

Myths and Knowledge Gaps in the Aesthetic Treatment of Patients With Skin of Color

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ABSTRACT

Background: Misperceptions about facial aesthetic treatments in individuals with skin of color (SOC) may influence treatment selection.

Objective: We aimed to identify knowledge gaps and myths concerning facial aesthetic treatment in individuals with SOC.

Methods: A PubMed search identified articles concerning patients with SOC receiving facial aesthetic treatments. The experience of experts in aesthetic treatment of patients with SOC was also considered.

Results: Knowledge gaps included not seeking injectable filler treatment of lips, risk of developing keloids with injectable filler treatment, risk of hyperpigmentation precluding surgical procedures and nonsurgical injectable filler treatment, melasma being a minor cosmetic concern with limited treatments, and racial/ethnic groups being homogeneous with respect to facial characteristics and aesthetic concerns. Dispelled myths included perceptions that: individuals with SOC do not need sunscreen; dermal fillers and neuromodulators are not necessary or useful for patients with darker skin; laser treatments cannot be used on darker skin; facial products are unnecessary; and only medical providers with SOC can understand how to treat patients with SOC.

Conclusions: Knowledge gaps and myths concerning facial aesthetic treatment in individuals with SOC exist. These patients may undergo various facial aesthetic procedures safely and effectively, as long as nuances in treatment approaches are recognized.

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INTRODUCTION

The number of surgical and nonsurgical cosmetic procedures performed in the United States increased by more than 30% between 2010 and 2016, with the percentage of procedures performed in non-Caucasians increasing from 19% to 25%.^{1,2} Despite substantial and increasing interest in aesthetic procedures from individuals with SOC, only a few treatment guidelines or recommendations touch on race or ethnicity in discussions of safety and efficacy.³⁻⁷ Dermatologists and plastic surgeons may thus be hesitant to treat patients with SOC, based on inadequate guidance for that population. A national survey of Australian dermatologists found that 75% were not confident in performing cosmetic procedures for patients with SOC, and a majority expressed a desire for more training on medical conditions and surgical and cosmetic issues in SOC, emphasizing the need for

education on treating these patients.⁸ Further, widespread and often unsubstantiated anecdotal information regarding treatment preferences and outcomes in people with SOC has encouraged myths about skin care and aesthetic treatment that may prevent this population from receiving the best possible care. This paper aims to examine knowledge gaps that may exist in the medical community and to dispel patient-held myths associated with skin care and aesthetic treatment in SOC.

METHODS

Based on their clinical experience, the authors, who are experts in the aesthetic treatment of individuals with SOC, identified and reached consensus on myths and knowledge gaps in the aesthetic treatment of individuals with SOC. PubMed searches were conducted on these areas and the results were reviewed for relevance to individuals with SOC.

KNOWLEDGE GAPS IN THE MEDICAL COMMUNITY

Gap: Darker-Skinned Patients of African Descent Do Not Seek Injectable Filler Treatment of the Lips *Response*

Darker-skinned patients of African descent may be less likely to undergo enhancement of the lips, but they do request restoration of lip volume lost through aging, generally presenting at an older age than Caucasian patients seeking lip enhancement (Figure 1).⁹

FIGURE 1. Photos of a 74-year-old black female with Fitzpatrick skin phototype VI who received a total of 2.4 mL HYC-24L (Juvéderm Ultra XC) at initial and touch-up treatment in her upper and lower lips, oral commissures, and philtral columns. Patient is shown before treatment (A) and at 3 months after treatment (B). *Reprinted with permission from Allergan plc, Dublin, Ireland.*

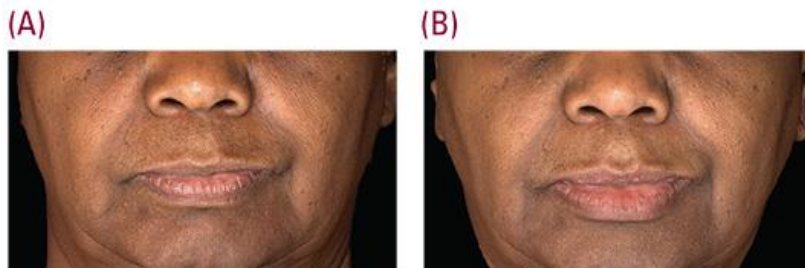


FIGURE 2. Melasma in a patient with skin of color before (A) and after (B) combination therapy (chemical peels and hydroquinone 6%). Images published with permission from P. Grimes.



Gap: Melasma Is a Minor Cosmetic Concern With No Effective Treatment Options Beyond Sun Protection and Periodic Use of Hydroquinone¹⁰

Response

Dyschromia, including post-inflammatory hyperpigmentation (PIH) and melasma (Figure 2), is one of the most common conditions diagnosed in darker-skinned patients and is an important concern in patients with SOC.^{11,12} Dyschromia, including PIH and melasma, was the second-most common condition (19.9% of visits) diagnosed in black individuals in a retrospective chart review of 1412 patient visits at a large dermatology practice specializing in treating patients with SOC.¹¹ Melasma, which can adversely affect quality of life,^{13,14} is more common in Fitzpatrick skin phototypes IV through VI and in geographic regions that receive more sun exposure.¹⁰ Topical hydroquinone 4% is the standard of care, but other treatments, including azelaic acid, kojic acid, niacinamide, alpha-hydroxy acid products, ascorbic acid, and retinoid topical therapies, are effective if used with appropriate caution.^{10,15} Superficial and medium-depth chemical peels and laser treatment may also be effective¹⁶ but both therapies require further study and should be used with caution, as they themselves are associated with a risk of hyperpigmentation.¹⁵ Deeper peels and (nonfractional) ablative lasers are contraindicated in patients with darker skin, based on the authors' clinical experience, because of greater risk of scarring and dyspigmentation. It should be emphasized that sunscreen use is an integral, essential component of any treatment regimen for melasma.

Gap: Patients With SOC Should Not Undergo Surgical Procedures or Even Receive Nonsurgical Injectable Filler Treatment Because There Is a Risk of Developing Hyperpigmentation

Response

In 2016, 1.6 million Hispanics, 1.3 million African Americans, and 1.1 million Asian Americans selected to undergo cosmetic procedures.¹⁷ Patients with SOC are at greater risk of PIH, which can be a sequela of inflammatory dermatoses (eg, acne) or cosmetic and surgical procedures (eg, chemical peel, laser treatment)¹⁸⁻²⁰ Hyperpigmentation was reported in one study in approximately 2% to 17% of patients (6% of injection sites) with Fitzpatrick skin phototypes IV through VI receiving hyaluronic acid filler injections for correction of nasolabial folds, but was generally mild and transient.²¹⁻²³ In one study, injection techniques using multiple or serial punctures were associated with an increased risk of hyperpigmentation.²¹ Hyperpigmentation may be effectively treated with topical prescription skin-lightening agents or cosmeceuticals.²⁴ The authors agreed that

injecting filler too superficially or too quickly, or using serial epidermal punctures, may increase the risk of hyperpigmentation.

Gap: Patients With SOC Have a Substantial Risk of Developing Keloids With Injectable Filler Treatment or Surgery

Response

Product labeling for injectable fillers indicates that the safety of these products in patients with known susceptibility to keloid formation has not been evaluated. However, a number of products were not associated with keloid development in clinical trial participants with SOC.^{21-23,25-29} The experience of the authors suggests that the development of keloids following treatment with injectable fillers is rare in individuals with SOC. No keloids were reported in patients with SOC in post-approval studies of injectable filler treatments,^{21,22,27} in a long-term study comparing patients with Fitzpatrick skin phototypes I through III versus IV through VI,²⁹ or in a case review of 60 patients that included 20 patients with Fitzpatrick skin phototypes IV through VI.²⁶ In aesthetic surgery, less invasive options with smaller incisions are generally preferred for patients with SOC.³⁰⁻³² Optimal incision placement, meticulous technique, and closure of surgical wounds with minimal tension are particularly important in patients with SOC to minimize the risk of hypertrophic scarring.^{31,32} Clinical experience suggests that dermal injury from 27-gauge needle puncture does not appear to be associated with significant keloid risk.

FIGURE 3. Reported use of sunscreen by women (A) and by men (B) in a recent facial aging study (N=1048), by race/ethnicity.^{39,40}

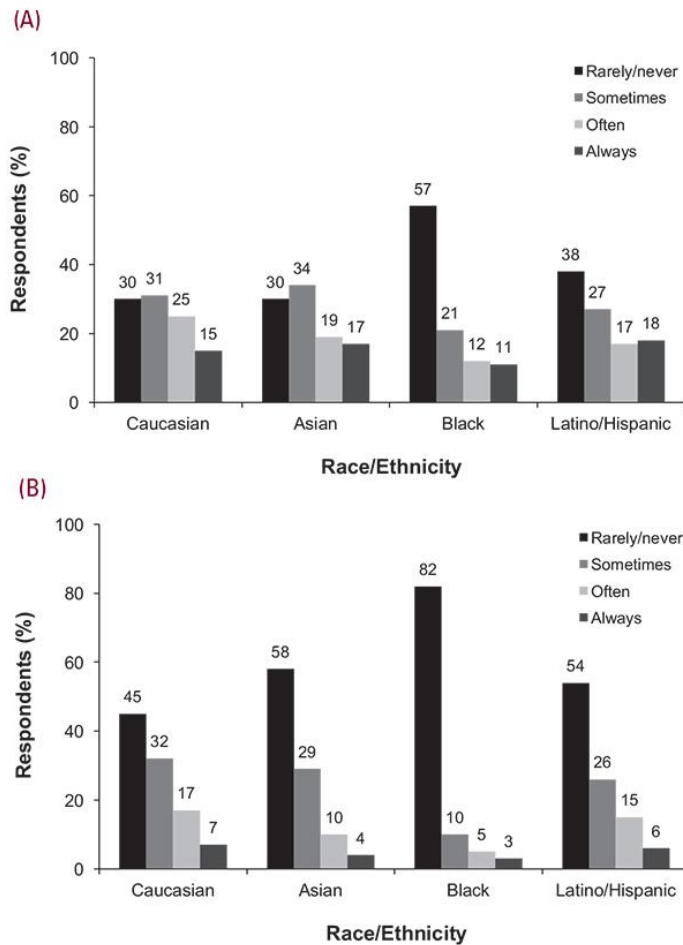


FIGURE 4. Superficial exfoliation and erythema from a sunburn in a patient with Fitzpatrick skin type V. *Image published with permission from V. Callender.*



Gap: Racial and Ethnic Groups Are Relatively Homogeneous With Respect to Their Facial Characteristics and Aesthetic Concerns

Response

While some common observations can be made with racial/ethnic groups, it is important to recognize individual variations and the diverse spectrum of features that can be observed within the categories of race, ethnicity, and skin types.^{7,32} Addressing each patient's unique concerns and facial characteristics individually is crucial.^{4,33,34}

MYTHS HELD BY PATIENTS

Myth: Individuals With Darker Skin Do Not Need to Use Sunscreen

Background

The higher melanin content in SOC confers some degree of natural protection against the deleterious effects of ultraviolet radiation (UVR) from the sun; however, all skin types are susceptible to photodamage.^{35,36} Rates of sunscreen use are lower among individuals with SOC.³⁷ In National Health and Nutrition Examination Survey data (N=4412), the percentage of respondents who never used sunscreen was greatest for non-Hispanic blacks, followed by Hispanics, then non-Hispanic whites.³⁸ Similarly, the proportion of individuals with SOC in a recent facial aging study (N=4086) who reported never or rarely using sunscreen was substantially greater in respondents with SOC, especially black individuals, compared with Caucasians (Figure 3).^{39,40} *Response* The degree of natural protection across the spectrum of skin types is highly variable; it depends on the size and distribution of melanosomes that, in turn, vary by constitutive melanin pigmentation.⁴¹ Photoaging and UVR exposure-mediated skin disorders, including skin cancers, occur in all skin types, albeit at different rates and clinical presentations.^{42,43} Patients with Fitzpatrick skin phototypes IV, V, or VI can get sunburned (Figure 4).⁴⁴ Identifying sunburns may be more challenging in darker-skinned individuals; therefore, these individuals may underestimate their photosensitivity. Although nonmelanoma skin cancer is less prevalent in darker skin types, morbidity and mortality is often higher in patients with SOC.⁴³ Patchy dyschromia, including melasma, and isolated dark spots on the skin or diffuse, patchy darkening may occur in SOC if sun protection is not used.³⁶

Sunscreen with a sun protection factor (SPF) of at least 3044 should be used to protect against UVR-induced sunburn, skin cancer, photoimmunosuppression, and photoaging of the skin, as well as melasma and photo-induced pigmentation.^{6,36} UVR exposure can reduce skin elasticity, which contributes to skin sagging³¹;

therefore, use of sunscreen may potentially reduce sagging. Sunscreen is also important in the management of PIH20 and post-therapy care for patients undergoing in-office procedures, such as chemical peels or laser treatments.^{6,15,19} Patients with SOC who use sunscreen should consider vitamin D supplementation, given the high prevalence of vitamin D deficiency in darker skin types and the importance of vitamin D in maintaining bone health. Low levels of vitamin D are also associated with nonskeletal health conditions, such as diabetes and heart disease.⁴⁵

FIGURE 5. Postinflammatory hyperpigmentation and acne scars before (A) and after (B) 3 treatments with Xeo™ Laser Genesis (Cutera, Brisbane, CA). Images published with permission from P. Grimes.

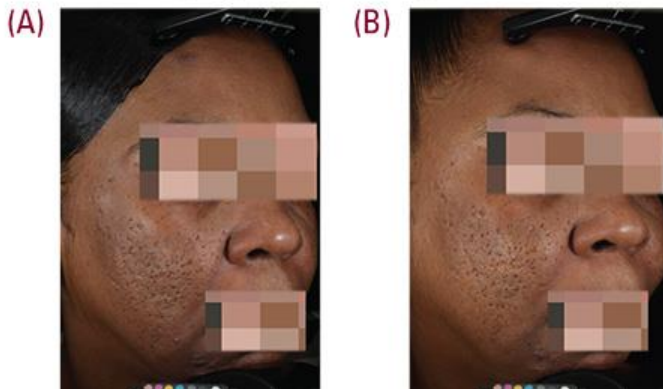
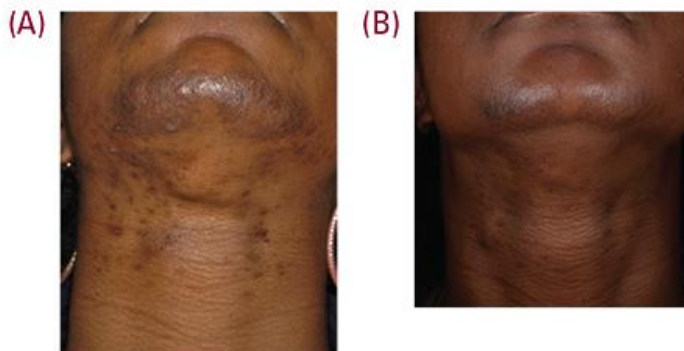


FIGURE 6. Pseudofolliculitis barbie and postinflammatory hyperpigmentation secondary to hirsutism before (A) and after (B) treatment with long pulse Nd-YAG laser 1064 nm. Images published with permission from P. Grimes.



Myth: As Dark Skin Protects Against Age-related Lines and Wrinkles, Dermal Fillers, and Neuromodulators Are Not Necessary or Useful for Patients With Darker Skin

Background

The protection afforded by darker skin may reduce or slow photoaging from UVR.^{9,31,35} Individuals with darker skin consequently tend to develop lines and rhytids later in life than Caucasians.⁹ In the recent facial aging study, black respondents showed less severe signs of facial aging compared with Caucasian, Hispanic/Latino, and Asian respondents.³⁹ Individuals with SOC demonstrated a delay in the onset of signs of aging by 10 to 20 years relative to Caucasians.^{39,40} While lighter-skinned individuals tend to display more lines and wrinkles, darker-skinned individuals display more volume depletion and sagging, with consequent

folks.^{9,19,31} *Response* Patients of all skin types will experience aging effects that may prompt them to seek aesthetic treatment.¹⁹ Volume restoration for sagging skin is common for individuals with SOC. Notably, soft-tissue filler treatment and neuromodulator injections are among the most popular minimally invasive aesthetic treatments for individuals with SOC.¹⁷ Studies in patients with SOC suggested that such treatment is safe and effective.^{46,47} In a post hoc analysis comparing the response and safety of abobotulinum toxin type A treatment of glabellar lines in patients with SOC and Caucasians, the response rate after 30 days was significantly greater in patients with SOC versus Caucasians ($P \leq .03$), with similar adverse event rates between groups.⁴⁷

Myth: Laser Treatments Cannot Be Used on Dark Skin

Background

The greater amount and density of melanin in darker skin can act as a competing chromophore during laser and light-based procedures in SOC, particularly with visible and near-infrared devices.⁴⁸ Therefore, laser and light-based treatments in patients with SOC are associated with a greater risk of tissue damage and resultant hyper- or hypopigmentation and scarring.⁴⁸ In addition, post-treatment inflammation from laser or other energy-based devices may induce postinflammatory pigment alteration. *Response* A knowledgeable clinician can successfully use laser treatment on SOC using the optimal laser or device and the appropriate parameters (ie, fluence, pulse duration) for the indication and skin type (Figures 5 and 6). Comprehensive recommendations for darker skin types have been published.¹⁸ Depending on the type of procedure, risk of pigmentary alteration can be minimized by using longer wavelength lasers, lower fluences, lower treatment densities, and epidermal cooling techniques.^{44,49} For most laser procedures, test spots (to guide optimal setting selection) or conservative treatment settings are useful approaches to reducing the risk of pigmentary complications in SOC.¹⁹ Spot tests are strongly advised when the 800- to 810-nm diode laser is used in patients with skin phototypes V and VI. The clinician should wait ≥ 2 days,⁵⁰ but optimally 2 to 3 weeks, after a spot test to confirm tolerance before proceeding with treatment.⁵⁰ Patients should be counseled regarding the risk of pigment changes with laser treatment and about possible corrective treatments, if needed.¹⁹ For procedures involving injury to the dermis, assessing the risk of keloid formation based on degree of injury and personal or family history of keloids is paramount. Intense pulsed light (IPL) may be cautiously considered for hair removal in patients with skin phototype IV but is not recommended for use in those with skin phototypes V or VI because of a higher risk of dyspigmentation. Results of a chart review of 56 patients with Fitzpatrick skin phototypes IV through VI support the safety of a 755-nm picosecond laser with the diffractive lens array for treatment of scars, pigmented lesions, or striae; although hyperpigmentation occurred in 6 patients, all cases were transient.⁵¹

Myths: Individuals With Darker Skin Do Not Need to Use Skin Cleansers or Moisturizers; Oily Skin Is Protective

Background

Sebum secretion may be higher in individuals with SOC versus those with lighter skin,⁵² although at least 1 study⁵³ found no difference between blacks and Caucasians in skin surface sebum. Studies suggest that facial cleansing practices do vary with ethnicity: In a survey of 423 Californians, Latino respondents had lower rates of use of both skin cleansers and moisturizers compared with black, white, and Asian respondents.⁵⁴ In another study,⁴⁰ the proportion of respondents who rarely or never used facial moisturizers was greater in black (43%) and Latino (40%) women than in Caucasian (33%) women.

TABLE 1.

Recommended Strategies for the Successful Treatment of Patients With Skin of Color	
Consideration	Recommended Strategy
Overall	Maintain an up-to-date understanding of issues related to treatment
	Understand patient concerns and expectations in light of ethnic background and physical characteristics
General skin care	Counsel patients to use sunscreen (SPF of ≥ 30) and explain the risks associated with not using sunscreen. Recommend vitamin D supplementation in patients who use sunscreen
	Encourage the use of moisturizers and washing the face and neck at least nightly, followed by a light cleanse or rinse in the morning, especially for patients with conditions that may compromise the skin barrier
Treatment of melasma	Choice of effective pharmaceutical and cosmeceutical agents, although topical hydroquinone 4% remains the standard of care
	Recommend sunscreen use as a component of any treatment regimen for melasma
Procedural	Collect a thorough medical history to understand the risk of adverse reactions in individual patients
	Provide the patient with an accurate understanding of the risks associated with the procedure
	When performing laser treatments, consider using longer wavelength lasers, lower fluences, lower treatment densities, and epidermal cooling techniques to prevent tissue damage
	Use test spots before carrying out laser treatments to determine how the skin may respond (strongly recommended for any new laser device acquired by a practice)
	When using dermal fillers, consider adjustments in injection technique (eg, deeper placement of fillers in the dermis, avoiding serial epidermal puncture trauma) that may limit the risk of PIH
	Discuss posttreatment care with the patient and explain how following recommendations may reduce the risk of adverse events

PIH, postinflammatory hyperpigmentation; SPF, sun protection factor.

Response

A balance between facial cleansing and the preservation of skin oil/skin moisture is necessary for optimal aesthetic outcomes. Facial cleansers remove dirt, excess sebum, microorganisms, exfoliated corneum cells, and other foreign substances, such as cosmetics and medications, from the skin surface.^{55,56} Sebum has naturally occurring antioxidant⁵⁷ and antimicrobial^{58,59} properties and may potentially contribute to the maintenance of good skin quality attributes, such as smoothness. Cleansers with an acidic pH, moisturizers, and high rinsability are recommended; those that contain non-ionic/silicone-based surfactants combined with moisturizers may cause the least disruption to the skin barrier and to the normal skin flora.⁵⁵ Gentle soap-free cleansers may be an option for some patients. While removal of all oil is not the goal, the removal of excess oil that traps dead skin debris is key, while using a moisturizer to restore the protective barrier. We recommend washing the face and neck at least nightly while considering the use of therapeutic topical agents, such as retinol, at night, and

then lightly cleansing or rinsing in the morning to prevent overdrying of the skin. In addition, we recommend gentle cloths and gentle makeup removers for facial cleansing, and daytime moisturizers with an SPF of 30. Moisturizers can maintain skin hydration and restore barrier function that may be disrupted by cleanser use, and may also reduce the dryness of skin in individuals with SOC.^{55,56,60} Dermatologists and plastic surgeons consider the use of topical cleansers and moisturizers to be an important component of skin disease management, especially in patients with compromised skin barrier function.⁶¹ However, even among individuals with chronic dermatologic conditions, the use of moisturizers and cleansers is low,⁶¹ suggesting that physicians must clearly communicate their recommendations on the use of facial cleansers and moisturizers.⁵⁶

Myth: Only a Medical Provider With SOC Can Understand the Nuances of Treating Patients With SOC

Background

There is evidence to suggest that black, Hispanic, and Asian patients disproportionately receive care from racially concordant physicians, and that patients who select their physicians are more likely than those assigned to a physician to have a clinician of the same race or ethnicity.⁶² In the experience of the authors, this is true of facial aesthetics practices as well. A survey of 1205 black and white residents in Ohio found that black respondents were significantly more likely than white respondents to believe that racially concordant physicians understood their health problems (27% vs 12%) and to anticipate being more at ease with racially concordant physicians (27% vs 20%).⁶³ In a separate survey of 118 patients from 2 dermatology practices, patient and physician racial concordance did not affect patients' perception of satisfaction and trust; however, patients with SOC who had Caucasian health care providers indicated issues relating to having all of their questions answered, feeling that the provider had listened to them, and comfort with their treatment plan.⁶⁴

Response While racial/ethnic concordance may facilitate cultural understanding, the training, experience, and cultural competence of individual physicians, not their own cultural, ethnic, or racial background, is of paramount importance.⁶⁴ Although consensus guidelines do not always include information specific to patients with SOC, numerous publications outline the use of a range of different aesthetic treatments in patients with SOC, highlighting issues that should be considered when treating SOC (Supplementary Table 1).^{5,18,21,22,24,33,34,48,65-70} Recommendations for the successful treatment of patients with SOC are summarized in Table 1.

CONCLUSIONS

Both practitioners and patients are concerned about treatment involving SOC. Some concerns are based in fact, such as the risk of PIH, while others are based on broad generalizations that may not be relevant to currently available, minimally invasive treatment options and accepted techniques. Patients with SOC can undergo aesthetic procedures safely and effectively, as long as nuances to the treatment approach are recognized and addressed.

More information is needed in some areas, such as reduction of the risk of dyschromia and more effective treatment for the condition, as are safer and more effective lasers and devices for patients with SOC. Future research on these topics, along with the development of new treatments, such as non-hydroquinone therapies for hyperpigmentation and melasma, will further improve clinicians' ability to provide safe and effective treatment to all of their patients. The importance of skin care regimens that may help to minimize or delay the need for facial aesthetic treatment, such as the use of sunscreen for the prevention of UVR damage, cannot be underestimated. All clinicians have a responsibility to remain up-to-date in their understanding of issues related to treating patients of any racial/ethnic background or skin type, and to keep their patients informed about the actual risks versus common but unfounded perceptions.

DISCLOSURES

A.F. Alexis serves as an investigator and has served on advisory boards for Allergan plc, Galderma, and Valeant, and has served on advisory boards for Beiersdorf, L'Oreal, and Unilever. J. Few has served as a consultant for Allergan plc and Sinclair, and as a consultant and investigator for Galderma, Medicis, Ulthera, and Venus Concepts. V.D. Callender has served on an advisory board, served as a consultant, and received honoraria and research grants from Allergan plc. P. Grimes is an investigator for Allergan plc, Alphaeon, Incyte, and Suneva, and is a consultant for Aclaris Therapeutics and Procter & Gamble. J. Downie serves as a consultant for Allergan plc, BTL, Galderma, Intendis (Bayer), Johnson & Johnson, Lifes 2 Good, Merz Aesthetics, Nutrafol, Perigee Medical, Procter & Gamble, Restorsea, Skin Medica, Theraplex LLC, and Valeant; as a researcher for Allergan plc, Alphaeon, BioPharmx, Endo Therapeutics, Evidera, Johnson & Johnson, Merz Aesthetics, Neothetics, Ranbaxy, Revance, and Skin Medica; as a lecturer for Allergan plc, BTL, Cutera, Exeltis, Galderma, Johnson & Johnson, Lifes 2 Good, Nutrafol, Perigee Medical, Sente, Solta, Stratpharma, Skin Medica; and as an advisory board member for IntraDerm, Sensus, and Sente; she is also a shareholder in Medmetriks and RegimenMD. C. Boyd serves as a speaker/ trainer and serves on advisory boards for Allergan plc, Evolus, Galderma, and Revance. C.J. Gallagher was an employee of Allergan plc at the time of this research and owned stock/options in the company. The opinions expressed in this article are those of the authors. The authors received no honoraria or fees related to the development of this article. Funding Disclosures: Research for this manuscript was funded by Allergan plc. Medical writing and editorial assistance was provided to the authors by Adrienne Drinkwater, PhD, of Peloton Advantage, an OPEN Health company, and funded by Allergan plc.

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