males, 1.16 [95% CI, 0.32-2.97]), HL (SIR for females, 13.34 [95% CI, 4.33-31.12]; SIR for males, 9.93 [95% CI, 3.99-20.47]), and NHL (SIR for females, 6.26 [95% CI, 4.41-8.63]; SIR for males, 4.86 [95% CI, 3.64-6.35]) (Fig 1).

Our analysis showed an overall increase of secondary malignancies in MF and SS patients by 26% compared with a matched general population. There was a significantly increased risk of HL and NHL in male patients and a significantly increased risk of melanoma, CLL, HL, NHL, and lung cancer in female patients. Our study was limited by the fact that MS and SS patients comprise a small patient population, and subdividing that population by gender makes it smaller still. Small numerical differences in small populations may over- or underestimate statistical relationships. Still, providers should be mindful of the risk disparity between male and female patients with MF and SS so they may screen and counsel patients appropriately.

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Comparing online engagement and academic impact of dermatology research: An Altmetric Attention Score and PlumX Metrics analysis

To the Editor: The Altmetric Attention Score (AAS) and PlumX Metrics are algorithms used to measure the impact of published research through online platforms. These scoring systems aggregate data on online engagement, incorporating metrics such as number of downloads and social media shares by researchers and the general public.[1,2] We analyzed the AAS and PlumX scores of articles published in top dermatology journals and correlated trends between an article's online engagements and the number of citations.

The top 10 general dermatology journals by impact factor were identified using the 2016 InCites Journal Citations Report. All research articles with abstracts published in these journals in 2016 were analyzed for their AAS and PlumX scores. The AAS is a weighted score calculated from the volume and source of social media mentions (Facebook, Twitter, Mendeley, etc).[2,3] The PlumX score expands upon AAS by further taking into account "usage" (downloads, views, etc.) and "captures" (eg, bookmarks).[1] Articles were categorized according to study type, design, dermatologic topic, and open access status. Correlations were determined using Spearman correlation coefficients.[4] A linear regression was performed between the number of citations and each metric, with both axes in logarithmic form and values adjusted by +1.

The final analysis included 1024 articles: 612 observational studies (59.8%), 288 basic science studies (21.1%), and 124 clinical trials (12.1%). The median citation, AAS, and PlumX score for all articles were 10 (interquartile range, 6-18), 1 (interquartile range, 0-5), and 73 (interquartile range, 36-141), respectively. The *Journal of the American Academy of Dermatology* and *JAMA Dermatology* had the highest number of articles in the top 5% of AAS and PlumX scores. The top 5% of articles by AAS and PlumX scores that demonstrated the greatest increase in proportional interest included dermatology topics acne and psoriasis, and articles focused on lifestyle or epidemiology (Table I). We additionally found

Table I. Characteristics of research articles with abstracts published in the top 10 dermatology journals in 2016

Characteristic	All articles (N = 1024)	Top 5% of articles by AAS (n = 51, >51)	Top 5% of articles by PlumX (n = 51, >441)
Journals, No. (%)			
Acta Derm-Venereol	112 (10.9)	1 (2.0)	23 (45.1)
Am J Clin Dermatol	14 (1.4)	0 (0)	0 (0)
Br J Dermatol	146 (14.3)	2 (3.9)	0 (0)
Contact Dermatitis	38 (3.7)	0 (0)	1 (2.0)
J Eur Acad Dermatol Venereol	149 (14.6)	0 (0)	0 (0)
J Am Acad Dermatol	161 (15.7)	13 (25.5)	16 (31.3)
JAMA Dermatol	85 (8.3)	26 (51.0)	10 (19.6)
J Invest Dermatol	201 (19.6)	9 (17.6)	1 (2.0)
J Dermatol Sci	83 (8.1)	0 (0)	0 (0)
Pigment Cell Melanoma Res	35 (3.4)	0 (0)	0 (0)
Citations, median (IQR)	10 (6-18)	18 (11-27.75)	14 (7-23)
Open access, No. (%)	471 (46)	39 (76.5)	37 (71.2)
Altmetric score, median (IQR)	1 (0-5)	152 (81.5-274.75)	7 (0-217)
Twitter	1 (0-4)	26.5 (15.25-40.25)	6 (0-31)
News outlet	0 (0-0)	17.5 (8-30.75)	0 (0-19)
Facebook	0 (0-1)	3 (1-5)	0 (0-3)
Mendeley	14 (0-25)	31 (23.25-50.75)	25 (0-61)
PlumX score, median (IQR)	73 (36-141)	257.5 (116.25-468.5)	583 (502-723)
Captures	25 (14.25-43.75)	55 (33.75-116)	68 (38-129)
Social media	1 (0-5)	37.5 (13.5-97.5)	10 (0-84)
Usage	42 (15-88)	76 (45-244.75)	445 (347-576)
Mentions	0 (0-0)	3.5 (1.25-6)	0 (0-2)
Dermatology topic, No. (%)*			
Acne	26 (2.5)	5 (9.6)	5 (9.8)
Actinic keratosis	21 (2.1)	0 (0)	0 (0)
Cosmetics	9 (.9)	0 (0)	0 (0)
Eczema	70 (6.8)	2 (3.5)	5 (9.8)
Hair	32 (3.1)	2 (3.5)	4 (7.8)
Infectious disease	39 (3.8)	2 (3.5)	3 (5.9)
Melanoma	157 (15.3)	12 (23.1)	5 (9.8)
Nail	7 (0.7)	1 (1.9)	0 (0)
Nonmelanoma skin cancer	109 (10.6)	6 (11.5)	5 (9.8)
Psoriasis	138 (13.5)	10 (19.2)	7 (13.7)
Miscellaneous	436 (42.6)	14 (26.9)	17 (33.3)
Study design, No. (%)			
Basic science studies	288 (21.1)	8 (15.4)	2 (3.9)
Clinical trials	124 (12.1)	7 (13.5)	10 (19.6)
Observational studies	612 (59.8)	37 (71.2)	39 (76.5)
Article type, No. (%)			
Diagnosis/Outcomes	271 (26.5)	12 (23.1)	13 (25.5)
Epidemiology	175 (17.1)	14 (26.9)	12 (23.5)
Genetics	125 (12.2)	3 (5.8)	2 (3.9)
Lifestyle	37 (3.6)	11 (21.2)	10 (19.6)
Therapies	195 (19.0)	4 (7.7)	8 (15.7)
Other	221 (21.6)	9 (17.3)	6 (11.8)

AAS, Altmetric Attention Score; *IQR*, interquartile range; *No.*, number.
*Total >1024 because some articles pertained to >1 dermatology topic.

that open access articles correlated with higher AAS (21.9 vs 10.4, $P < .01$) and PlumX (153.0 vs 96.9, $P < .01$) scores, potentially due to increased visibility. A significant positive correlation was found between both AAS and 3-year citation count and PlumX and 3-year citation count (Fig 1). Using the Spearman correlation, we found that AAS more closely correlated with citations than

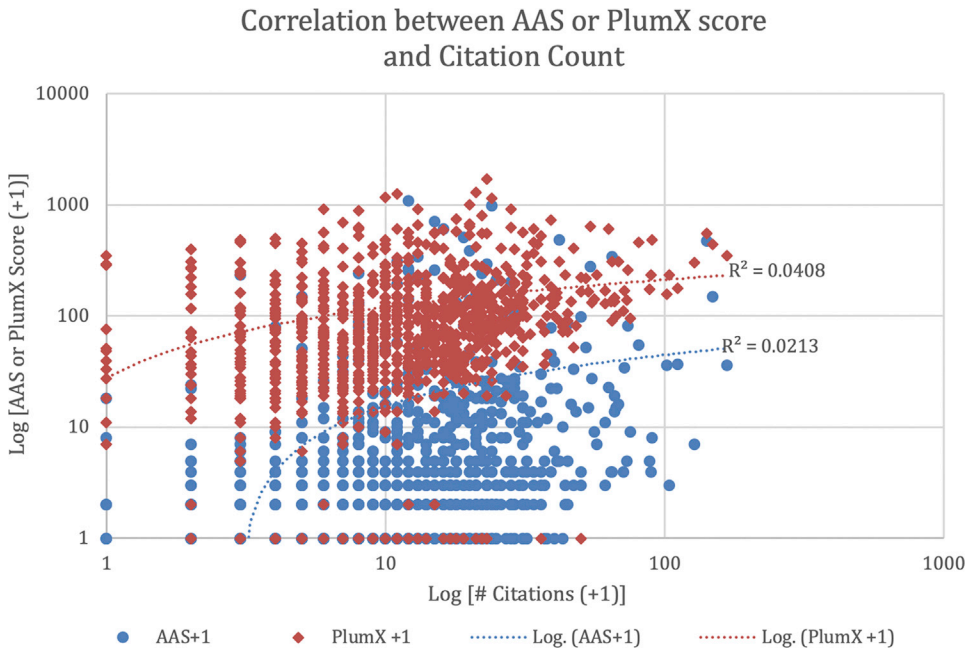

Fig 1. Correlations between the Altmetric Attention Score (*AAS*) or the PlumX score and the number of citations during a 3-year period (2016-2019).

PlumX ($\rho = 0.35$ for AAS vs $\rho = 0.20$ for PlumX; both $P < .001$).

As the public increasingly turns toward online resources for health information and dermatologists increasingly use digital platforms to disseminate this knowledge,[5] metrics such as AAS and PlumX scores may represent novel ways to analyze a research paper's online "buzz." Notably, journals can increase AAS and PlumX scores through the use of press releases, embargoes, or social media strategies such as easy Twitter sharing links or Instagram posts. These metrics add depth to discussions of how research is shared and consumed in the digital era; however, they do not necessarily reflect on the quality of the research and serve to complement, rather than replace, traditional citation count. The data highlight the potential of using alternative metrics to measure the dissemination of dermatology research and identify fields of study that may acquire the most public interest.

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