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<https://doi.org/10.1016/j.jaad.2020.01.059>

Medical students' ability to diagnose common dermatologic conditions in skin of color



To the Editor: Dermatologic health care disparities disproportionately affect patients with skin of color (SoC) (defined as Fitzpatrick skin phototypes IV-VI), resulting in delayed treatment courses and increased morbidity and mortality.¹⁻³ Although many factors contribute to health care disparities, a lack of familiarity with disease presentation in patients with SoC is a physician-dependent factor that influences care quality.^{1,2,4,5} The aim of this study was to assess medical students' diagnostic accuracy using clinical images of SoC and light skin (Fitzpatrick phototypes I-III).

Medical students at Tulane University School of Medicine and the University of Oklahoma College of Medicine were offered participation in a 10-item multiple choice quiz consisting of photos with a limited vignette without mention of race. Participants were randomly assigned to receive quiz A or B. Each quiz tested the same 10 conditions in the same order. Quiz A used photos from patients with Fitzpatrick I-III skin phototypes for odd-numbered questions and Fitzpatrick IV-VI skin phototypes for even-numbered questions; quiz B was the reverse.

A total of 227 students enrolled in the study (N = 227/1420; 16% response rate), 177 completed the study (n = 177/227, 78% completion rate). Preclinical medical students (years 1 and 2) scored an average of 47.3% on both quizzes compared with clinical medical students (years 3 and 4), who scored an average of 62.0% (t(175) = -5.51, P < .00001). Both medical schools include didactic lectures in dermatology during the preclinical years and offer elective clinical rotations.

Across all Fitzpatrick skin phototypes, the conditions most frequently identified correctly were

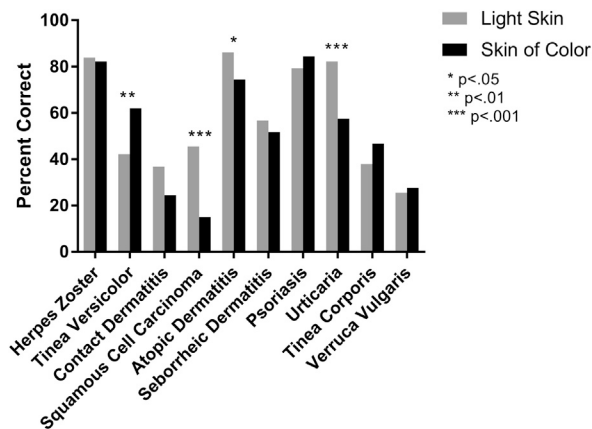


Fig 1. Percentage correct by skin condition, stratified by Fitzpatrick skin phototype.

herpes zoster (83.1%), psoriasis (81.9%), and atopic dermatitis (80.2%). The conditions least frequently identified correctly were verruca vulgaris (26.6%), contact dermatitis (30.5%), and squamous cell carcinoma (30.5%).

The conditions with the greatest disparity in visual diagnosis based on Fitzpatrick skin phototypes (Fitzpatrick IV-VI vs Fitzpatrick I-III) were squamous cell carcinoma (14.9% vs 45.6%, respectively; t(175) = 4.662; P < .0001), urticaria (57.5% vs 82.2%, respectively; t(175) = 3.712; P = .0003), and atopic dermatitis (74.4% vs 86.2%, respectively; t(175) = -1.975; P = .0495) (Fig 1). Nearly 34% of students misdiagnosed squamous cell carcinoma in SoC as melanoma, which may be explained by the students' reliance on dark pigment alone as the feature of melanoma. Students were more likely to correctly identify tinea versicolor in patients with SoC compared with patients with lighter skin phototypes (62.1% correct vs 42.2%, respectively; t(175) = -2.681; P = .0082) (Fig 1). The increase in diagnostic accuracy for tinea versicolor likely involves the prominent pigmentary change in SoC. Although not all statistically significant, 3 of the 4 diseases more accurately diagnosed in SoC were infections such as tinea corporis and verruca vulgaris. The study was limited by an overall low response rate and the fact that each participant did not serve as his/her own control.

Our study showed that medical students were less accurate in diagnosing squamous cell carcinoma, atopic dermatitis, and urticaria in patients with SoC but were more accurate in diagnosing tinea versicolor in SoC. These findings highlight the need to present all dermatologic conditions in both light skin and SoC as part of a comprehensive dermatology curriculum.

We acknowledge Katrina D'Aquin, PhD, for guidance with statistical analysis.

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Ms Fenton and Ms Elliott contributed equally to this article.

Funding sources: None.

Conflicts of interest: Dr Murina is a speaker for AbbVie, Amgen, Eli Lilly, Janssen, and Novartis. Ms Fenton; Ms Elliott; Mr Shabbandi; Mr Ezenwa; and Drs Morris, McLawhorn, Jackson, and Allen have no conflicts of interest to declare.

The findings of this study were reported at the Association of Professors of Dermatology Meeting in Chicago, IL on September 13, 2019.

IRB approval status: Reviewed and approved by Tulane IRB and University of Oklahoma Health Sciences Center IRB (approval nos. 2018-2348 and 10264).

Reprints not available from the authors.

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Analysis of availability, types, and implementation of teledermatology services during COVID-19



To the Editor: Given the rapid increase in teledermatology because of the coronavirus disease 2019 (COVID-19) pandemic, we analyzed variations in teledermatology services across the country between academic and private practices. Three private practices were randomly selected for each state and Washington, DC, from the American Academy of Dermatology member list.¹ Additionally, for each state we selected the academic institution with the greatest number of dermatology residents. Only practices with a website were included.

A total of 153 private practices' websites and linked social media accounts were analyzed on April 22. Use of websites had the advantage over calling in that it allowed us to capture a large sample in a single day. One hundred thirty-three practices had an update regarding changes in practices because of COVID-19. Of those, 86.5% indicated that teledermatology was an option for patients in lieu of an in-person appointment. A total of 42.6% of practices indicated use of live video conferencing, and 48.7% did not specify what platform they would use to conduct the appointment and that patients would need to contact their office for more information. One private practice indicated the use of photographs for the telemedicine visit. A total of 92.2% of private practices did not provide information for patients on their website regarding what conditions would be most appropriate for a telemedicine visit.

Of the 40 academic institutions analyzed, almost all mentioned telemedicine as an option for certain specialties on the main webpage; however, only 60% of dermatology departments specifically mentioned teledermatology services. Of those, 50% used a video platform. Only 1 academic institution mentioned the use of photographs as their platform for the televisit. A total of 20.8% indicated that both video and photograph or an e-visit was available as an option. Twenty-five percent did not specify the type of platform they used. Only 16.6% provided specific public instructions regarding how to take photographs for virtual care such as taking them in a well-lit area, focusing the image, or not using the zoom feature. A total of 95.8% of institutions that offered teledermatology did not provide information indicating what conditions would be appropriate for evaluation through teledermatology.

Most academic and private practices offer teledermatology as an alternative in response to COVID-19. Compared with private practices, academic institutions