

# Dermatology Articles in Preprint Servers: A Cross-sectional Study

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## PRACTICE POINTS

- Preprint servers allow researchers to post manuscripts before publication in peer-reviewed journals.
- The low rate of on-site comments suggests that preprint servers may not be effective for obtaining feedback to improve dermatology manuscripts prior to journal submission; therefore, dermatologists may use these servers to disseminate research quickly and freely but may not receive constructive criticism.
- Preprints have not been peer reviewed, and data should be corroborated before incorporating new diagnostics or treatments into clinical practice.

To the Editor:

Preprint servers allow researchers to post manuscripts before publication in peer-reviewed journals. As of January 2022, 41 public preprint servers accepted medicine/science submissions.<sup>1</sup> We sought to analyze characteristics of dermatology manuscripts in preprint servers and assess preprint publication policies in top dermatology journals.

Thirty-five biology/health sciences preprint servers<sup>1</sup> were searched (March 3 to March 24, 2021) with keywords *dermatology*, *skin*, and *cutaneous*. Preprint server, preprint post date, location, metrics, journal, impact factor (IF), and journal publication date were recorded. Preprint

policies of the top 20 dermatology journals—determined by impact factor of the journal (<https://www.scimagojr.com/>)—were reviewed. Two-tailed *t* tests and  $\chi^2$  tests were performed ( $P < .05$ ).

A total of 1420 articles were posted to 11 preprint servers between June 20, 2007, and February 15, 2021 (Table 1); 377 (27%) were published in peer-reviewed journals, with 350 (93%) of those published within 1 year of preprint post. Preprints were published in 203 journals with a mean IF of 6.2. Growth in preprint posts by year (2007-2020) was exponential ( $R^2=0.78$ )(Figure). On average, preprints were viewed 424 times (Table 2), with published preprints viewed more often than unpublished preprints (596 vs 362 views)( $P < .001$ ). Only 23 of 786 (3%) preprints with comments enabled had feedback. Among the top 20 dermatology journals, 18 (90%) allowed preprints, 1 (5%) evaluated case by case, and 1 (5%) prohibited preprints.

Our study showed exponential growth in dermatology preprints, a low proportion published in peer-reviewed journals with high IFs, and a substantial number of page views for both published and unpublished preprints. Very few preprints had feedback. We found that most of the top 20 dermatology journals accept preprints. An analysis of 61 dermatology articles in medRxiv found only 51% (31/61) of articles were subsequently published.<sup>2</sup> The low rate of publication may be due to the quality of preprints that do not meet criteria to be published following peer review.

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Ms. Chang reports no conflict of interest. Dr. Lipner is a consultant for BelleTorus Corporation, Hoth Therapeutics, and Ortho Dermatologics.

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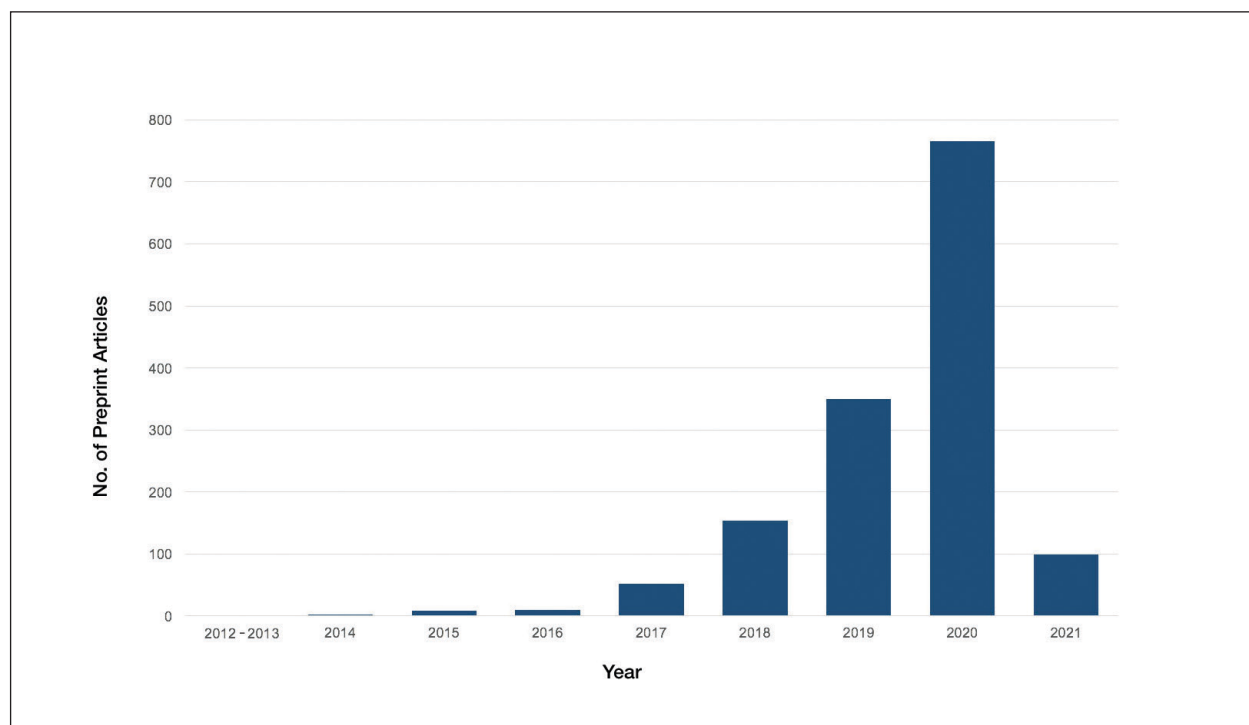
**TABLE 1. Characteristics of Dermatology Articles by Preprint Server<sup>a,b</sup>**

Preprint server	No. of preprints	Mean tweets	Mean abstract views	Mean page views	Mean AAS	No. of journals	No. of articles later published	Mean journal impact factor
bioRxiv	578	10	1323	876	7.7	106	207	7.2
Research Square	277	NS	NS	66	NS	23	35	2.8
SSRN	155	NS	307	24	NS	21	32	3.5
ResearchGate	125	NS	NS	120	NS	6	10	3.6
Preprints.org	76	2	NS	683	1.4	21	41	2.7
Authorea	75	NS	NS	0	NS	6	10	4.4
medRxiv	74	4	1519	462	5.3	14	20	5.2
JMIR Preprints	52	NS	NS	0	NS	6	22	4.7
OSF Preprints	5	NS	NS	74	NS	0	0	NS
Zenodo	2	NS	NS	72	NS	0	0	NS
SciELO	1	NS	NS	0	NS	0	0	NA

Abbreviations: AAS, Altmetric Attention Score; NS, not stated (not listed on website).

<sup>a</sup>Information on each metric was not available for all preprint servers.

<sup>b</sup>Posted between June 20, 2007, and February 15, 2021.



Distribution of dermatology preprint articles posted by year. One dermatology preprint was posted in 2007; this data point has been excluded.

**TABLE 2.** Characteristics of Dermatology Preprint Articles

	Total	Published	Not published	P value
No. of articles	1420	377	1043	
No. of tweets; mean (range)	722; 8 (0–171)	265; 9 (0–123)	457; 7 (0–171)	.2
No. of preprints with comments enabled; no. of articles with comments present (%)	786; 23 (3)	246; 8 (3)	540; 15 (3)	.2
No. of abstract views; mean (range)	805; 1151 (1–3094)	259; 1198 (1–8350)	546; 1129 (3–30,943)	.3
No. of page views; mean (range)	1293; 424 (0–9197)	345; 596 (0–7457)	948; 362 (0–9197)	<.001
No. of articles with AAS available, N; mean (range)	727; 7 (0–680)	267; 8 (0–680)	460; 6 (0–238)	.3
No. of journals where preprints were later published; mean (range)		203; 6.2 (1.4–47.8)	NA	
No. of days to publication, mean (range)		179 (0–819)	NA	
Geographic location of lead author, n				
North America	424	121	303	
Asia	413	78	333	
Europe	380	122	257	
Middle East	70	18	51	
Oceania	42	26	20	
South America	41	8	32	
Africa	35	4	33	
Not available	15	0	14	

Abbreviation: AAS, Altmetric attention score.

Preprint servers are fairly novel, with a majority launched within the last 5 years.<sup>1</sup> The goal of preprints is to claim conception of an idea, solicit feedback prior to submission for peer review, and expedite research distribution.<sup>3</sup> Because preprints are uploaded without peer review, manuscripts may lack quality and accuracy. An analysis of 57 of the largest preprint servers found that few provided guidelines on authorship, image manipulation, or reporting of study limitations; however, most preprint servers do perform some screening.<sup>4</sup> medRxiv requires full scientific research reports and absence of obscenity, plagiarism, and patient identifiers. In its first year, medRxiv rejected 34% of 176 submissions; reasons were not disclosed.<sup>5</sup>

The low rate of on-site comments suggests that preprint servers may not be effective for obtaining feedback to improve dermatology manuscripts prior to

journal submission. Almost all of the top 20 dermatology journals accept preprints. Therefore, dermatologists may use these preprint servers to assert project ideas and disseminate research quickly and freely but may not receive constructive criticism.

Our study is subject to several limitations. Although our search was extensive, it is possible manuscripts were missed. Article metrics also were not available on all servers, and we could not account for accepted articles that were not yet indexed.

There has been a surge in posting of dermatology preprints in recent years. Preprints have not been peer reviewed, and data should be corroborated before incorporating new diagnostics or treatments into clinical practice. Utilization of preprint servers by dermatologists is increasing, but because the impact is still unknown, further studies on accuracy and reliability of preprints are warranted.

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