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SHORT REPORT

Cohort study assessing the predictive value of a research year vs additional degree in dermatology

Madelaine Fritsche[1] · Tonya King[2] · Jeffrey J. Miller[1,3] · Charlene Lam[1,3]

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Abstract
Taking a gap year to obtain an additional degree or for research is becoming increasingly popular among medical students pursuing dermatology to bolster residency application competitiveness. The purpose of this study was to determine whether doing so influences future academic achievement and career trajectory. A list of dermatologists who achieved board certification in 2010 was obtained from the American Board of Dermatology. Information regarding additional post-graduate degrees, research years, fellowship specialization, practice setting, publication number, and H-index were obtained using publicly available data. Additional degrees were associated with higher research productivity, higher H-index, and practicing at teaching hospitals while taking a research year was only associated with a higher H-index. This data can be used to further inform medical students wishing to achieve high levels of research productivity and careers at teaching institutions and residency programs wishing to recruit such applicants.

Keywords Dermatology residency · Dermatology research year · Additional degree · Academic achievement · Career trajectory · Gap year

Background

Opting for a research year or an additional degree to bolster residency application competitiveness is becoming increasingly popular among medical students pursuing dermatology, despite data showing these may not improve match rates [1, 2]. The purpose of this study was to determine whether a research year or additional degree influences future academic achievement and career trajectory.

Materials and methods

This study was exempt from IRB approval. A list of dermatologists ($n = 380$) who achieved board certification in 2010 was obtained from the American Board of Dermatology. Information regarding additional post-graduate degrees, research years, fellowship specialization, and practice setting were obtained from hospital/ practice websites, Doximity, and LinkedIn. Scopus was used to determine publication number and H-index (a metric used to measure research productivity and citation impact). Physicians with incomplete data were excluded. Additional degrees were only included if they were obtained during medical school.

Average number of publications per year of practice was compared using the Wilcoxon two-sample test or the Kruskal–Wallis test. Associations between categorical variables were evaluated using Chi-square or Fisher's Exact test.

This study was deemed exempt from IRB approval via Penn State IRB determination (reference ID STUDY00018487).

✉ Charlene Lam
clam@pennstatehealth.psu.edu

[1] Penn State College of Medicine, Hershey, PA 17033, USA

[2] Department of Public Health Sciences, Penn State University College of Medicine, Hershey, PA 17033, USA

[3] Penn State Hershey Medical Center Department of Dermatology, Penn State Health, 500 University Drive, HU14, Hershey, PA 17033, USA

Table 1 Median number of publications per year of practice for dermatologists who took a research year or obtained an additional degree

Research year	Median number of publications per year of practice	*p* value
Yes	0.09	0.62
No	0.18	
Degree	Median number of publications per year of practice	
MD only	0.10	0.0002
Master of Business Administration	0.16	
Master of Public Health	0.25	
Doctor of Philosophy	0.73	
Master of Science	1.25	
Multiple Additional Degrees	2.63	

Results

Data were obtained for 94.5% (359/380) of dermatologists who were board certified in 2010. Thirteen dermatologists pursued a research year while 51 obtained an additional graduate-level degree before applying to residency.

Dermatologists with additional degrees had a higher median number of publications per year of practice than those without. However, there was no significant difference in publications between those who took a research year or not (Table 1). Obtaining an additional degree and taking a research year were both associated with significantly higher median H-indices compared to those who did not. Neither taking a research year nor having an additional degree was associated with increased likelihood of obtaining a fellowship. There was no significant difference in practice setting for any specific additional degree or for those who took a research year. However, when dichotomized, dermatologists with any additional degree vs an MD only were more likely to practice in a teaching hospital. (Table 2).

Discussion

Research years or additional degrees during medical school may provide insight into future career trajectory for medical students applying to dermatology. Additional degrees were associated with higher research productivity, higher H-index, and practicing at teaching hospitals while taking a research year was only associated with a higher H-index. Taking these types of gap years may promote a professional identity more focused on scholarly output and performance.

Limitations include the few number of dermatologists who pursued research years during this time, limiting the statistical power of this group. Another limitation was the use of publication number as a surrogate endpoint for research productivity without the consideration of the quality of work. H-index was another surrogate endpoint used to address this limitation, however, there are criticisms of this metric as well [3].

Although holistic review of applicants should be sought, this data can be used to further inform medical students wishing to achieve high levels of research productivity and careers at teaching institutions as well as residency programs wishing to recruit such applicants.

Table 2 Comparison of H-indices, whether fellowships were obtained, and practice settings of dermatologists who took a research year or obtained an additional degree prior to residency application

	H-index	*p* value	% Who obtained fellowship	*p* value	Practice setting (% at teaching institution)	*p* value
Research year	7.0	0.0284	40.46	0.57	30.77	0.79
No research year	4.0		30.77		23.48	
Additional degree(s)	9.0	< 0.0001	39.06	0.32	39.34	0.0135
MD only	4.0		45.90		20.54	

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Declarations

Competing interests The authors declare no competing interests.

Conflict of interest The authors have no financial or proprietary interests in any material discussed in this article.

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