

Premedical Student Interest in and Exposure to Dermatology at Howard University

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PRACTICE POINTS

- Many premedical students desire more exposure to dermatology than they have been receiving, particularly in mentorship and shadowing. Most exposure has been through social media or as patients in a dermatology clinic.
- Diverse mentorship and diversity of dermatology care are important to underrepresented in medicine premedical students and needs to be further incorporated.

We conducted a cross-sectional survey study of premedical undergraduate students at Howard University (Washington, DC), to evaluate the level of interest that underrepresented in medicine (UiM) premedical students have in the field of dermatology. The 19-question survey assessed student knowledge, opinions, and exposure to dermatology. Dermatology is an area of great interest for UiM premedical students that has few avenues available for exposure and learning. In dermatologic care, race-concordant mentoring is highly valued by UiM premedical students. Increased shadowing, research, and general events geared to dermatology could help improve the disparity between UiM interest in dermatology and actualizing the goal of becoming a dermatologist.

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Diversity of health care professionals improves medical outcomes and quality of life in patients.¹ There is a lack of diversity in dermatology, with only 4.2% of dermatologists identifying as Hispanic and 3% identifying as African American,² possibly due to a lack

of early exposure to dermatology among high school and undergraduate students, a low number of underrepresented students in medical school, a lack of formal mentorship programs geared to underrepresented students, and implicit biases.¹⁻⁴ Furthermore, the field is competitive, with many more applicants than available positions. In 2022, there were 851 applicants competing for 492 residency positions in dermatology.⁵ Thus, it is important to educate young students about dermatology and understand root causes as to why the number of underrepresented in medicine (UiM) dermatologists remains stagnant.

According to Pritchett et al,⁴ it is crucial for dermatologists to interact with high school and college students to foster an early interest in dermatology. Many racial minority students do not progress from high school to college and then from college to medical school, which leaves a substantially reduced number of eligible UiM applicants who can progress into dermatology.⁶ Increasing the amount of UiM students going to medical school requires early mediation. Collaborating with pre-existing premedical school organizations through presentations and workshops is another way to promote an early interest in dermatology.⁴ Special consideration should be given to students who are UiM.

Among the general medical school curriculum, requirements for exposure to dermatology are not high. In one study, the median number of clinical and preclinical hours required was 10. Furthermore, 20% of 33 medical schools did not require preclinical dermatology hours (hours done before medical school rotations begin and in an academic setting), 36% required no clinical hours (rotational hours),

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8% required no dermatology hours whatsoever, and only 10% required clinical dermatology rotation.³ Based on these findings, it is clear that dermatology is not well incorporated into medical school curricula. Furthermore, curricula have historically neglected to display adequate representation of skin of color.⁷ As a result, medical students generally have limited exposure to dermatology³ and are exposed even less to presentations of dermatologic issues in historically marginalized populations.⁷

Given the paucity of research on UIM students' perceptions of dermatology prior to medical school, our cross-sectional survey study sought to evaluate the level of interest in dermatology of UIM premedical undergraduates. This survey specifically evaluated exposure to dermatology, preconceived notions about the field, and mentorship opportunities. By understanding these factors, dermatologists and dermatology residency programs can use this information to create mentorship opportunities and better adjust existing programs to meet students' needs.

Methods

A 19-question multiple-choice survey was administered electronically (SurveyMonkey) in May 2020 to premedical students at Howard University (Washington, DC). One screening question was used: "What is your major?" Those who considered themselves a science major and/or with premedical interest were allowed to complete the survey. All students surveyed were members of the Health Professions Society at Howard University. Students who were interested in pursuing medical school were invited to respond. Approval for this study was obtained from the Howard University institutional review board (FWA00000891).

The survey was divided into 3 sections: Demographics, Exposure to Medicine and Dermatology, and Perceptions of Dermatology. The Demographics section addressed gender, age, and race/ethnicity. The Exposure to Medicine and Dermatology section addressed interest in attending medical school, shadowing experience, exposure to dermatology, and mentoring. The Perceptions of Dermatology section addressed preconceived notions about the field (eg, "dermatology is interesting and exciting").

Statistical Analysis—The data represented are percentages based on the number of respondents who answered each question. Answers in response to "Please enter any comments" were organized into themes, and the number of respondents who discussed each theme was quantified into a table.

Results

A total of 271 survey invitations were sent to premedical students at Howard University. Students were informed of the study protocol and asked to consent before proceeding to have their responses anonymously collected. Based on the screening question, 152 participants qualified for the survey, and 152 participants completed it (response rate, 56%; completion rate, 100%). Participants were asked to complete the survey only once.

Demographics—Eighty-four percent of respondents identified as science majors, and the remaining 16% identified as nonscience premedical. Ninety-four percent of participants identified as Black or African American; 3% as Asian or Asian American; and the remaining 3% as Other. Most respondents were female (82%), 16% were male, and 2% were either nonbinary or preferred not to answer. Ninety-nine percent were aged 18 to 24 years, and 1% were aged 25 to 34 years (Table 1).

Exposure to Medicine and Dermatology—Ninety-three percent of participants planned on attending medical school, and most students developed an interest in medicine from an early age. Ninety-six percent cited that they became interested in medicine prior to beginning their undergraduate education, and 4% developed an interest as freshmen or sophomores. When asked what led to their interest in medicine, family influence had the single greatest impact on students' decision to pursue medicine (33%). Classes/school were the second most influential factor (24%), followed by volunteering (15%), shadowing (13%), other (7%), and peer influence (3%) (Figure 1).

TABLE 1. Demographics of Surveyed Premedical Students (N=152)

Demographic	Respondents, %
Gender	
Male	16
Female	82
Nonbinary or preferred not to answer	2
Age, y	
18–24	99
25–34	1
35–44	0
Major	
Science	84
Nonscience	16
Race/ethnicity	
Black or African American	94
Asian or Asian American	3
White	0
Other	3

Many (56%) premedical students surveyed had shadowing experience to varying degrees. Approximately 18% had fewer than 8 hours of shadowing experience, 24% had 8 to 40 hours, and 14% had more than 40 hours. However, many (43%) premedical students had no shadowing experience (Figure 2). Similarly, 30% of premedical students responded to having a physician as a mentor.

Regarding exposure to dermatology, 42% of premedical students had none. However, 58% of students had exposure to dermatology by being a patient themselves, 40% through seeing a dermatologist with a family member, 21% through seeing a dermatologist on television or social media, 5% through shadowing or volunteering, 3% through mentorship, and 1% through dermatology research (Figure 3).

Of students who said they were interested in dermatology (32%), 16% developed their interest before undergraduate education, while 9% developed interest in their freshman or sophomore year and 7% in their junior or senior year of undergraduate education. Three percent of respondents indicated that they had a dermatology mentorship.

Perceptions of Dermatology—To further evaluate the level of interest that UiM premedical students have in the field of dermatology, students were asked how much they agree or disagree on whether the field of dermatology is interesting. Sixty-three percent of the students agreed that the field of dermatology is interesting, 34% remained uncertain, and 3% disagreed. Additionally, students were asked whether they would consider dermatology as a career; 54% of respondents would consider dermatology as a career, 30% remained uncertain, and 16% would not consider dermatology as a career choice.

Nearly all (95%) students agreed that dermatologists do valuable work that goes beyond the scope of cosmetic procedures such as neuromodulators, fillers, chemical peels, and lasers. Some students also noted they had

personal experiences interacting with a dermatologist. For example, one student described visiting the dermatologist many times to get a treatment regimen for their eczema.

Overall themes from the survey are depicted in Table 2. Major themes found in the comments included the desire for more dermatology-related opportunities, mentorship, exposure, connections, and a discussion of disparities faced by Black patients and students within dermatology. Students also expressed an interest in dermatology and the desire to learn more about the specialty.

Comment

Interest in Dermatology—In this cross-sectional survey study of 152 UiM undergraduate students, it was found that many students were interested in dermatology as a career, and more than 70% would be interested in attending events that increased exposure to the field of dermatology. Of the students who had any exposure to dermatology, less than 5% had shadowed an actual dermatologist. The survey showed that there is great potential interest in exposing UiM undergraduate students to the field of dermatology. We found that UiM students are interested in learning more about dermatology, with 80% indicating that they would be willing to participate in dermatology-focused events if they were available. Overall, students mentioned a lack of opportunities, mentorship, exposure, and connections in dermatology despite their interest in the field.

Racial Disparities in Dermatology—Additionally, students discussed disparities they encountered with dermatology due to a lack of patient-provider race concordance and the perceived difference in care when encountering a race-concordant dermatologist. One student noted that they went to multiple White dermatologists for their eczema, and “it wasn’t until I was evaluated by a Black dermatologist (diagnosed with eczema as well)

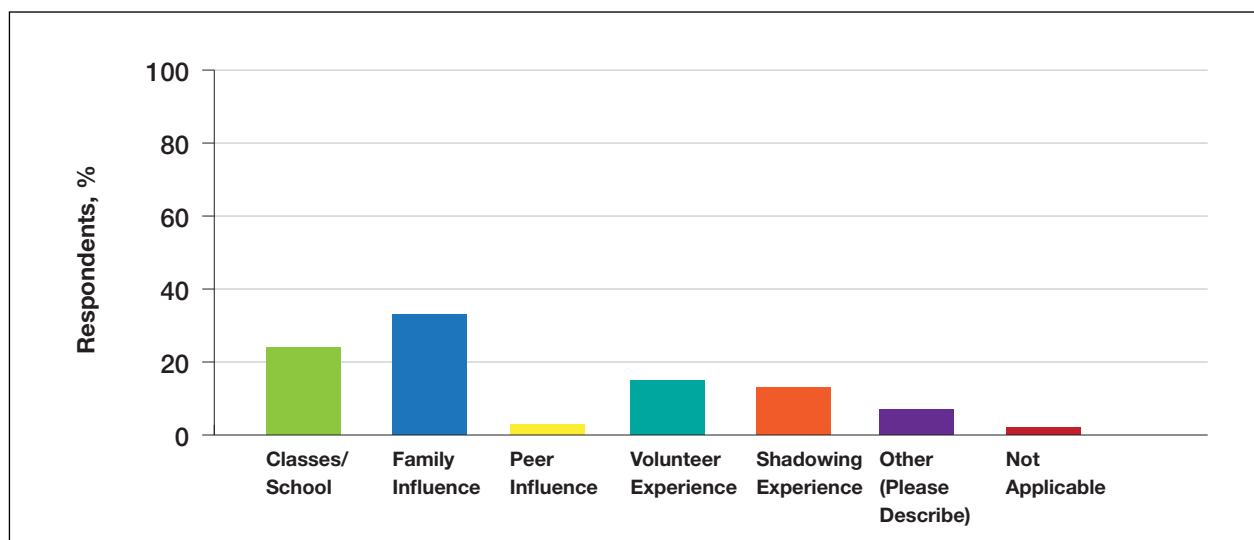


FIGURE 1. Factors that led premedical students to be interested in medicine (N=152).

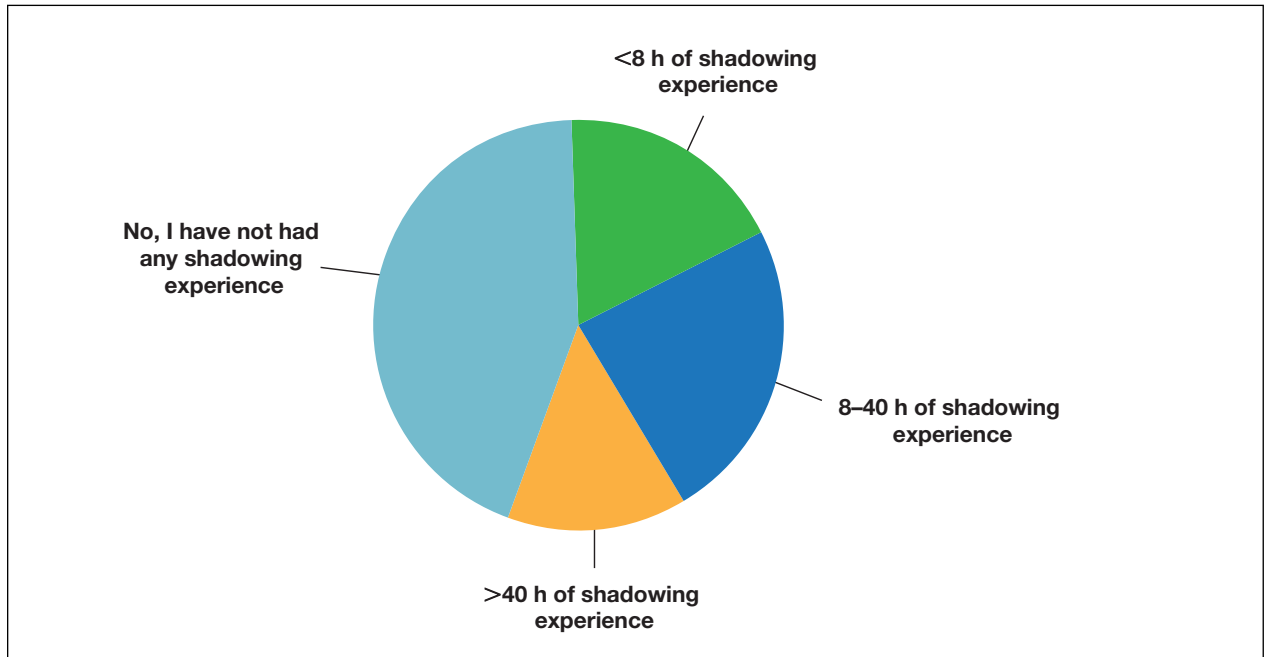


FIGURE 2. Shadowing experience among premedical students.

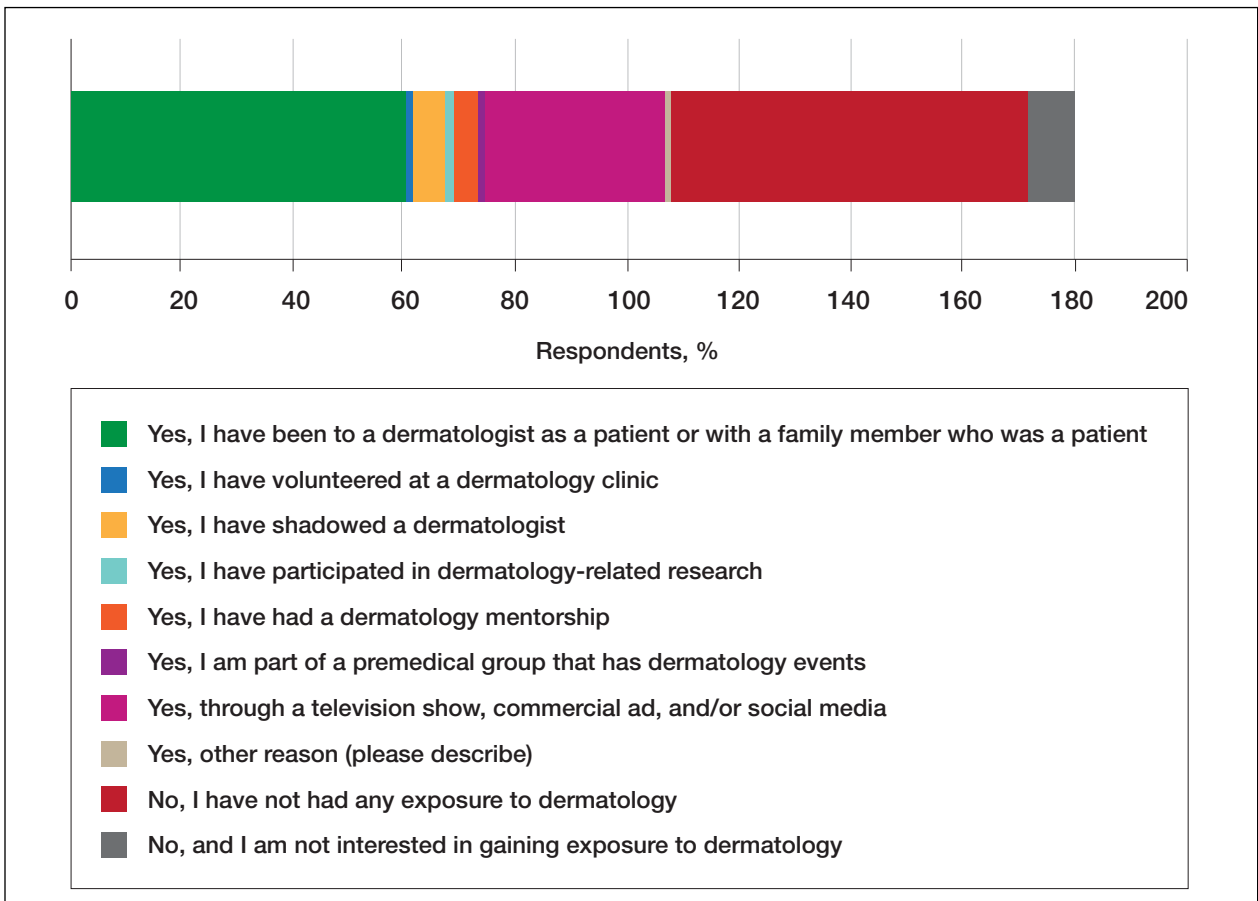


FIGURE 3. Modes of exposure to dermatology among premedical students.

TABLE 2. Perceptions of Dermatology: Common Themes From “Additional Comments” Section

Code	Representative quotation from respondent	Total no. of responses (N=36)
Interest in dermatology	“I became aware of the possibilities of dermatology after a panel hosted by Howard’s MAPS chapter with a Black dermatologist, and she sparked my interest in getting to know more. I have not really ever looked into other fields in medicine while in undergrad, but exposure to different types of doctors has opened my mindset/interests. I do think it is an important field that lacks representation for Black people. I feel it is a hidden interest that should receive more attention.”	15
Opportunities	“I hope in the future there are more opportunities for undergraduates to shadow in the dermatology department at Howard Hospital.”	6
Exposure	“How can we gain exposure to the field if we do not know a dermatologist?”	5
Disparity	“I’ve been to several White dermatologists (each diagnosed me with eczema). However, every medication they prescribed made my eczema worse. It wasn’t until I was evaluated by a Black dermatologist (diagnosed with eczema as well) [that I was] prescribed . . . the perfect medication off rip.”	4
Connection	“The events should have ways to connect students to more derms since they are kind of inaccessible, in my experience.”	3
Mentorship	“I am extremely interested in dermatology, so if there is any way that I could be connected with a dermatologist or a medical student to have as a mentor I would greatly appreciate it.”	3

Abbreviation: MAPS, Minority Association of Pre-Medical Students.

[that I was] prescribed . . . the perfect medication.” Another student noted how a Black dermatologist sparked their interest in getting to know more about the field and remarked that they “think it is an important field that lacks representation for Black people.” This research stresses the need for more dermatology mentorship among Uim undergraduates.

Family Influence on Career Selection—The majority of Uim students in our study became interested in medicine because of family, which is consistent with other studies. In a cross-sectional survey of 300 Pakistani students (150 medical and 150 nonmedical), 87% of students stated that their family had an influence on their career selection.⁸ In another study of 15 junior doctors in Sierra Leone, the most common reasons for pursuing medicine were the desire to help and familial and peer influence.⁹ This again showcases how family can have a positive impact on career selection for medical professionals and highlights the need for early intervention.

Shadowing—One way in which student exposure to dermatology can be effectively increased is by shadowing. In a study evaluating a 30-week shadowing program at the Pediatric Continuity Clinic in Los Angeles, California, a greater proportion of premedical students believed

they had a good understanding of the job of a resident physician after the program’s completion compared to before starting the program (an increase from 78% to 100%).¹⁰ The proportion of students reporting a good understanding of the patient-physician relationship after completing the program also increased from 33% to 78%. Furthermore, 72% of the residents stated that having the undergraduates in the clinic was a positive experience.¹⁰ Thus, increasing shadowing opportunities is one extremely effective way to increase student knowledge and awareness of and exposure to dermatology.

Dermatology Mentors—Although 32% of students were interested in dermatology, 3% of students had mentorship in dermatology. In prior studies, it has been shown that mentorship is of great importance in student success and interest in pursuing a specialty. A report from the Association of American Medical Colleges 2019 Medical School Graduation Questionnaire found that the third most influential factor (52.1%) in specialty selection was role model influence.¹¹ In fact, having a role model is consistently one of the top 3 influences on student specialty choice and interest in the last 5 years of survey research. Some studies also have shown mentorship as a positive influence in specialty interest at the undergraduate

and graduate levels. A study on an undergraduate student interest group noted that surgeon mentorship and exposure were positive factors to students' interests in surgery.¹² In fact, the Association of American Medical Colleges noted that some surgical specialties, such as orthopedic surgery, had 45% of respondents who were interested in the specialty before medical school pursue their initial preference in medical school.¹³ Another survey corroborated these findings; more orthopedic-bound students compared with other specialties indicated they were more likely to pursue their field because of experiences prior to medical school.¹⁴

One of the reasons students might not have been exposed to as many opportunities for mentorship in dermatology is because the specialty is one of the smaller fields in medicine and tends to be concentrated in more well-resourced metropolitan areas.¹⁵ Dermatologists make up only 1.3% of the physician workforce.¹⁶ Because there might not be as much exposure to the field, students might also explore their interests in dermatology through other fields, such as through shadowing and observing primary care physicians who often treat patients with dermatologic issues. Skin diseases are a common reason for primary care visits, and one study suggested dermatologic diseases can make up approximately 8.4% of visits in primary care.¹⁷

Moreover, only 1% of medical schools require an elective in dermatology.¹⁸ With exposure being a crucial component to pursuing the specialty, it also is important to pursue formal mentorship within the specialty itself. One study noted that formal mentorship in dermatology was important for most (67%) respondents when considering the specialty; however, 39% of respondents mentioned receiving mentorship in the past. In fact, dermatology was one of the top 3 specialties for which respondents agreed that formal mentorship was important.¹⁹

Mentorship also has been shown to provide students with a variety of opportunities to develop personally and professionally. Some of these opportunities include increased confidence in their personal and professional success, increased desire to pursue a career in a field of interest, networking opportunities, career coaching, and support and research guidance.²⁰ A research study among medical students at Albert Einstein College of Medicine in New York, New York, found that US Medical Licensing Examination Step 1 scores, clinical grades, and the chance of not matching were important factors preventing them from applying to dermatology.²¹

Factors in Dermatology Residency Selection—A survey was conducted wherein 95 of 114 dermatology program directors expressed that among the top 5 criteria for dermatology resident selection were Step 1 scores and clinical grades, supporting the notion that academic factors were given a great emphasis during residency selection.²² Furthermore, among underrepresented minority medical students, a lack of diversity, the belief that minority students are seen negatively by residencies,

socioeconomic factors, and not having mentors were major reasons for being dissuaded from applying to dermatology.²¹ These results showcase the heightened importance of mentors for underrepresented minority medical students in particular.

In graduate medical education, resources such as wikis, social networking sites, and blogs provide media through which trainees can communicate, exchange ideas, and enhance their medical knowledge.^{23,24} A survey of 9606 osteopathic medical students showed that 35% of 992 respondents had used social media to learn more about residencies, and 10% believed that social media had influenced their choice of residency.²⁵ Given the impact social media has on recruitment, it also can be employed in a similar manner by dermatologists and dermatology residency programs to attract younger students to the field.

Access to More Opportunities to Learn About Dermatology—Besides shadowing and mentorship, other avenues of exposure to dermatology are possible and should be considered. In our study, 80% of students agreed that they would attend an event that increases exposure to dermatology if held by the premedical group, which suggests that students are eager to learn more about the field and want access to more opportunities, which could include learning procedures such as suturing or how to use a dermatoscope, attending guest speaker events, or participating in Learn2Derm volunteer events.

Learn2Derm was a skin cancer prevention fair first organized by medical students at George Washington University in Washington, DC. Students and residents sought to deliver sunscreens to underserved areas in Washington, DC, as well as teach residents about the importance of skin health. Participating in such events could be an excellent opportunity for all students to gain exposure to important topics in dermatology.²⁶

General Opinions of Dermatology—General opinions about dermatology and medicine were collected from the students through the optional "Additional Comments" section. Major themes found in the comments included the desire for more opportunities, mentorship, exposure, connections, and a discussion of disparities faced by Black patients/students within dermatology. Students also expressed an interest in dermatology and the desire to learn more about the specialty. From these themes, it can be gleaned that students are open to and eager for more opportunities to gain exposure and connections, and increasing the number of minority dermatologists is of importance.

Limitations—An important limitation of this study was the potential for selection bias, as the sample was chosen from a population at one university, which is not representative of the general population. Further, we only sampled students who were premedical and likely from a Uim racial group due to the demographics of the student population at the university, but given that the goal of the survey was to understand exposure to dermatology in

underrepresented groups, we believe it was the appropriate population to target. Additionally, results were not compared with other more represented racial groups to see if these findings were unique to UiM undergraduate students.

Conclusion

Among premedical students, dermatology is an area of great interest with minimal opportunities available for exposure and learning because it is a smaller specialty with fewer experiences available for shadowing and mentorship. Although most UiM premedical students who were surveyed were exposed to the field through either the media or being a dermatology patient, fewer were exposed to the field through clinical experiences (such as shadowing) or mentorship. Most respondents found dermatology to be interesting and have considered pursuing it as a career. In particular, race-concordant mentoring in dermatologic care was valued by many students in garnering their interest in the field.

Most UiM students wanted more exposure to dermatology-related opportunities as well as mentorship and connections. Increasing shadowing, research, pipeline programs, and general events geared to dermatology are some modalities that could help improve exposure to dermatology for UiM students, especially for those interested in pursuing the field. This increased exposure can help positively influence more UiM students to pursue dermatology and help close the diversity gap in the field. Additionally, many were interested in attending potential dermatology informational events.

Given the fact that dermatology is a small field and mentorship may be hard to access, increasing informational events may be a more reasonable approach to inspiring and supporting interest. These events could include learning how to use certain tools and techniques, guest speaker events, or participating in educational volunteer efforts such as Learn2Derm.²⁶

Future research should focus on identifying beneficial factors of UiM premedical students who retain an interest in dermatology throughout their careers and actually apply to dermatology programs and become dermatologists. Those who do not apply to the specialty can be identified to understand potential dissuading factors and obstacles. Ultimately, more research and development of exposure opportunities, including mentorship programs and informational events, can be used to close the gap and improve diversity and health outcomes in dermatology.

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