SKIN

RESEARCH LETTER

Rising Stars in Dermatology: Analysis of Lead Authorship Roles in the Published Literature

Umayr R. Shaikh, MPH[1], Ayushya Ajmani, BA[2], David Makaj, BS[3], Payal C. Shah, MD, MS[4]

[1] Georgetown University School of Medicine, Washington, District of Columbia, USA
[2] Dartmouth College, Hanover, New Hampshire, USA
[3] Larner College of Medicine at The University of Vermont, Burlington, Vermont, USA
[4] Dartmouth Health Department of Dermatology, Lebanon, New Hampshire, USA

ABSTRACT

Introduction: The quality and progression of dermatologic research is significantly impacted by the contribution of first authors at different stages of their careers. Our study examines the association between first-author academic degree, financial sponsorship, and evidence quality published in three highly read journals from October 2013 to October 2023.
Methods: Data collection was conducted using REDCap, and statistical analyses were performed with Welch's t-tests and chi-squared tests.
Results: A significant shift in first-author education levels was observed pre- and post-2018, with an increase in pre-doctoral (bachelor's or master's degree) compared to post-doctoral (MD or PhD) first authors (9.6% vs. 15.5%, p=0.04), indicating a trend of early-career researchers assuming lead roles in original investigations. Additionally, citation frequency did not differ between pre- and post-doctoral first authors (p=0.26), suggesting comparable research impact. However, post-doctoral first authors had a higher proportion of financial sponsorships (48% vs. 41%, p=0.014) and a higher quality of evidence based on study design (31.4% vs. 13.7%, p<0.001).
Discussion: The disparity in financial sponsorship and evidence quality highlights an opportunity for enhanced support of pre-doctoral early career researchers through mentorship programs and financial grants to potentially improve meaningful research productivity in dermatology.

INTRODUCTION

The academic contribution of authors, especially first authors, at different stages of their careers significantly impacts the quality of dermatology research and the progression of the field.[1,2] This study investigates the association of first-author academic degree with financial sponsorship and research impact in three well-regarded dermatology journals.

METHODS

Comprehensive data collection was conducted for publications between October 2013 to October 2023. Two equal time periods were defined as before and after 2018. Four to six issues per year were randomly selected (for similar article representation per journal per year). Only original investigations were included, resulting in the following cohorts: *Journal of*

the American Association of Dermatology (JAAD) (n=516), *Dermatologic Surgery* (n=499), and *JAMA Dermatology* (n=366). REDCap was used for data collection and statistical analyses were performed using Welch's t-tests and chi-squared tests via STATA VSN 16.1. Significance was defined as $p<0.05$. Evidence was categorized as high quality (randomized controlled or prospective study) or low quality (retrospective study).

RESULTS

Analysis revealed a significant shift in the level of education among first authors pre- versus post-2018, with an increase in pre-doctoral education (bachelor's or master's degree) compared to post-doctoral education (doctorate in medicine, MD, or philosophy, PhD), indicating a trend of early-career researchers taking on lead authorship roles in original investigations (9.6% vs. 15.5% predoctoral first authors, p=0.04). This finding is consistent with the increased research output seen in dermatology applicants.[1,3] Publications with first authors with a pre- versus post-doctoral degree did not differ in citation frequency (p=0.26), suggesting a comparable impact on other readers and researchers (**Table 1**). Articles with post-doctoral first authors did have a

Table 1. Impact of Pre-and Post-doctoral First Author Contributions in Dermatology Research

	Pre-Doctoral First Authors n = 204	Post-Doctoral First Authors n = 1177	P-value
All Journals	204 (14.8%)	1177 (85.2%)	
Citation Frequency	31.0 ± 40.4	32.6 ± 44.5	0.257
Financial Sponsorship	84 (41.2%)	560 (47.6%)	0.014*
High Quality Evidence	28 (13.7%)	369 (31.4%)	<0.001*
JAAD	87 (16.9%)	429 (83.1%)	
Citation Frequency	31.8 ± 34.6	41.6 ± 52.2	0.171
Financial Sponsorship	37 (42.5%)	258 (60.1%)	<0.001*
High Quality Evidence	11 (12.6%)	129 (30.1%)	<0.001*
JAMA Dermatology	79 (21.6%)	287 (78.4%)	
Citation Frequency	29.3 ± 50.9	28.7 ± 49.0	0.928
Financial Sponsorship	38 (48.1%)	160 (55.7%)	0.019*
High Quality Evidence	13 (16.5%)	80 (27.9%)	<0.001*
Dermatologic Surgery	38 (7.6%)	461 (92.4%)	
Citation Frequency	11.8 ± 14.1	20.5 ± 28.3	0.064
Financial Sponsorship	9 (23.7%)	142 (30.8%)	0.035*
High Quality Evidence	3 (7.9%)	160 (34.7%)	<0.001*

*Journals included *Journal of the American Association of Dermatology*, *JAMA Dermatology*, *Dermatologic Surgery*, respectively for journals 1-3.

significantly higher proportion of financial sponsorships (48%) across all journals compared to those with pre-doctoral first authors (41%) (p=0.014). Articles with pre-doctoral first authors offered lower quality of evidence by study design compared to their post-doctoral counterparts (p<0.001). JAAD, *JAMA Dermatology* and *Dermatologic Surgery* individual cohorts shared similar findings to the overall group (**Table 1**).

DISCUSSION

Early academic scholars are contributing more to the landscape of dermatologic innovation and discovery. Development of pathways to increase distribution of opportunities to early scholars remains critical and ripe for improvement.[4] Despite being at an early career stage, these authors produce work of similar citation impact, yet lower evidence quality compared to their post-doctoral counterparts, indicating pre-doctoral research may help serve a critical role in establishing proof-of-concept for higher scope, higher quality investigations. The disparity in financial sponsorship between these two groups may allude to challenges faced by pre-doctoral researchers and an opportunity to fill this gap. Experts encourage young researchers to consider economics and resources early in research planning to generate more meaningful output.[2] The trend of early career involvement in research output will likely continue to increase.[3] Future efforts to develop emerging pre-doctoral researchers through formal research mentorship programs and financial grants may help enhance more meaningful research output in dermatology by this group of researchers.[5]

Conflict of Interest Disclosures: None

Funding: None

Corresponding Author:
Umayr R. Shaikh, MPH
2210 Wisconsin Ave NW Unit 220
Washington, DC 20007
Email: urs3@georgetown.edu

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