CASE AND RESEARCH LETTER

Alternative Metrics as an Impact Measure for Dermatology Journals

Métricas alternativas como medida de impacto para las publicaciones sobre dermatología

To the Editor:

Social networks could improve the efficiency and effectiveness of healthcare systems.[1] Some journals have accounts on social networks, which allow for content sharing in a simple and didactic manner. Alternative metrics or ''Altmetrics'' have been defined as the count of mentions on an article's online resources, accumulating in order to provide an instantaneous measure of impact.[2] In fact, altmetrics may be complementary to standard citation scores when aiming to quantify the interest an article generates.[3] Our study seeks to describe the number of journals in dermatology with active accounts on social networks, as well as to establish the degree of correlation between the impact of scientific publications measured through traditional and alternative metrics.

Methods

This is a correlation study. We included all journals within the area of dermatology around the globe. However, journals discussing dermatological issues only on occasional basis or not as the main specialty to be treated were excluded. The Ethics Committee at our institution approved this study.

Search strategy

We consulted the classification of scientific journals related to dermatology on the Scimago Journal and Country Rank platform (SJR), which was developed by Scopus (www.scimagojr.com). Then, the following variables were extracted: the SJR (average of citations received in a year divided by the number of documents published in a selected journal in the three previous years, adjusted by self-citations) and the H index, (corresponding to the number of articles (h) that had received at least (h) number of citations) (11), the total number of documents published in the previous three years, whether the journals were open access or not and the region were they were published.

Simultaneously, altmetrics-derived variables were collected in the social networks of interest, Facebook and Twitter. The following data were collected: number of followers (ver material suplementario), year of creation of the account and years since creation thereof. Specifically for Twitter, the number of Tweets was registered. The process of data collection was carried out between March 15 and 16, 2019.

Statistical analysis

We evaluated data through the Shapiro Wilk test, which yielded non-normal distribution, so nonparametric statistics were used for analysis. Bivariate analyses were carried out through Mann Whitney U tests, in order to evaluate for differences between journals with and without social networks. The correlation between variables derived from social networks and the SJR impact factor was evaluated through the Spearman correlation coefficient. The statistical program used for analysis was STATA 15.

Results

We identified 142 journals on the SJR platform, of which 21 were excluded for not regarding dermatology topics exclusively. 29 (23.7%) journals had at least one social network. Of these, 10 (34.4%) were classified within the superior quartile (Q1). The H index was higher in journals with social networks (median 49 vs. 18.5, $p < 0.05$) (Table 1).

Among journals with social networks, 24 (19.8%) had a Facebook account, the biggest proportion with less than 2000 followers (52.1%). 15 journals (12.4%) had a Twitter account, the greater proportion with more than 2000 followers (46.6%) (Table 2).

As for the correlation analysis, the SJR and number of followers on Facebook revealed substantial correlation ($r_s = 0.71$ $p < 0.05$). A moderate correlation was found between the SJR and the number of followers/year ($r_s = 0.52$ $p\ 0.05$). The correlation between the SJR and social media-derived metrics are presented in Table 3.

Table 1 Sample characteristics according to activity on social media.

	Journals with social networks n = 29	Journals without social networks n = 92	p-value
H index[a] (median, IQR)	49(24–77)	18.5(5.5–50.5)	0.0015
SJR[a] (median, IQR)	0.625(0.37–1.50)	0.4565(0.12–0.78)	0.332
Quartile n(%)			0.211
Q1	10(34.48)	22(23.9)	
Q2	9(31.03)	20(21.74)	
Q3	6(20.69)	20(21.74)	
Q4	4(13.79)	30(32.61)	
Region n (%)			0.042
Europe	16(55.17)	53(57.61)	
North America	9(31.03)	9(9.78)	
Asia	2(6.90)	21(22.83)	
Latin America	2(6.90)	4(4.35)	
Africa	0(0)	3 (3.26)	
Oceania	0(0)	2(2.17)	
Open Access n (%)	9(25.00)	23(31.03)	0.521
Publications in the previous 3-year period n(%)			0.003
0–99	4 (13.79)	30(32.61)	
100–250	7 (24.14)	28(30.43)	
250–500	3(10.34)	18(19.57)	
>500	15(51.72)	16(17.39)	

IQR: interquartile range.
[a] Compared through the non-parametric *U*-Mann–Whitney test.

Table 2 Description of the activity on social networks.

Twitter	
Journals with Twitter n(%)	15(12.40)
Number of followers n(%)	
<500	3(23.08)
500–2000	4(30.77)
>2000	6(46.15)
Number of tweets n(%)	
<500	4(26.67)
500–2000	4(26.67)
>2000	7(46.67)
Followers/year, median(IQR)[a]	311.86(166.6–792.6)
Facebook	
Journals with Facebook n(%)	24(19.83)
Number of followers n(%)	
0–999	7(30.43)
1000–1999	5(21.74)
2000–4999	5(21.74)
>5000	6(26.09)
Followers/year, median(IQR)[a]	345.57 (228.44–1368)

[a] IQR: interquartile range.

Discussion

Our study found important activity regarding dermatology journals. Most of these were categorized within the top quartile. While only a quarter of the studied journals had an account on social media, we believe the high impact of journals with social networks may be explained by the need to share images in dermatology in order to perform clinical-pathological correlations of disease.[4,5]

Furthermore, our results revealed that the median H index and the SJR were higher in journals with social networks, which proves correlation between journals with social media accounts and impact measured through traditional metrics. These findings are compatible with those from previous studies conducted in other fields of knowledge, where correlation was found between traditional and alternative metrics.[2] We propose the use of alternative metrics as a complementary approach toward the assessment of high-impact journals. However, while our research and previous literature reports suggest that a higher altmetric score may be linked to a higher citation count, the magnitude of correlation is unclear.[3] Further studies should address this issue prospectively.

Among our limitations, we must disclose that higher budgets being available for some journals, may allow for hiring staff trained to create and manage social media accounts, leading to more activity on these sites as compared to journals without community managers. Furthermore, the existence of fake accounts may overestimate our findings due to external manipulation.

The use of social networks may increase the number of subscribers on their journals, increase visibility of articles and the number of citations. This leads us to consider that social networks may be useful as a means for advertising scientific journals.

Table 3 Correlation between the SJR and alternative metrics of activity on Twitter and facebook.

Twitter n = 15	Number of followers	Number of followers/year	Number of tweets
Global correlation	0.62[a]	0.685[a]	0.53
Open Access n = 3	0.5	1[a]	0.50
No Open Access n = 25	0.55	0.608[a]	0.55
Q1 n = 7	0	0.17	−0.03
Q2–Q4 n = 8	0.16	0,21	−0.19
Regions			
Europe	0.64	0.76	0.50
North America	0.7714	0.77	0.77
Publications in the previous 3-year period			
<500 n = 10	0.30	0.70	0.10
>500 n = 5	0.72	0.78	0.05

Facebook n = 24	Number of followers		Number of followers/year
Global correlation	0.71[a]		0.52[a]
Open Access n = 7	0.5		−0.60
No Open Access n = 17	0.65[a]		0.69[a]
Q1 n = 9	0.4		0.69[a]
Q2–Q4 n = 15	0.41		−0.60
Regions			
Europe n = 14	0.5		0.3
North America n = 7	0.92[a]		0.85[a]
Latin America n = 2	1		1
Publications in the previous 3-year period			
<500 n = 13	0.7[a]		0.75[a]
>500 n = 11	0.63[a]		0.11

[a] Statistically significant below *p* 0.05.

Conclusion

A positive correlation was found between impact measured through traditional and alternative metrics in Facebook and Twitter. The use of social networks could be useful as a tool to publicize research published in dermatology journals.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgements

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.ad.2022.02.009.

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