

Perceived Benefits of a Research Fellowship for Dermatology Residency Applicants: Outcomes of a Faculty-Reported Survey

Norhan Shamloul, MD, MS; Radhika Trivedi, MD, MPH; Eric Hossler, MD

PRACTICE POINTS

- Many medical students seeking to match into a dermatology residency program complete a research fellowship (RF).
- Completion of an RF can give a competitive advantage to applicants even though most advisors acknowledge that these applicants are not likely to be involved in research throughout their career, perform better on standardized examinations, or provide better patient care.
- The decision to recommend an RF represents an extremely complex topic and should be tailored to each individual applicant.

Dermatology continues to represent one of the most competitive specialties for medical students to match into for residency. The number of publications reported by applicants contributes to this competitiveness. Many students hoping to obtain a dermatology residency position are completing research fellowships (RFs) prior to applying. We conducted a survey to determine if those involved in the residency selection process recommend completion of an RF and how they view the perceived benefits of RF completion.

Cutis. 2023;112:192-194, E1-E3.

Dermatology residency positions continue to be highly coveted among applicants in the match. In 2019, dermatology proved to be the most competitive specialty, with 36.3% of US medical school seniors and independent applicants going unmatched.¹ Prior to the transition to a pass/fail system, the mean US Medical Licensing Examination (USMLE) Step 1 score for matched applicants increased from 247 in 2014 to 251 in 2019. The growing number of scholarly activities reported by applicants has contributed to the competitiveness of the specialty. In 2018, the mean number of abstracts, presentations, and publications reported by matched applicants was 14.71, which was higher than other competitive specialties, including orthopedic surgery and otolaryngology (11.5 and 10.4, respectively). Dermatology applicants who did not match in 2018 reported a mean of 8.6 abstracts, presentations, and publications, which was on par with successful applicants in many other specialties.¹ In 2011, Stratman and Ness² found that publishing manuscripts and listing research experience were factors strongly associated with matching into dermatology for reapplicants. These trends in reported research have added pressure for applicants to increase their publications.

Given that many students do not choose a career in dermatology until later in medical school, some students

Dr. Shamloul is from the Department of Dermatology, Penn State Health Milton S. Hershey Medical Center, Pennsylvania. Dr. Trivedi is from West Dermatology, Newport Beach, California. Dr. Hossler is from the Department of Dermatology, Geisinger Medical Center, Danville, Pennsylvania. The authors report no conflict of interest.

The eTables are available in the Appendix online at www.mdedge.com/dermatology.

Correspondence: Norhan Shamloul, MD, MS, Department of Dermatology, Penn State Health Milton S. Hershey Medical Center, 500 University Dr, Hershey, PA 17033 (norhanshamloul@gmail.com).

doi:10.12788/cutis.0864

choose to take a gap year between their third and fourth years of medical school to pursue a research fellowship (RF) and produce publications, in theory to increase the chances of matching in dermatology. A survey of dermatology applicants conducted by Costello et al³ in 2021 found that, of the students who completed a gap year (n=90; 31.25%), 78.7% (n=71) of them completed an RF, and those who completed RFs were more likely to match at top dermatology residency programs ($P<.01$). The authors also reported that there was no significant difference in overall match rates between gap-year and non-gap-year applicants.³ Another survey of 328 medical students found that the most common reason students take years off for research during medical school is to increase competitiveness for residency application.⁴ Although it is clear that students completing an RF often find success in the match, there are limited published data on how those involved in selecting dermatology residents view this additional year. We surveyed faculty members participating in the resident selection process to assess their viewpoints on how RFs factored into an applicant's odds of matching into dermatology residency and performance as a resident.

Materials and Methods

An institutional review board application was submitted through the Geisinger Health System (Danville, Pennsylvania), and an exemption to complete the survey was granted. The survey consisted of 16 questions via REDCap electronic data capture and was sent to a list-serve of dermatology program directors who were asked to distribute the survey to program chairs and faculty members within their department. Survey questions evaluated the participants' involvement in medical student advising and the residency selection process. Questions relating to the respondents' opinions were based on a 5-point Likert scale on level of agreement (1=strongly agree; 5=strongly disagree) or importance (1=a great deal; 5=not at all). All responses were collected anonymously. Data points were compiled and analyzed using REDCap. Statistical analysis via χ^2 tests were conducted when appropriate.

Results

The survey was sent to 142 individuals and distributed to faculty members within those departments between August 16, 2019, and September 24, 2019. The survey elicited a total of 110 respondents. Demographic information is shown in eTable 1. Of these respondents, 35.5% were program directors, 23.6% were program chairs, 3.6% were both program director and program chair, and 37.3% were core faculty members. Although respondents' roles were varied, 96.4% indicated that they were involved in both advising medical students and in selecting residents.

None of the respondents indicated that they always recommend that students complete an RF, and only 4.5% indicated that they usually recommend it; 40% of

respondents rarely or never recommend an RF, while 55.5% sometimes recommend it. Although there was a variety of responses to how frequently faculty members recommend an RF, almost all respondents (98.2%) agreed that the reason medical students pursued an RF prior to residency application was to increase the competitiveness of their residency application. However, 20% of respondents believed that students in this cohort were seeking to gain a deeper understanding of the specialty, and 27.3% thought that this cohort had genuine interest in research. Interestingly, despite the medical students' intentions of choosing an RF, most respondents (67.3%) agreed or strongly agreed that the publications produced by fellows make an impact on the dermatologic scientific community.

Although some respondents indicated that completion of an RF positively impacts resident performance with regard to patient care, most indicated that the impact was a little (26.4%) or not at all (50%). Additionally, a minority of respondents (11.8%) believed that RFs positively impact resident performance on in-service and board examinations at least a moderate amount, with 62.7% indicating no positive impact at all. Only 12.7% of participants agreed or strongly agreed that completion of an RF led to increased applicant involvement in research throughout their career, and most (73.6%) believed there were downsides to completing an RF. Finally, only 20% agreed or strongly agreed that students who completed an RF were more dedicated to the field of dermatology (eTable 2).

Further evaluation of the data indicated that the perceived utility of RFs did not affect respondents' recommendation on whether to pursue an RF or not. For example, of the 4.5% of respondents who indicated that they always or usually recommended RFs, only 1 respondent believed that students who completed an RF were more dedicated to the field of dermatology than those who did not. Although 55.5% of respondents answered that they sometimes recommended completion of an RF, less than a quarter of this group believed that students who completed an RF were more likely to be heavily involved in research throughout their career ($P=.99$).

Overall, 11.8% of respondents indicated that completion of a dermatology RF influenced the evaluation of an applicant a great deal or a lot, while 53.6% of respondents indicated a little or no influence at all. Most respondents (62.8%) agreed or strongly agreed that completion of an RF can compensate for flaws in a residency application. Furthermore, when asked if completion of an RF could set 2 otherwise equivocal applicants apart from one another, 46.4% of respondents agreed or strongly agreed with the statement, while only 17.3% disagreed or strongly disagreed (eTable 2).

Comment

This study characterized how completion of an RF is viewed by those involved in advising medical students

and selecting dermatology residents. The growing pressure for applicants to increase the number of publications combined with the competitiveness of applying for a dermatology residency position has led to increased participation in RFs. However, studies have found that students who completed an RF often did so despite a lack of interest.⁴ Nonetheless, little is known about how this is perceived by those involved in choosing residents.

We found that few respondents always or usually advised applicants to complete an RF, but the majority sometimes recommended them, demonstrating the complexity of this issue. Completion of an RF impacted 11.8% of respondents' overall opinion of an applicant a lot or a great deal, while most respondents (53.6%) were influenced a little or not at all. However, 46.4% of respondents indicated that completion of a dermatology RF would set apart 2 applicants of otherwise equal standing, and 62.8% agreed or strongly agreed that completion of an RF would compensate for flaws in an application. These responses align with the findings of a study conducted by Kaffenberger et al,⁵ who surveyed members of the Association of Professors of Dermatology and found that 74.5% (73/98) of mentors almost always or sometimes recommended a research gap year for reasons that included low grades, low USMLE Step scores, and little research. These data suggest that completion of an RF can give a competitive advantage to applicants despite most advisors acknowledging that these applicants are not likely to be involved in research throughout their careers, perform better on standardized examinations, or provide better patient care.

Given the complexity of this issue, respondents may not have been able to accurately answer the question about how much an RF influenced their overall opinion of an applicant because of subconscious bias. Furthermore, respondents likely tailored their recommendations to complete an RF based on individual applicant strengths and weaknesses, and the specific reasons why one may recommend an RF need to be further investigated.

Although there may be other perceived advantages to RFs that were not captured by our survey, completion of a dermatology RF is not without disadvantages. Fellowships often are unfunded and offered in cities with high costs of living. Additionally, students are forced to delay graduation from medical school by a year at minimum and continue to accrue interest on medical school loans during this time. The financial burdens of completing an RF may exclude students of lower socioeconomic status and contribute to a decrease in diversity within the field. Dermatology has been found to be the

second least diverse specialty, behind orthopedics.⁶ Soliman et al⁷ found that racial minorities and low-income students were more likely to cite socioeconomic barriers as factors involved in their decision not to pursue a career in dermatology. This notion was supported by Rinderknecht et al,⁸ who found that Black and Latinx dermatology applicants were more likely to come from disadvantaged backgrounds, and Black applicants were more likely to indicate financial concerns as their primary reason for not pursuing an RF. The impact of accumulated student debt and decreased access should be carefully weighed against the potential benefits of an RF. However, as the USMLE transitions their Step 1 score reporting from numerical to a pass/fail system, it also is possible that dermatology programs will place more emphasis on research productivity when evaluating applications for residency. Overall, the decision to recommend an RF represents an extremely complex topic, as indicated by the results of this study.

Limitations—Our survey-based study is limited by response rate and response bias. Despite the large number of responses, the overall response rate cannot be determined because it is unknown how many total faculty members actually received the survey. Moreover, data collected from current dermatology residents who have completed RFs vs those who have not as they pertain to resident performance and preparedness for the rigors of a dermatology residency would be useful.

REFERENCES

1. National Resident Matching Program. *Results and Data: 2019 Main Residency Match*. National Resident Matching Program; 2019. Accessed September 13, 2023. https://www.nrmp.org/wp-content/uploads/2021/07/NRMP-Results-and-Data-2019_04112019_final.pdf
2. Stratman EJ, Ness RM. Factors associated with successful matching to dermatology residency programs by reapplicants and other applicants who previously graduated from medical school. *Arch Dermatol*. 2011;147:196-202.
3. Costello CM, Harvey JA, Besch-Stokes JG, et al. The role research gap-years play in a successful dermatology match. *J Am Acad Dermatol*. 2021;85:AB22.
4. Pathipati AS, Taleghani N. Research in medical school: a survey evaluating why medical students take research years. *Cureus*. 2016;8:E741.
5. Kaffenberger J, Lee B, Ahmed AM. How to advise medical students interested in dermatology: a survey of academic dermatology mentors. *Cutis*. 2023;111:124-127.
6. Pandya AG, Alexis AF, Berger TG, et al. Increasing racial and ethnic diversity in dermatology: a call to action. *J Am Acad Dermatol*. 2016;74:584-587.
7. Soliman YS, Rzepecki AK, Guzman AK, et al. Understanding perceived barriers of minority medical students pursuing a career in dermatology. *JAMA Dermatol*. 2019;155:252-254.
8. Rinderknecht FA, Brumfiel CM, Jefferson IS, et al. Differences in underrepresented in medicine applicant backgrounds and outcomes in the 2020-2021 dermatology residency match. *Cutis*. 2022;110:76-79.

APPENDIX

eTABLE 1. Demographics of Survey Respondents (N=110)

Demographic	Respondents, n (%)
Job title	
Program director	39 (35.5)
Chair	26 (23.6)
Program director and chair	4 (3.6)
Faculty member	41 (37.3)
Age, y	
25–34	13 (11.8)
35–44	44 (40.0)
45–54	16 (14.5)
55–64	23 (20.9)
65+	14 (12.7)
Involvement in medical student advising	
Primary advisor	19 (17.3)
One of several advisors	56 (50.9)
Peripherally	31 (28.2)
Not involved in medical student advising	4 (3.6)
Involvement in resident selection process	
Yes	106 (96.4)
No	4 (3.6)

eTABLE 2. Faculty Opinion Regarding Dermatology Research Fellowships (N=110)

Survey question	Response	Respondents, n (%)
Do you recommend that students complete a research fellowship before applying for a dermatology residency?	Always	0 (0)
	Usually	5 (4.5)
	Sometimes	61 (55.5)
	Rarely	34 (30.9)
	Never	10 (9.1)
Why do you think students participate in dermatology research fellowships?	To increase the competitiveness of their residency application	108 (98.2)
	To gain a deeper understanding of the specialty	22 (20.0)
	Genuine interest in research	30 (27.3)
	Other	2 (1.8)
Do you believe that students who complete a dermatology research fellowship are more dedicated to the field of dermatology than those who have not?	Strongly agree	4 (3.6)
	Agree	18 (16.4)
	Neither agree nor disagree	45 (40.9)
	Disagree	30 (27.3)
	Strongly disagree	13 (11.8)
Do you feel that the publications provided by dermatology research fellows make an impact on the dermatologic scientific community?	Strongly agree	19 (17.3)
	Agree	55 (50.0)
	Neither agree nor disagree	31 (28.2)
	Disagree	5 (4.5)
	Strongly disagree	0 (0.0)
Do you believe that students who complete a dermatology research fellowship are more likely to be heavily involved in research throughout their career?	Strongly agree	3 (2.7)
	Agree	11 (10.0)
	Neither agree nor disagree	44 (40.0)
	Disagree	35 (31.8)
	Strongly disagree	17 (15.5)
Do you believe that completion of a dermatology research fellowship can compensate for flaws in an application?	Strongly agree	7 (6.4)
	Agree	62 (56.4)
	Neither agree nor disagree	18 (16.4)
	Disagree	18 (16.4)
	Strongly disagree	5 (4.5)

CONTINUED ON NEXT PAGE

eTABLE 2. (continued)

Survey question	Response	Respondents, n (%)
Do you think there are downsides to completing a dermatology research fellowship?	Yes	81 (73.6)
	No	29 (26.4)
Given 2 applicants of equal standing, does completion of a dermatology research fellowship set one apart from the other?	Strongly agree	11 (10.0)
	Agree	40 (36.4)
	Neither agree nor disagree	40 (36.4)
	Disagree	13 (11.8)
	Strongly disagree	6 (5.5)
How heavily does research experience weigh into your evaluation of an applicant?	A great deal	5 (4.5)
	A lot	14 (12.7)
	A moderate amount	45 (40.9)
	A little	37 (33.6)
	Not at all	9 (8.2)
Does completion of a dermatology research fellowship influence your overall opinion of an applicant?	A great deal	3 (2.7)
	A lot	10 (9.1)
	A moderate amount	38 (34.5)
	A little	45 (40.9)
	Not at all	14 (12.7)
Does completion of a dermatology research fellowship positively impact a resident's performance in regards to in-service examination and board exams?	A great deal	1 (0.9)
	A lot	1 (0.9)
	A moderate amount	11 (10.0)
	A little	28 (25.5)
	Not at all	69 (62.7)
Does completion of a dermatology research fellowship positively impact a resident's performance in regards to patient care?	A great deal	3 (2.7)
	A lot	4 (3.6)
	A moderate amount	19 (17.3)
	A little	29 (26.4)
	Not at all	55 (50.0)