

## RESEARCH LETTER

## Investigating the Impact of Financial Sponsorship in Dermatology Research

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## ABSTRACT

**Introduction:** Financial sponsorship plays a crucial role in advancing dermatologic research, yet its impact on research quality and visibility is not well-defined. This study aims to evaluate the association between financial sponsorship and the quality of evidence, publication impact, and research collaboration in dermatology.

**Methods:** We analyzed 1,380 dermatology articles published from October 2013 to October 2023 in three leading journals. Data collection was conducted using REDCap. We assessed the proportion of sponsored studies and their impact in terms of citation frequency, author count, and journal impact factors. Statistical analyses were performed using t-tests, chi-squared tests, and regression analysis in STATA VSN 16.1.

**Results:** Sponsored articles comprised 48.2% of the total, with the National Institutes of Health (NIH) being the predominant funder. These articles showed significantly higher citation rates and more authors per article compared to non-sponsored ones. The mean journal impact factor was also higher for sponsored studies. Furthermore, sponsored studies were more likely to employ prospective study designs, indicative of higher evidence quality.

**Discussion:** Financial sponsorship significantly enhances the visibility and quality of evidence in dermatologic research. The findings underscore the need for increased advocacy for funding, particularly in clinical research within dermatology, to foster greater research collaborations and more impactful scientific discoveries.

## INTRODUCTION

The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is a major source of funding for skin research. However, NIAMS funding for dermatology research has been significantly behind that of rheumatology, particularly for clinical research investigations.<sup>1</sup> Leaders of professional academies should advocate for

financial sponsorship, as it is critical to driving innovation, research, and collaboration in dermatology.<sup>2</sup> We aim to investigate the relationship between financial sponsorship and original research in dermatology, examining scope of collaboration, quality of evidence produced, and overall publication impact.

## METHODS

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1,380 articles published between October 2013 to October 2023 were analyzed. Publications of original investigations in the Journal of the American Academy of Dermatology (n=516), JAMA Dermatology (n=365), and Dermatologic Surgery (n=499) were included. Four to six issues per year were randomly selected to allow for comparably sized samples by journal. REDCap was used for data collection and T-tests, chi-squared, and regression analyses were performed using STATA VSN 16.1, with significance defined as  $p < 0.05$ . Evidence was categorized as high quality (randomized controlled or prospective study) or low quality (retrospective study).<sup>3</sup>

## RESULTS

The study included 665 (48.2%) sponsored articles, with Dermatologic Surgery having a lower proportion of sponsorship (30.3%). The proportion of sponsored articles increased over the last decade in JAAD ( $p = 0.010$ ) but not JAMA Dermatology or Dermatologic Surgery ( $p > 0.05$ ). The most common funding source was NIH (18.6%,  $n = 124/665$ ). Among private sources, Pfizer ( $n = 47/665$ , 7.1%), Galderma Laboratories ( $n = 35/665$ , 5.3%) and Eli Lilly and Company ( $n = 22/665$ , 3.3%) were most common. Across all journals, sponsored articles were cited at a greater mean frequency (38.6) than non-sponsored articles (26.5,  $p < 0.001$ ) (**Table 1**). Sponsored articles also had a higher average number of authors (8.91 vs. 5.91,  $p < 0.001$ ) and a higher mean journal impact factor (10.3 vs. 7.61,  $p < 0.001$ ) compared to non-sponsored articles. Regarding study type, sponsored articles were more likely to be of higher evidence quality than non-sponsored articles (342 vs. 256,  $p < 0.001$ ). Similar results are seen in subgroup analysis by journal (**Table 1**). Among sponsored studies,

NIH funded studies were published in greater impact journals compared to those of other funding sources (11.8 vs. 9.9,  $p < 0.001$ ). Author count and citation frequency did not change for NIH sponsored studies compared to other sources.

## DISCUSSION

Our data highlights how financial sponsorship has potential to amplify research visibility, collaboration between authors, and quality of evidence in dermatologic research. Prospective studies often require larger collaborations, human resources, and investigational drugs which may help explain this data.<sup>2</sup> The largely stable involvement of financial sponsorship in the dermatology literature over time suggests there may be an opportunity to increase research funding in the field.

NIH funded research tends to be published in greater impact journals but importantly does not seem to be cited by other researchers or increase research collaboration more than other funding sources. Notably, the level of evidence and research impact have shown to be unaffected by funding source or agency in prior literature.<sup>5</sup> A study limitation is the lack of bias evaluation.<sup>5</sup> Importantly, articles with industry compared to non-industry sponsored drug and device studies have not been shown to have differences in follow-up or selective outcome reporting bias.<sup>6</sup> Less agreement between conclusions and results has been shown in industry sponsored research compared to that of other funding sources, suggesting that public sources of funding may be optimal for reducing bias.<sup>6</sup>

Efforts to expand grant opportunities, from both private and public sources, and increase accessibility to all researchers, regardless of race or gender, is critical for continued

**Table 1.** Journal Subgroup Analysis of Financial Sponsorship Impact on Dermatologic Research

Key Variables	JAAD			JAMA Dermatology			Dermatologic Surgery		
	Sponsored (n=306, 59.3%)	Not sponsored (n=210, 40.7%)	P-Value	Sponsored (n=208, 57.0%)	Not Sponsored (n=157, 43.0%)	P-Value	Sponsored (n=151, 30.3%)	Not Sponsored (n=348, 59.7%)	P-Value
Citation Frequency	38.6 ± 52.0	26.5 ± 33.8	<0.001*	42.3 ± 52.4	34.2 ± 44.6	0.030*	20.1 ± 23.4	19.7 ± 29.2	0.174
Author Number	9.7 ± 7.8	6.7 ± 5.0	0.018*	10.1 ± 7.7	8.0 ± 7.4	0.684	5.7 ± 2.8	4.5 ± 2.0	<0.001*
High-quality Evidence	118 (38.6%)	22 (10.5%)	<0.001*	68 (32.7%)	25 (15.9%)	<0.001*	78 (51.7%)	86 (24.7%)	<0.001*

advancement and discovery in dermatology, as study findings demonstrate that financially sponsored research in dermatology is both meaningful and high impact.

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