such as truth and falsity, leading us, unfortunately,

to a world where "post-truth" is now knowledge. All types of media files, on all devices, are now easy to comment, forward, like or dislike. Medical journals cannot pretend to dwell still in a vacuum, unaffected by the other streams of knowledge sharing. However, their pure existence is contingent upon certain rules and regulations, the acme of which is a genuine and thorough peer-review process. Constantly aiming for the highest quality in manuscripts with often multiple loops of revisions, addressing major issues and minor details, are what give a medical journal its soul.¹⁹ It is this process that sets us apart from unfiltered broadcasts of opinions and knowledge. It demands labor and skill, fairness and openness from the best minds in the field, and time. In return, the process delivers trustworthiness in the form of a balanced knowledge as published findings that one can always agree or disagree with, question the relevance, criticize methodology or conclusion. The price/value system in which peer-review system operates (time is the price and trust the value) is in direct opposition with the *raison d'être* of social media.

This brings us to the next lot of difficult questions: Do we really know what goals do we have when we talk about engaging the readers in social media? Is our aim simply to be talked about? Are we here just to improve page views, submissions and citations? Or, to improve altmetrics and our reputation? Should journals have loftier aims, such as accelerated knowledge translation? If we do not have clarity regarding our objectives, can we really be sure if our social media outreach is being really effective? What are the outcomes we should look at? What is the kind of readership that we are engaging? It is no wonder that with uncertainties at every level of questions, the evidence of effectiveness of social media engagement by the biomedical journals are full of contrariness: while some journals have described success in some measures,²⁰ the effort-to-gain ratio has been found to be unfavorable by others,²¹ and some trials have produced clearly negative results.²²

In a critique to a negative trial report, it was suggested that the study measured the wrong thing with a wrong method; in other words, it suffered from the "streetlight effect," alluding to the old joke of a drunk, who was joined by a cop to search for his lost keys under a streetlight, until the latter got to know that the drunk had actually lost the keys in the park but was searching it there as there was light only under the streetlight and not in the park.²³ The study was measuring an increase in page views of articles that were selected by randomization and were promoted in the social media. The critic questioned the underlying assumption of the study that increasing page views through social media promotion is inherently valuable and a worthwhile objective. He suggested that a more appropriate goal would be to reach the right audience and to develop a long-term relationship with that audience.²⁴

This takes us back to the moot questions: what is the audience that the journals are trying to reach out through the social media,

and is there any meaningful linkage between the quality of research published by a journal and the mainstream attention it garners? In an interesting study that could have resonance for our journal, given its recent foray into Twittersphere, the relation between scientific merit and mainstream popularity was explored through novel indices such as the Kardashian index and the (Fifty Shades of) Grey scale.²⁵ The origins of these indices are self-evident. The Kardashian index draws its name and reference from the dubiously popular @KimKardashian, who trumps top scientists by more than 33 million followers, an epitome of the category of “being famous for famous.” Her fellow traveler @justinbieber, another reigning Twitter celebrity with 65 million followers, edges out the most popular physician (@bengoldacre) by a margin of 64.5 million followers. The notion that people with doubtful levels of talent and questionable means of attaining celebrity can become immensely popular has raised a debate within the scientific community: Do these self-perpetuated self-promoters exist in academia? Are any scientists “renowned for being renowned”?²⁶ As a response to the phenomenon of unmerited meteoric rise of social media celebrities via Twitter, @neilhall_uk developed the playfully dubbed Kardashian index (K-index) to address these issues in an academic context. The K-index measures the discrepancy between mainstream popularity and scientific merit by examining one’s social media profile in relation to one’s citations in peer-reviewed works. Hall’s equation is:

$$\text{K-index} = F(a)/43.3C^{0.32}$$

Where $F(a)$ is the actual number of Twitter followers and C is the number of citations.

Cosco derived his calculation of (Fifty Shades of) Grey scale (named to resonate with the critically panned yet hugely popular novel and devised as being analogous to the K-index for journals) scores using a log-adjusted regression equation for estimating the number of expected followers in Twitter, derived from the data set in his study.²⁵ The data for Twitter followers, tweets and impact factors that were collected on the general medical journals in his study were used to find the best-fitting regression equation, which yielded the coefficients 0.79 for the observed association of tweets and 0.78 for the observed association of impact factor with followers as in the following equation:

$$F(e) = T^{0.79} + I^{0.78}$$

Where $F(e)$ is the expected number of Twitter followers, T is the number of tweets and I is the impact factor of the journal.²⁵

Thus, the Grey scale is a measurement of the degree to which any given data point diverges from the observed average relation of tweets and impact factor with followers, analogous to the Kardashian index:

$$\text{Grey scale} = F(a) = T^{0.79} + I^{0.78}$$

As per Hall, K-index scores of more than 5 suggest a “Science Kardashian”; that is, a disproportionately high number of followers when compared with citations.²⁶

Cosco’s study, being focused on general medical journals, may not be immediately applicable to the conditions in which *IJDVL* operates.²⁵ However, the centerpiece of conclusion of his study—rather than identifying large numbers of science Kardashians, the study could find that many more journals are closer to “Popularity Franklins” in that they have received disproportionately low levels of recognition and popularity than would be warranted by their scientific merit, a la Rosalind Franklin—gives a Twitter newbie like *IJDVL* much needed reassurance.

The Future of Social Media Usage: Where Does *IJDVL* Stand

Medical journals have long been frustrated by the tardy pace of knowledge translation.²⁷ Social media offers an opportunity for journals to engage and expand their audience and increase the chances that research is read. At the same time, the journals’ participation in social media is limited by a lack of well-defined best practices and outcomes research. Social media has also become a great disruptive influence in medical journal publishing—the transition to web-based publication coupled with online sharing on social media has begun the process of disentangling articles from journals, just as digital music weakened the link between songs and albums.³ Under such a model, the social media platform itself could one day become the publisher and the conduit of medical journal article delivery. For example, Facebook is now publishing instant articles in collaboration with several magazines in which the primary article is published and hosted on Facebook.⁹ There are some studies that conclude that social media usage by medical journals will have impact in future upon publication planning and choice of journals by authors, though clear evidence of a correlation between social media presence and journal impact, particularly in case of speciality medical journals, is lacking.²⁸

How does *IJDVL* situate itself in this reality? As told earlier, we have recently resuscitated the *IJDVL* Twitter handle (@IJDVLjournal). We chose to make our foray through Twitter, though there is some evidence that Facebook has a superior effect on driving physician web traffic compared with other social media platforms.²⁹ We are well aware of the components of a successful social media campaign [Table 1].⁹ Although the journal lacks the financial and logistic wherewithal for mounting a high profile social campaign, we promise to innovate as we go along, hoping in the bargain to gain some of the audience who otherwise, perhaps, would not be noticing much of the journal. After all, we can ill afford to ignore social media at a time when the obituary of the traditional medical publishing, at least in its

Table 1: Components of a successful social media campaign

Frequent posts-multiple times per day
Posts that include images or video
Use of hashtags ^{e,f}
Posts that encourage user interaction (e.g., posing questions or featuring quizzes)
Content that is accessible to a wider audience beyond the research community
Use of URLs in posts to drive traffic to website

Source: Fox *et al.*, *Circulation*, 2016

printed form, has already been written.³⁰ Our ultimate goal remains promotion of the transmission of detailed, robust and nuanced information more widely to improve skin health. Social media, for *IJDVL*, represents one of the potential vehicles to attain that objective.

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