

UC Davis

Dermatology Online Journal

Title

Social media (SoMe) enhances exposure of dermatology articles

Permalink

<https://escholarship.org/uc/item/6bw8896c>

Journal

Dermatology Online Journal, 27(7)

Authors

Liakos, William
Burrall, Barbara A
Hsu, Daniel K
et al.

Publication Date

2021

DOI

10.5070/D327754361

Copyright Information

Copyright 2021 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

Social media (SoMe) enhances exposure of dermatology articles

William Liakos^{1,2}BS, Barbara A Burrall¹ MD, Daniel K Hsu¹ PhD, Philip R Cohen^{1,3,4} MD

Affiliations: ¹Department of Dermatology, University of California Davis, Sacramento, California, USA, ²Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, New York, USA, ³San Diego Family Dermatology, National City, California, USA, ⁴Touro University California College of Osteopathic Medicine, Vallejo, California, USA

Corresponding Author: William Liakos, 500 Hofstra Boulevard, Hempstead, NY 11549, Email: william.liakos@gmail.com; Barbara Burrall MD, Department of Dermatology, University of California Davis, 3301 C Street, Suite 1400, Sacramento, CA 95816, Email: baburrall@ucdavis.edu

Abstract

Social media (SoMe) refers to a variety of virtual platforms used to enhance sharing of information. To evaluate the influence of SoMe with regards to views and downloads of published dermatology articles, we conducted a retrospective study from July 2020-March 2021 examining articles published on Instagram and Twitter under *Dermatology Online Journal* (DOJ) accounts and compared these with type-matched and issue-matched articles that were not posted on social media. During this time period, 163 total articles of the three types used for social media (Case Report, Case Presentation, and Photo Vignette) were published in DOJ and 15 were promoted via SoMe. Utilization of SoMe demonstrated a significant ($P < 0.0001$) positive effect with regards to both views (175.5 ± 16.4) and downloads (31.5 ± 4.0) over matched articles not published on SoMe. Similar trends illustrating the positive effect of SoMe on readership have been previously observed in the field of dermatology as well as other medical specialties. Most direct accessions to articles arrived via Instagram rather than Twitter, diverging from previous studies on SoMe use in medical journals. Social media, in particular Instagram, can be a successful platform to enhance the exposure of peer-reviewed medical information.

Keywords: *article, dermatology, downloads, engagement, Instagram, media, social, SoMe, Twitter, views*

Introduction

Social media (SoMe) are interactive, digitally mediated technologies that facilitate information

exchange via virtual networks, regardless of time, space, or geography. Common social and professional platforms include Facebook, Instagram, LinkedIn, Reddit, TikTok, and Twitter along with virtual communities such as blogs, forums, messaging services, microblogs, and wikis. These platforms are successful in reaching millions of users, achieving high levels of engagement across many demographics and prompting additional inquiry by viewers [1].

Medical information is typically disseminated by way of several standard modalities, including academic journals, books, conferences, didactics, and lectures. In particular, journal articles are frequently responsible for advancing fields of study within medicine, although articles documenting specific changes in basic science concepts, clinical practice guidelines, and translational ideas can be slow to circulate through the medical community and often fail to reach those most in need of certain knowledge. Additionally, many articles review important case studies and topics for practice purposes. SoMe can function as a complement to these traditional informational avenues by serving as a platform for ongoing discussion among physicians, patients, organizations, and other stakeholders, and is increasingly integral to the medical field [1].

A range of effects with regards to SoMe exposure for published articles and subsequent course of traditional and alternative metrics, with most noting a positive effect on engagement as well as citations, has been documented [2]. *Dermatology Online Journal* (DOJ) joined the ranks of medical journals with SoMe accounts in 2018, establishing both an

Instagram and Twitter account to promote articles. Herein, we retrospectively evaluate the effect of SoMe exposure on views and downloads of DOJ articles and compare with articles not included on SoMe.

Methods

Dermatology Online Journal is the first open-access, online-only medical journal [3]. The journal published its first issue in 1995 and since then has expanded to publishing monthly peer-reviewed articles in the field of dermatology [3]. Twelve issues are published per year and each contains approximately 20 to 22 articles. Article types include Original, Review, Commentary, Letters, Case Report, Case Presentation, and Photo Vignette. Of these, the latter three are similar in that they consistently report a single case or a case series, typically contain clinical and histologic images, and are differentiated by minor formatting variations. The other DOJ article types have varying formats of their content and were not included on SoMe by the journal. Typically, one or two articles from each issue are included on social media directly after the issue is published on the DOJ website. Each SoMe article was posted a single time, with each post containing a clinical image accompanied by a brief case synopsis. One author (W.L.) was responsible for selecting the particular articles and images for inclusion. No specific criteria were utilized to select the articles, although articles with interesting clinical and histologic images were favored along with articles of potential interest to the broader dermatologic community. Multiple articles from each issue contained images that were appropriate for SoMe use, and particular articles selected were deemed similar to articles not selected.

Content is published on the platform Instagram under the DOJ account (@dermjournals) as well as on the DOJ Twitter account (@dermjournals), which we group together under the title of SoMe. As of April 2021, DOJ had more than 4,700 followers on Instagram and approximately 180 followers on Twitter, indicating that Instagram is the major contributor to the journal's SoMe presence. Of note,

a service called Later allows viewers of the Instagram post for an article to directly connect to the specific article for each post through a linked picture on the account homepage, whereas Twitter allows direct placement of a link to the article in a tweet. In order, to obtain an overall concept of direct impact, the overall visitors to the DOJ website who arrived via either Later or Twitter were recorded; however, the specific article that was viewed or downloaded could not be matched to the specific visitor.

From July 2020 through March 2021, the primary outcomes of number of views and downloads were evaluated for articles included on SoMe and compared with type-matched and issue-matched articles not posted on SoMe. Views and downloads data were obtained from the publicly retrievable metrics information available through the open-access eScholarship publishing service utilized by DOJ. One issue had views data but not download data available, but otherwise data was complete. Accession data for articles mediated by the Later service were provided by eScholarship publishing service. We examined the two-month period for views and downloads that included the month of SoMe publication as well as the month following SoMe publication in order to obtain our outcomes for evaluation, as the exact timing of the SoMe post within each month varied. Type, issue, and time period for articles not included on SoMe were matched to the SoMe article and included in the analysis.

Statistical analysis was performed to assess the association between SoMe inclusion and article exposure as measured by views and downloads from the DOJ website. Data was initially winsorized, which involves replacement of overly influential outlier values by setting the bottom 5% of values to the 5th percentile and the top 5% of values to the 95th percentile, and descriptive statistics (mean, median, and range) were calculated for the SoMe and no social media (NoSoMe) groups. Values were then evaluated for significance using unpaired student t-test. Mean difference, standard error, and associated confidence intervals for both views and downloads were also calculated to evaluate between-group variance. All analysis was completed using GraphPad

Prism version 9.0.2 (GraphPad Software, San Diego, California, USA).

This study was reviewed by the University of California, Davis institutional review board, and deemed as exempt since there were no Health Insurance Portability and Accountability Act (HIPAA) or privacy implications.

Results

Between July 2020 through March 2021, 163 articles in the Case Report, Case Presentation, and Photo Vignette categories were published in DOJ. Of these, 15 articles were included on SoMe (9.2%) whereas 148 were in the NoSoMe group.

The SoMe article (N=15) views ranged from 136 to 447 (median=238) for the study period whereas NoSoMe article (N=148) views ranged from 8 to 255 (median=85). SoMe articles had a mean of 264.9 views in the time period examined; this was significantly higher than the mean of 89.4 views for type-matched and issue-matched, NoSoMe articles over the same time period ($P < 0.0001$), (**Figure 1**). Social media inclusion accounted for substantial additional views of each article (mean difference + standard error [SE] = 175.5 ± 16.4 ; 95% confidence interval [CI] 143.1 to 207.9).

Similar trends were observed for the number of downloads (**Figure 2**). The SoMe article (N=15) downloads ranged from 31 to 80 (median=64) for the study period whereas NoSoMe article (N=140) views ranged from 2 to 89 (median=27). SoMe articles had a mean of 58.4 downloads; this was significantly higher than the mean of 26.9 downloads for the NoSoMe articles ($P < 0.0001$). Social media inclusion accounted for substantial additional downloads of each article (mean difference + SE = 31.5 ± 4.0 ; 95% CI 23.5 to 39.5).

Discussion

Social media allows for a rapid and global exposure of peer-reviewed dermatology journal articles using platforms such as Instagram and Twitter. The use of social media to promote dissemination of medical

information is becoming increasingly common by many specialties, including dermatology, and has demonstrated benefits including increased engagement and number of citations [4,5].

Our nine-month retrospective study of articles in one online, open-access dermatology journal confirm this observation. We found that inclusion of an article in a SoMe post on two platforms resulted in more than 175 additional views and 31 additional downloads; this was a statistically significant

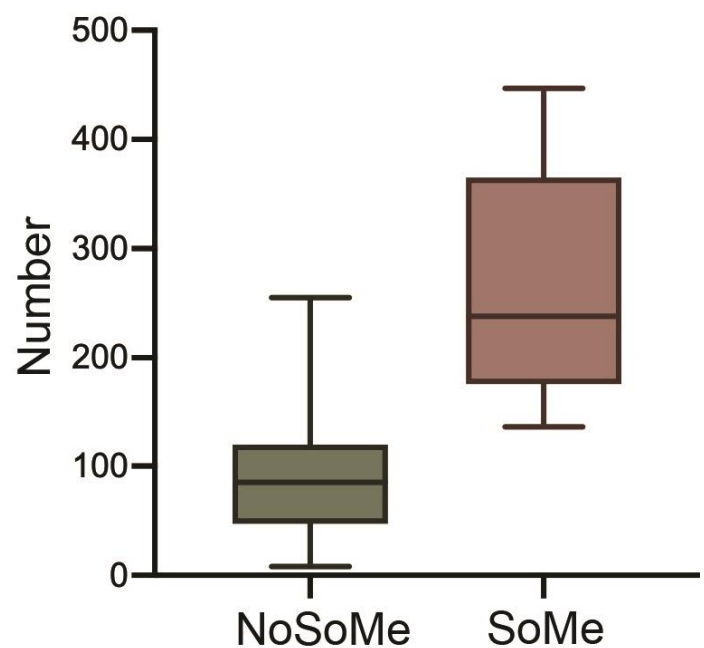


Figure 1. Views of articles included on social media (SoMe) compared to views of articles not included on SoMe. Articles posted on SoMe (N=15) were compared to type-matched and issue-matched articles with no social media (NoSoMe), (N=148) with regards to total views on the DOJ website during a two month period following a post containing an image and case description on Instagram and Twitter. Each box plot has whiskers at maximum and minimum, 75th percentile at top of box plot, 25th percentile at bottom of box plot, and median at bold line in middle of the box plot. SoMe group views ranged from 136 to 447 (median=238) whereas NoSoMe article (N=148) views ranged from 8 to 255 (median=85). SoMe articles had a mean of 264.9 views in the time period examined; this was significantly higher than the mean of 89.4 views for type-matched and issue-matched, NoSoMe articles over the same time period ($P < 0.0001$). Social media inclusion accounted for substantial additional views of each article (mean difference + standard error = 175.5 ± 16.4 ; 95% confidence interval 143.1 to 207.9). Abbreviations: DOJ, Dermatology Online Journal; N, number; NoSoMe, no social media; SoMe, social media.

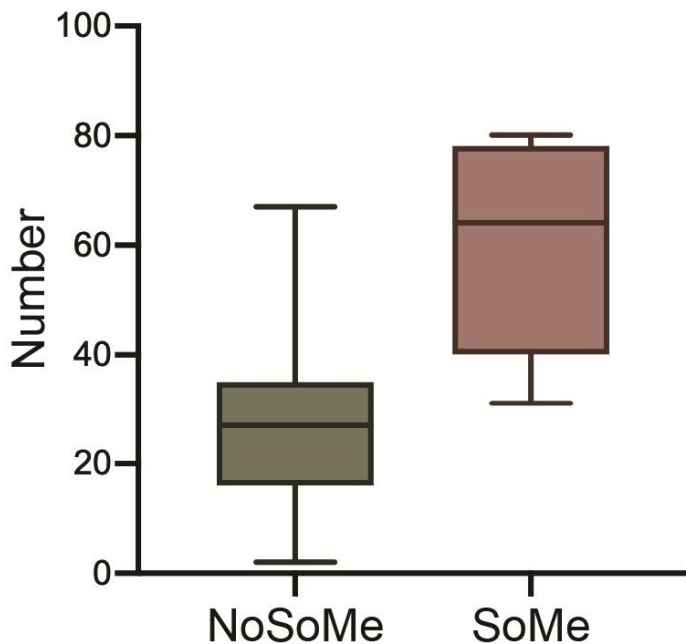


Figure 2. Downloads in social media (SoMe) group compared to downloads of articles not included in SoMe. Articles posted on SoMe (N=15) were compared to type-matched and issue-matched articles with NoSoMe post (N=140) with regards to total downloads from the DOJ website during a two month period following a post containing an image and case description on Instagram and Twitter. One month of issues did not have downloads available, which reduced the available NoSoMe article data. Each box plot has whiskers at maximum and minimum, 75th percentile at top of box, 25th percentile at bottom of box, and median at bold line in middle of the box. SoMe group downloads ranged from 31 to 80 (median=64) whereas NoSoMe article views ranged from 2 to 89 (median=27). SoMe articles had a mean of 58.4 downloads; this was significantly higher than the mean of 26.9 downloads for the NoSoMe articles ($P<0.0001$). Social media inclusion accounted for substantial additional downloads of each article (mean difference + standard error = 31.5 ± 4.0 ; 95% confidence interval 23.5 to 39.5). Abbreviations: DOJ, Dermatology Online Journal; N, number; NoSoMe, no social media; SoMe, social media.

increase from matched articles not included in SoMe posts. These results underscore the ability of SoMe to effectively engage journal readers, particularly the two-thirds of physicians who use some form of SoMe for professional purposes and suggest that DOJ, along with other medical journals, might benefit from an expanded SoMe presence [6].

Our results fit with prior reports of increased readership following institution of SoMe efforts [7,8]. Interestingly, most of our views and downloads

originated from Instagram via the Later service, whereas a relatively small amount originated from Twitter. Accessions data for DOJ articles demonstrated a large portion originated from click-throughs directly from Instagram and Twitter posts. The Later service ranked as high as fourth in terms of visits to the DOJ website whereas Twitter also contributed a smaller number of visits, ranking as high as tenth (data not shown). This differs from the vast majority of prior studies in SoMe use in medical journals, as Twitter has been previously regarded as more suitable for peer reviewed medical journals owing to its brevity and professional reputation [8].

Additionally, the Altmetric Attention Score utilized by many SoMe-related studies does not account for Instagram-derived SoMe attention but rather only other platforms such as Facebook and Twitter [9]. This differentiates our study and indicates that Instagram is a valid platform for dermatology medical journal use. Further, it demonstrates that Instagram may be one of the more valid platforms suitable for dermatology medical journals in particular. This may relate to its focus on images, with text as a secondary component, which is the converse of a platform like Twitter. Finally, alternative bibliometric profiles might benefit from taking into account additional platforms such as Instagram.

Advantages of SoMe use for medical journal article dissemination include ease of use, large potential reach and engagement abilities, and relatively low costs. Facebook has nearly three billion active users while Instagram and Twitter are lower at approximately one billion and 330 million users, respectively [10]. This dwarfs the potential audience for typical methods of distribution such as print literature or even online publication of articles which often include a paywall barrier. Additionally, SoMe allows for engagement around articles, as demonstrated in the establishment of online journal clubs that can include many more members and alternative member demographics, such as increased numbers of students, than a typical, in-person journal club [11].

Disadvantages of using SoMe for dissemination of medical information include potential for wide

distribution of poor-quality information from inaccurate sources, time required to curate and maintain multiple SoMe accounts on several platforms, and required brevity that does not allow for full articles displayed in posts.

Our study benefitted from matching of articles between SoMe and NoSoMe groups as well as consistent selection of articles by a single editor and open access status for all articles in the journal. Limitations of this study include the short duration of evaluation, examination of only a single journal, relatively small sample size of articles included on SoMe, and restriction of SoMe inclusion of image-only postings that allows only the analysis of such postings that attract visual attention versus those that are text-only containing data of a disease or condition that does not attract visually but holds dermatological information. Additionally, absolute numbers of article views and downloads were confounded over time by changes in SoMe follower counts, which increased substantially over the study duration, particularly for Instagram. We also recognize that selection of articles for SoMe could simply be the result of the more intriguing nature of the article, thus resulting in an increased number of views and downloads unrelated to SoMe inclusion. However, each issue contained multiple articles that

would be appropriate for inclusion on SoMe which makes the selection of one over the other more difficult and indicates that comparator articles were of similar image quality and interest.

Conclusion

Social media is a modality that can be used to expand the dissemination of information. Medicine, like other fields of study, is capitalizing on this strategy to effectively share information. Our study confirms the observations of previous investigators that articles shared by SoMe are more widely viewed and downloaded. We also found that Instagram is a more effective SoMe platform than Twitter; we speculate that this relates to the visual nature of dermatology publications and associated images. In addition, we hypothesize that alternative SoMe platforms may potentially be even more effective for disseminating dermatologic information in the future.

Potential conflicts of interest

W.L., B.A.B., D.K.H., and P.R.C. are editors of *Dermatology Online Journal*. Dr. Cohen is a consultant for ParaPRO.

References

1. Paton C, Bamidis PD, Eysenbach G, Hansen M, Cabrer M. Experience in the use of social media in medical and health education. Contribution of the IMIA social media working group. *Yearb Med Inform*. 2011;6:21-9. [PMID: 21938320].
2. Bardus M, El Rassi R, Chahrour M, Akl EW, Raslan AS, Meho LI, Akl EA. The use of social media to increase the impact of health research: systematic review. *J Med Internet Res*. 2020;22:e15607. [PMID: 32628113].
3. Wang JZ, Pourang A, Burrall B. Open access medical journals: benefits and challenges. *Clin Dermatol*. 2019;37:52-5. [PMID: 30554623].
4. Patel RR, Hill MK, Smith MK, Seeker P, Dellavalle RP. An updated assessment of social media usage by dermatology journals and organizations. *Dermatol Online J*. 2018;24. [PMID: 29630149].
5. Ayoub F, Ouni A, Case R, Ladna M, Shah H, Rubin DT. Dissemination of gastroenterology and hepatology research on social media platforms is associated with increased citation count. *Am J Gastroenterol*. 2021 Mar 22. [Epub ahead of print]. [PMID: 33767107].
6. Househ M. The use of social media in healthcare: organizational, clinical, and patient perspectives. *Stud Health Technol Inform*. 2013;183:244-8. [PMID: 23388291].
7. Hawkins CM, Hillman BJ, Carlos RC, Rawson JV, Haines R, Duszak R, Jr. The impact of social media on readership of a peer-reviewed medical journal. *J Am Coll Radiol*. 2014;11:1038-43. [PMID: 25439618].
8. Fargen KM, Ducruet AF, Hyer M, Hirsch JA, Tarr RW. Expanding the social media presence of the Journal of Neurointerventional Surgery: editor's report. *J Neurointerv Surg*. 2017;9:215-8. [PMID: 26927814].
9. Mullins CH, Boyd CJ, Corey BL. Examining the correlation between Altmetric score and citations in the general surgery literature. *J Surg Res*. 2020;248:159-64. [PMID: 31901796].
10. Tankovska H. Social media & user-generated content. Statista. 2021 [cited 2021]. Available from: <https://www.statista.com/markets/424/topic/540/social-media-user-generated-content/#overview>. Accessed on May 2, 2021.
11. Daneshjou R, Adamson AS. Twitter journal clubs: medical education in the era of social media. *JAMA Dermatol*. 2020;156:729-30. [PMID: 32186655].