Limitations of Fitzpatrick Skin Type as a Proxy for Skin Color and Race

Kanika Garg, BS; Amy J. McMichael, MD

Recognizing inflammation in darker skin tones has important implications for diagnosis and management of skin disease, particularly in patients with skin of color.[1] In this context, classification systems commonly are used—both in research and clinical practice—to standardize descriptions of skin tone across diverse populations. Fitzpatrick skin type (FST) originally was developed to classify cutaneous response to UV radiation exposure and remains one of the most widely used frameworks in dermatology.[2] However, FST often is used beyond its intended purpose as a proxy for differentiating skin color and race.[3,4] This mismatch risks obscuring clinically meaningful differences and limiting the accuracy of dermatologic research. Herein, we review the intended use of FST, its limitations in representing skin color and race, and considerations for more accurate characterization of skin pigmentation in clinical practice and research.

Origins and Intended Use of the FST Scale

Fitzpatrick skin type was developed by Thomas B. Fitzpatrick in the 1970s to guide UVA dosing for psoralen plus UVA therapy in patients with psoriasis.[5,6] The scale was intended to estimate an individual's erythematous and pigmentary response to UV exposure.[6,7] Early iterations of FST largely were based on lighter skin types, reflecting its initial use in predominantly White populations, which limited representation of the full spectrum of skin tone diversity.[5]

Clinical, Educational, and Research Limitations of FST

Fitzpatrick skin type now is widely, albeit inaccurately, used in both research and clinical practice as a proxy for skin color and race,[7,8] which reflects its ease of use and the lack of standardized alternatives; however, FST does not adequately capture variability in baseline skin pigmentation, undertone, or inflammatory response. These limitations are especially pronounced in phototypes IV to VI, which encompass highly heterogeneous populations. As a result, grouping patients by FST alone to describe skin color and race may obscure important differences and limit meaningful interpretation of clinical and research findings.

Clinically, recognition of dermatologic conditions such as erythema may be more challenging in darker skin tones, in which classic visual cues are less apparent.[1,7] Relying on FST to stratify skin color may further compound diagnostic uncertainty by oversimplifying the cutaneous presentation. In addition, treatment decisions, including laser settings and assessment of pigmentary risk, often are guided by FST despite within-group variability.[7] Further, educational frameworks that rely heavily on FST may inadequately prepare clinicians to recognize disease across diverse skin tones, contributing to delayed diagnosis and disparities in care in populations with skin of color.

The implications also extend to dermatologic research. Fitzpatrick skin type frequently is used to assess study populations; however, its limited ability to reflect true variation in pigmentation and ethnicity introduces misclassification bias.[3,7] The broad FST scale may group heterogeneous populations, obscuring differences in treatment response. As a result, studies relying on FST to represent skin color or race may have reduced generalizability across diverse populations. Importantly, these limitations are not merely conceptual but may contribute to measurable disparities in dermatologic diagnosis and outcomes.

CONTINUED ON PAGE 184

Kanika Garg is from the Philadelphia College of Osteopathic Medicine, Pennsylvania. Dr. McMichael is from Wake Forest School of Medicine, Winston-Salem, North Carolina.

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Correspondence: Kanika Garg, BS (kg3419@pcom.edu).

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CONTINUED FROM PAGE 176

Rethinking Skin Classification Frameworks

Despite these shortcomings, FST remains deeply embedded in dermatology. Its decades-long use has led to widespread familiarity and integration into clinical guidelines, education, and research. At the same time, the absence of a universally accepted alternative has reinforced the continued use of FST as a proxy for skin color and race.

Alternative strategies for characterizing skin pigmentation include objective measures such as spectrophotometry and melanin index assessment.[9] Although these approaches may provide more precise quantification of pigmentation, their use may be limited by the need for specialized equipment and reduced feasibility in routine clinical settings. Other proposed approaches incorporate multidimensional factors such as pigmentation, photoreactivity, and genetic ancestry.[4] While these techniques represent important advances, none has achieved widespread adoption yet, and each presents challenges related to feasibility and standardization.

In the absence of a single ideal system, a more nuanced approach is needed. Fitzpatrick skin type should be used in the context for which it was designed: estimating UV response. Incorporating additional descriptors, including self-identified race and ethnicity, alongside more detailed assessments of pigmentation may improve the accuracy and relevance of both clinical evaluation and research. Combining FST with more precise and inclusive frameworks represents a pragmatic step toward better reflecting patient diversity.

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