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Coronavirus Disease 2019 and Race in Dermatology

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KEYWORDS

- COVID-19 • Race • COVID-toes • Pernio • Chilblains • Racial disparities • Healthcare inequities
- Dermatologic literatures

KEY POINTS

- Coronavirus Disease 2019 (COVID-19) disproportionately affects Black and Hispanic/Latino populations.
- Racial disparities in health care and dermatology have further become evident through the COVID-19 pandemic.
- The lack of clinical images of COVID-19 cutaneous manifestations, along with other dermatologic diseases, in patients of color represents an unmet need in medical literature.

BACKGROUND

Structural and systemic racism has subsequent harmful effects on patients of color.^{1–3} Spurred by racial injustices in the United States of America in the past year, racial inequities have finally come to the forefront of dialog within health care.^{4,5} Particularly, there has been an increased focus on structural racism; the way in which societies foster discrimination through reinforcing inequitable systems and stereotypes.¹ The Coronavirus Disease 2019 (COVID-19) pandemic highlighted the importance of recognizing the role structural racism plays in amplifying and uncovering power imbalances that already exist among vulnerable racial and ethnic groups. For example, access to education, housing, and environmental stress all impact quality health care, comorbid medical conditions, ability to obtain personal protective equipment, and capability to quarantine in a safe space.⁶ The synergistic effects of the pandemic in conjunction with the political, economic, and social inequalities in the United States have led to detrimental consequences for patients of color.⁷

Current literature documents the increased morbidity and mortality in Black and Hispanic/Latino populations as an outcome of the pandemic.

- Notably, Price-Haywood and colleagues documented that in a large cohort in Louisiana, a startling 70.6% of individuals who died from COVID-19 were Black, although Black patients comprised only 31% of the hospital system population.⁸
- Furthermore, in early April, Sachdeva and colleagues reported that in Chicago, Illinois, 51.5% of COVID-positive patients and 67.3% (n = 132) of those who died were Black.⁹
- The Centers for Disease Control and Prevention's statement regarding the racial disparities in COVID-19 and race similarly acknowledged a greater burden of disease for non-white individuals. They noted that among individuals younger than 50 years, a markedly higher percentage of patients who tested positive for COVID-19 were Hispanic

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or Latino. In addition, Black Americans had the highest percent test positive among their racial or ethnic groups.¹⁰

Therefore, COVID-19 has highlighted the innate imbalances that exist within the medical field.

The medical community has called on dermatologists to increase skin of color representation in the literature.¹¹ Currently, there is a paucity of images of cutaneous manifestations of COVID-19 for skin of color patients. Thus, dermatologists are encouraged to photograph and disseminate these images among the medical community.¹²

It is important to note that skin of color dermatology has long been championed by board-certified dermatologists as well as by organized dermatologic associations. The need for more attentiveness, education of the physician workforce, public awareness, and advocacy has historically been highlighted as key needs by experts in skin of color. For example, the Skin of Color Society, now the largest international organization dedicated to skin of color dermatology, was founded many years ago to specifically foster collaboration among dermatologists that are key opinion leaders in skin of color dermatology while simultaneously looking at ways to address the educational needs of dermatologists who may not specialize in skin of color. In addition, increasing diversity within the dermatology workforce, providing critical research opportunities to underrepresented minority physicians and medical students and fostering mentorship to advance skin of color dermatology are at the core of this specific organizations' mission.

The social injustices of recent times, in combination with glaring health inequities during the pandemic, have presented a historic opportunity for the skin of color discipline: to take these tragedies and use them as an opportunity for true and meaningful change. This article aims to summarize the cutaneous manifestations of COVID-19 in skin of color patients and recognize the gaps in dermatologic literature and need for further research.

RACIAL INEQUITIES IN DERMATOLOGY

Medical Education

Before addressing the cutaneous manifestations of COVID-19, it is important to discuss the racial/ethnic barriers that inherently exist in dermatology. Dermatology education regarding cutaneous manifestations in patients of color is limited by a lack of racial diversity in dermatology and dearth of educational material representing patients of color. Remarkably, a previous study noted that 47% of dermatologists felt that their training was

inadequate to diagnose disease in skin of color patients.¹³ In order to elucidate why such health care disparities exist in diagnosing patients of color, Lester and colleagues analyzed the pages of common dermatology textbooks commonly used in resident education:¹³

- Of 5026 images reviewed, independent image reviewers categorized photos from two common textbooks. Upon analyzing these images, skin of color representation was estimated to be 22% to 32% in textbooks.
- However, for images of sexually transmitted infections (STIs), the proportion of skin of color varied from 47% to 58%, compared with 28% for images of infections that were not STIs.
- Therefore, the depiction of skin of color images in common educational literature remains unequal and may reflect implicit bias.⁴

An updated analysis by Adekun and colleagues showed that dermatology textbooks contained a mere 4%-18% of images of patients with dark skin.¹⁴ Lack of imagery of common dermatologic conditions across a wide variety of skin types can lead to adverse outcomes for patients due to delayed diagnosis and treatment in these populations. A study of patients with Lyme Disease noted that patients of color had a later date of presentation.¹⁵ In part, delayed diagnosis and treatment of Lyme disease in patients with darker skin tones may be due to the different presentation of the "characteristic" erythema migrans rash.¹¹ It is important to recognize the dangers of labeling the cutaneous manifestations as "typical" or "classic" based on the clinical presentation of a certain condition in a white population. Specifically, the effect of pigmentation on erythema should be considered when diagnosing even common dermatologic conditions such as acne and psoriasis.¹⁶ Overall, lack of skin of color patient representation in dermatologic imagery not only affects the knowledge of the trainee population but also narrows the scope of the field.

Patient Attitudes and Beliefs

Patient attitudes regarding dermatology may vary based on racial or ethnic background. Importantly, although skin of color patients are often categorized into Fitzpatrick skin phototypes IV to VI, it is important to note that ethnicity and race are not synonymous. For example, some individuals who identify as Hispanic/Latino may be patients with Fitzpatrick phototype I. Furthermore, skin cancer can still occur in darker phenotypes and often

leads to poor outcomes in these populations because of lack of early detection and treatment.¹⁷

Buster and colleagues administered a survey to categorize patient attitudes and behaviors regarding skin cancer.^{17,18} They found that Black individuals had different viewpoints than white patients regarding lifestyle influence on skin cancer and the utility of skin examinations and that Black and Hispanic/Latino individuals were less likely to believe they could change their own risk of skin cancer with personal interventions.

Previous literature has noted there is a low rate of dermatology outpatient visits for Asian Americans as well despite Asian Americans representing the fastest growing minority group in the United States. Lingala and colleagues reported that skin cancer has a delayed detection in Asian Americans¹⁹: Notably, of 506 patients, 48% of respondents reported having their skin checked by a dermatologist, and only 60% of the participants performed a self-skin examination.

In combatting skin-care myths and beliefs, studies have shown that educational interventions can help improve photoprotection practices. Kundu and colleagues performed a study in which patients of color were educated on how to find atypical moles with cutaneous self-examinations. Through the interventions, monthly skin checks improved across the study sample, thus emphasizing the importance of patient education in decreasing adverse outcomes in skin of color populations.¹⁷

Currently, in the COVID-19 pandemic in conjunction with pre-existing systemic racism, we are witnessing an increase in the medical mistrust by Black populations—specifically in regard to receiving COVID-19 vaccinations.^{20–22} In a study of HIV-positive Black Americans, 97% endorsed at least one general COVID-19 mistrust belief.²¹ This generalized distrust regarding COVID-19 management could likely transcend to Black patients' care-seeking behavior in context of COVID manifestations of the skin.

Imbalances Within Dermatology

Health care disparities and structural racism are widespread in medicine, with causes ranging from barriers to access to care, mistrust between the patient and physician, and implicit bias inherent in medicine. The groups that tend to be most impacted by these inequities are racial minorities and people of lower socioeconomic status.²³ Within dermatology specifically, there is a lack of diversity among practicing dermatologists. Although 12% of Americans are Black, Black dermatologists make up 3% of dermatologists,

making dermatology one of the least medically diverse specialties.⁴ Residents and practicing dermatologists have called for academic institutions to promote mentorship and selection of Black students to increase racial representation throughout the field.^{4,5} This lack of racial representation can lead to adverse outcomes in patients of color. Distrust of the medical system is one of the issues of concern, potentially resulting in part from race discordance between patients and providers, as patients with providers of a different race are more likely to be uncomfortable with treatment plans because of the fear of their symptoms not being taken seriously by their physicians.^{16,24}

Furthermore, it is important to consider the financial burden of outpatient dermatologic visits. Studies have shown that Black patients are more likely to report a cost as an obstacle in obtaining dermatologic care, with a greater percentage of Black patients receiving insurance from government payers (Medicare and Medicaid).^{25,26} Creadore and colleagues recently reported patients with Medicaid had less success getting appointments and longer appointment wait times than those with Medicare or Blue Cross/Blue Shield. With the increased reliance of telemedicine in dermatology due to the pandemic, there may be isolation of individuals without access to a computer.²⁷ There is some evidence that the Fee For Service reimbursement policies in US dermatology practice may promote procedures for a subset of the population and exacerbate disparities for ethnic minorities.²⁶ Therefore, if a patient's dermatologic condition is not causing active functional impairment, they may be less likely to seek care.

IMAGES OF SKIN OF COLOR IN COVID-19 ***Lack of COVID-19 Images of Skin of Color Patients***

The importance of increased racial representation in dermatologic education has been widely discussed in the literature. There are clear discrepancies in the current dermatologic literature with a shortage of imagery from skin of color patients in dermatologic journals textbooks.¹¹ Owing to the strongly visual nature of dermatologic medicine, this decreased representation in the dermatologic literature can impact patient care by hindering potential differential diagnoses.

Specifically, in the COVID-19 pandemic, there is a demand for dermatology images of skin of color patients with COVID-19 dermatologic manifestations due to the concern that if COVID patients and care providers do not personally visualize an array of images in different skin tones, they may

not recognize COVID manifestations in darker skin tones.

Owing to the racial disparities in COVID-19 infections, all clinical manifestations of COVID-19 should be documented and recognized to provide timely quality care. A recent literature review by Lester and colleagues noted that 92% of the 130 images included in their review of COVID-19 cutaneous manifestations included Fitzpatrick Phototypes I-III.¹² Only 6% of patients were classified with Fitzpatrick phototype IV skin, and 0% of the images were from patients with Fitzpatrick phototype V or VI skin.¹² In order to combat this lack of information, dermatologists should document all cutaneous COVID-19 manifestations in skin of color patients and widely distribute these findings.

COVID-19 Dermato-Epidemiology Across Different Countries and Populations

Systemic manifestations of COVID-19 documented in the literature include rashes containing macules and papules, urticarial, vesicular, and vaso-occlusive lesions, maculopapular rash, petechiae/purpura, livedoid/necrotic lesions, chilblain-like lesions (COVID toes), erythema multiforme-like lesions, and aphthous ulcers.²⁸ A meta-analysis by Tan and colleagues described the skin manifestations of COVID-19 worldwide.²⁹ At present, given the lack of population-level data or large cohort studies with a known denominator, we do not yet know if reported differences between different populations represent a true genetic difference in response to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), or merely demonstrates trends in access to care and/or reporting in different countries.

For example, we do not yet know if the reporting of COVID-19-associated vaso-occlusive disease, such as fixed livedo racemosa or retiform purpura, in the United States (6.4%) and Spain (5.2%) is higher than that in India, where preliminary reports of a prospective cohort study put the prevalence at 1.4%.²⁹ Similarly, other vascular cutaneous manifestations, such as chilblain-like lesions, vasculitis, and vasculopathic ulcers, were rarely reported among Indian patients.³⁰ If not just due to reporting bias,^{31,32} some pathophysiologic mechanisms that have been proposed are that increased levels of lipoprotein A in some populations could predispose patients to cardiovascular and peripheral arterial diseases or that Factor V Leiden in white populations compared with Asian populations could explain the differences in thromboembolic events.²⁹

In addition, studies have noted a relative dearth of COVID toes in Hispanic and Black

populations.³³ Daneshjou and colleagues published a series of 6 case reports (1 positive for COVID) to increase skin of color representation for dermatologic images.³¹ However, additional literature notes that COVID-toes manifestations are uncommon in pigmented skin.³² It is not yet clear if this paucity of COVID toes in skin of color is due to underrecognition by patients and providers of this phenomenon in darker skin, less access to health care, or truly less incidence of pernio/chilblains/COVID toes in some populations, or a multifactorial combination of all of these.

The underrepresentation of minority communities in dermatologic literature, difficulty in identifying cutaneous lesions in these individuals, and increased adverse outcomes in Black and Hispanic/Latino populations demands further investigation into potential biases in recognizing and reporting skin manifestations of COVID-19, including COVID-toes, in patients of color. Poor access coupled with nonrecognition of erythema by clinicians in patients with darker skin tones likely contribute. This further complicates clinical diagnosis of other cutaneous manifestations of COVID-19 infection, including morbilliform, urticarial, exanthematous, and even eczematous features. However, we additionally wonder about genetic polymorphisms accounting for varying immunologic responses to SARS-CoV-2 in different populations. Increased data and images are strongly encouraged to increase the sample size and power of future studies. Dermatologists should continue to document and distribute all cutaneous manifestations of COVID and report cases, including pernio-like lesions, in COVID-19-positive patients across a wide variety of skin types.

Recognizing, discussing, and developing ways to reduce health disparities should be a priority for the entire house of medicine, and studying COVID-19 under this lens allows a better understanding of current shortcomings and future calls to action. Dermatologic disease in patients of color has been an exceedingly important issue that has not gone unrecognized or unaddressed. In fact, the COVID-19 pandemic has brought so much attention to health disparities that goals and aspiration in the field have taken on even more importance for our specialty. The lack of images of cutaneous COVID-19 manifestations is just one example of a tangible paradigm that can be ameliorated to help dermatologists and other clinicians alike. However, the ultimate goal of eliminating health disparities in at-risk populations in medicine is a longitudinal journey that requires introspection, recognition, research, and resolve. Dermatology continues to do its part in creating

a solution and advancing skin of color dermatology via multiple paradigms as a key part of helping this important cause.

CLINICS CARE POINTS

Clinicians should be aware of health disparities that exist in skin of color populations. In addition, cutaneous manifestations of COVID-19 may be more difficult to detect in patients of color due to the clinical appearance of erythema, lack of clinical experience in detecting dermatologic disease in skin of color, and due to potential biases in diagnosis.

CONFLICT OF INTEREST

Dr. Desai is a member of the American Academy of Dermatology Ad Hoc Task Force on COVID-19. The other authors have no conflicts of interest to declare.

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