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What are the barriers faced by under-represented minorities applying to dermatology? A qualitative cross-sectional study of applicants applying to a large dermatology residency program

To the Editor: Under-represented minorities (URMs) in the United States include individuals self-identifying as Hispanic/Latino, African American, and American Indian/Alaska Native. These groups represent >30% of the general population but <9% of physicians in the United States.[1] Dermatology is the least diverse medical specialty after orthopedics.[2]

Increasing diversity and inclusion in the dermatology workforce carries substantial benefits, particularly, reduction in health care disparities.[3] While perceived barriers of minority medical students considering a career in dermatology has been studied,[4] our group sought to identify dermatology residency applicants' perceptions of diversity within dermatology and specific challenges they face related to applying to dermatology programs.

We performed a cross-sectional study of applicants who applied to the University of Texas Southwestern Dermatology Residency Program through the Electronic Residency Application Service in the 2013-2014 and 2014-2015 application cycles. Three investigators (RV, HJ, SFP) used a structured interview guide to conduct open-ended style telephone interviews from April to January of each cycle. Demographic information was collected, and all interviews were audiotaped and transcribed. Transcripts were coded by 3 independent coders using a 2-step deductive/inductive approach to thematic content analysis.[5] Cohort group analysis identified common themes in responses by URMs and non-URMs.

A total of 878 individuals were eligible to participate, including 112 URM applicants, and 117 applicants agreed to be interviewed. Of these, 44 applicants could be reached by phone, including 13 URMs (Table I). Thus, the response rate was 12% for URMs and 5% for non-URMs. Six themes emerged from analysis. Four themes were associated with barriers to matching: lack of equitable resources, lack of support, financial constraints, and lack of group identity. Two themes were associated with contributors to matching: mentorship and participation in pipeline/enrichment programs. Table II provides selected interview quotes representing perspectives of each theme.

Beyond board scores, our findings suggest mentorship and participation in pipeline/enrichment programs may give an applicant a competitive edge when applying to dermatology irrespective of URM status. Differences in upbringing, defined as social and cultural capital, may also play a role by influencing the availability of role models, support, financial opportunities, and higher education. Faculty who share their time, knowledge, support, and experience and provide opportunities to network can help build on each applicant's social and cultural capital.

Study limitations include single-site study and low response rate. The interview sample was not designed to meet a power calculation but was a best effort at census interviewing. Recall and social-desirability bias are other limitations due to the nature of the study.

In summary, we identified key potential barriers and contributors to success for medical students of various backgrounds applying to dermatology residency programs. Given the disparity between URM dermatologists and URM patients in the United States, it is imperative that efforts be made at the local and national level to improve diversity within the specialty. Future studies using anonymous surveys,

Table I. Demographic and social characteristics of survey participants

Variable	URM (n = 13)*	Non-URM (n = 31)	*P* value†
Sex			.724
Male, No. (%)	5 (38)	9 (29)	
Female, No. (%)	8 (62)	22 (71)	
Successful match into dermatology residency program‡			**.012**
Yes, No. (%)	7 (54)	28 (90)	
No, No. (%)	6 (46)	3 (10)	
USMLE 1 score, mean (SD)	229 (21)	247 (15)	**.003**
USMLE 2 score, mean (SD)	240 (21)	255 (18)	**.021**
AOA status,§ No. (%)	3 (23)	16 (52)	.105
Education level, No. (%)			
Mother			
Elementary	0	0	…
Middle school	2 (15)	0	.083
High school/GED	2 (15)	1 (3)	.204
Some college but no degree	0	2 (6)	>.99
Associate degree	1 (8)	1 (3)	.509
Bachelor's degree	5 (38)	8 (26)	.478
Some graduate but no degree	0	0	…
Master's degree	1 (8)	9 (29)	.237
Doctorate or professional degree	2 (15)	7 (23)	.703
Decline to answer	0	3 (10)	.544
Father			
Elementary	0	0	…
Middle school	0	0	…
High school/GED	3 (23)	2 (6)	.144
Some college but no degree	2 (15)	0	.083
Associate degree	0	0	…
Bachelor's degree	4 (31)	3 (10)	.170
Some graduate but no degree	0	0	…
Master's degree	1 (8)	8 (26)	.242
Doctorate or professional degree	3 (23)	15 (48)	.182
Decline to answer	0	3 (10)	.544
Family income, No. (%)			
Less than $20,000	1 (8)	0	.296
Greater than $20,000 but less than $40,000	3 (23)	2 (6)	.144
Greater than $40,000 but less than $60,000	3 (23)	0	**.022**
Greater than $60,000 but less than $100,000	2 (15)	5 (16)	>.99
Greater than $100,000	2 (15)	18 (58)	**.018**
Decline to answer	2 (15)	6 (19)	>.99
Recipient of federal or state assistance programs, No. (%)	3 (23)	1 (3)	.071
Raised in medically underserved area,‖ No. (%)	7 (54)	5 (16)	**.023**

AOA, Alpha Omega Alpha Honor Medical Society; *URM*, under-represented minority; *USMLE*, United States Medical Licensing Examination.
*Included 9 Hispanic, 3 African American, and 1 Native American respondents.
†Values in bold are statistically significant ($P < .05$).
‡Overall match rate 80% (n = 35) comparable to the 82% overall match rate in dermatology.
§AOA status was extracted from their Electronic Residency Application. We did not ask whether their school did or did not have an AOA program and/or when those elections were held.
‖Medically underserved area defined by Association of American Medical College as an area that was inadequately served by the available health care professionals, with less than 1 physician per 1500 population and/or the proportion of the population is Medicare or uninsured.

focus groups settings, longitudinal assessments, and larger sample sizes should be performed to confirm our results. Our results suggest that programs that encourage mentorship and participation in pipeline/enrichment programs may reduce barriers to a career in dermatology for URMs.

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Table II. Participant quotes representative of the 6 key themes identified through cohort group analysis and recommendations

Theme	Illustrative transcript excerpts from URM and non-URM applicants	Other remarks
Lack of equitable resources	"It's a vicious cycle: families live in poverty, no role models, so there is nothing to aspire to." (URM, matched)	70% of applicants (n = 31) commented on the lack of equitable resources affecting URMs more than non-URMs, specifically in education, exposure to the field of medicine, and/or role models.
Lack of support	"[I was] discouraged a couple of times because some people have said that I can reach out and impact more Latino patients being an internist. Some people have told me I've wasted my talents, wasted my ability to impact the health of other Latinos by going into such a specific field." (URM, not matched)	URM applicants (54% [n = 7]) more often received discouragement when choosing to apply to dermatology compared with non-URM applicants (13% [n = 4]). URMs were often persuaded to consider other specialties thought to better reflect their community vs non-URMs who received discouragement in the form of "good-natured jokes" about how dermatology was "not real medicine."
Financial constraints	"Medicine is not a field of broke men/women, it's not for the broke! If you don't come from money, this journey can be very difficult. Money affects your life decisions, more so in minorities. Loans for disadvantaged students help." (URM, matched)	All applicants implied it was "expensive" applying to dermatology. Financial support from family was cited to be helpful by non-URMs. URMs mentioned loans for disadvantaged students help.
Lack of Group Identity	"Looking at the faculty at most places, they are male, Caucasian, older. […] One feels like your story is not understood, where you're coming from and what you have to offer is not valued, I do feel like at most places, that was the case. Feeling like my unique perspective wasn't being valued, that was my experience." (URM, not matched)	80% of participants (n = 35) mentioned they knew 1 URM faculty or 1 URM resident in their home program; nearly all participants used demographic qualifiers to describe dermatologists such as "older men," "younger women," and "overwhelmingly white."
Mentorship	"My mentors helped me navigate the waters; helped introduce me to other people; helped me with the interview [preparation] by giving advice […] I had a lot of mentors who all helped out a little bit. Some of them were residents who had just gone through the process." (URM, matched)	All URMs and the majority of non-URMs who matched reported having a mentor during the process of applying to dermatology; only 44% (n = 4) of applicants who did not match (including 2 URMs and 2 non-URMs) reported having a mentor.
Pipeline programs or enrichment programs	"They are key! I saw the word 'Stanford' 3 times in one day. [I] googled their page and saw their healthcare opportunity program. I was able to get my application in, got in the program, and it was monumental being on Stanford's campus […] made it seem real— especially because I was from an undergraduate where it's said they don't create doctors! I got to meet admission people who gave me advice for every step of the process." (URM, matched)	6 of 7 URM applicants who matched were involved in a pipeline or enrichment program and/or were exposed to the field of dermatology/medicine early. 1 of 2 URM applicants who did not match reported involvement in these types of programs.

URM, Under-represented minority.

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Framing atopic dermatitis topical medication application site discomfort as a signal of efficacy improves willingness to continue use

To the Editor: Medications for atopic dermatitis (AD) can cause application site discomfort, leading patients to discontinue therapy. We assessed whether framing application discomfort as a sign of efficacy affects patients' willingness to tolerate application site discomfort.

After institutional review board approval, adults with self-reported AD were randomized to 1 of 9 hypothetical scenarios about their physician prescribing a cream for AD (Table I) administered by online survey (Amazon Mechanical Turk).[1] Each of the 9 scenarios was composed of a combination of 3 sensations—painful sensation; no painful sensation; and neutral, nonpainful sensation—and 3 sensation framings—control, counseling of potential sensation, and sensation is a sign the medication is working. Willingness to continue use of the medication was assessed using a 9-point Likert-type scale. The results were analyzed using R, version 3.6.2 (The R Foundation for Statistical Computing, Vienna, Austria) with a 2-tailed, independent-sample t test, analysis of variance (ANOVA), χ^2, and Cohen's d.

The 1039 participants represented both sexes and a wide range of ages, races, ethnicities, and education levels, with no statistically significant differences in demographics between groups (Supplemental Table I available via Mendeley at https://doi.org/10.17632/n96f27nypz.1#file-563538aa-0cf5-4244-8cc2-d7ac908e7ec9). Participants randomly assigned to a hypothetical scenario where they experienced a burning or stinging sensation reported being less willing to continue medication use than participants who did not experience a sensation or experienced a neutral, nonpainful sensation (both $P < .001$; Table II). For an unpleasant sensation with topical medication use, counseling to expect a sensation improved participants' willingness to continue use of a medication ($P < .001$; $d = .46$). However, when participants were counseled that the sensation is a signal of efficacy, their reported willingness greatly increased ($P < .001$; $d = 1.32$). Framing the discomfort as a signal of efficacy negates the effect of the discomfort compared with no painful sensation ($P = .42$) and a neutral, nonpainful sensation ($P = .96$). Even if participants did not feel a painful sensation when forewarned that it is a signal of efficacy (which may be interpreted as the medication's lack of efficacy), this did not detrimentally affect their willingness to continue medication use ($P = .57$).

Although guidelines[2,3] recommend that physicians counsel patients to expect transient application site discomfort, how effective this counseling is or the most effective means of counseling is not well characterized. In our study, positive framing of adverse effects was not tested for improved efficacy of the medication (as it is survey based), but instead, reported willingness to continue treatment was assessed. Improving willingness and adherence are critical in AD because adherence to topical corticosteroids is abysmal, declining to 32% over just 8 weeks.[4] Topical calcineurin inhibitors and crisaborole have high rates of application site discomfort compared with topical corticosteroids and may be even more affected by poor adherence.[5] Many cognitive biases affect patient adherence