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A practical classification scale for the dermatology management of individuals with skin of color: the colorimetric scale for skin of color

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Abstract

A simple and rapid method that is not based on race and ethnicity for classifying people with skin of color is of paramount importance in dermatology. The currently used Fitzpatrick classification of sun-reactive skin types is inadequate. Newer scales that have been used in immigration surveys and sociology studies are not applicable in the office setting. A new, non-racial and non-ethnic, colorimetric scale for skin of color has recently been proposed that is simple to perform. The scale has five colors: very light beige (skin color type 1), light brown (skin color type 2), medium brown (skin color type 3), dark brown (skin color type 4) and very dark brown (skin color type 5); an individual with white skin, such as in albinism, would have a skin color type 0 in this classification. In conclusion, the colorimetric scale enables the rapid classification of individuals with skin of color and allows for accurate assessment of skin cancer risk, more appropriate management of cosmetic dermatologic procedures and aesthetic devices, and enhanced ability for focused counseling regarding hair products, skin care interventions, and color-targeted makeup based on the person's skin tone.

Keywords: aesthetic, black, chemical, classification, clinical, color, colorimetric, cosmetic, dermatology, dyschromia, ethnic, evaluation, Fitzpatrick, Monk, laser, management, microneedling, peel, racial, scale, scar, scarring, skin, therapy, treatment, white

Introduction

The dermatologic management of an individual with skin of color—especially during aesthetic

procedures performed—is based on the appropriate classification of the patient's skin type [1]. For example, the person's skin type influences the laser settings used and the technique when performing a chemical peel [2,3]. Dyschromia and scarring are potential adverse consequences when the appropriate parameters are not used when treating patients with skin of color [4,5].

Color is defined by the visible spectrum. Neither white nor black are on the visible spectrum. Therefore, it would seem reasonable that a scale that is used to evaluate individuals for skin of color should not include white and black [6].

Currently, there are several scales that have been used to assess skin color type of individuals [7-14]. In addition to including white and black skin color types, all these scales are complicated and not readily performed when evaluating a patient with skin of color during their encounter with the clinician in the office [7-14]. A non-ethnic and non-racial colorimetric scale has recently been proposed that can be used to rapidly evaluate individuals with skin of color; the new scale readily enables the clinician to classify patients with skin of color [15].

Discussion

It is important to be able to classify individuals with varying pigment tones in order to not only be able to assess skin cancer risk, but also to provide guidance for performing cosmetic procedures including laser treatment, hair removal treatment, microneedling, and chemical peels [3,16-22]. The risk of post procedural hyperpigmentation or hypopigmenta-

tion and scarring is greater in patients with skin of color [4,5]. Therefore, an accurate determination of skin color type has important therapeutic consequences for skin of color patients [1,2].

The current classification of skin types for evaluation of patients by dermatologists is based on a system developed by Fitzpatrick in 1975 and subsequently modified in 1976; the classification was originally developed to determine the initial ultraviolet A dose in a photochemotherapy study using methoxsalen in patients with generalized psoriasis [7-11]. The Fitzpatrick concept of skin typing was based on the individual's degree of pigmentation or on erythema reaction after three minimal erythema doses or about 45 to 60 minutes of noon exposure in northern latitudes—20 degrees to 45 degrees (previously determined by inquiring “How painful—including intensity of erythema, edema, and discomfort—was the sunburn after 24 hours?”) and tanning reaction (previously determined by inquiring “How much tan will you develop in a week?”), [7-11]. Currently, erythema reaction is usually assessed by asking the person if they get a burn after exposure to the sun, and tanning reaction is typically assessed by asking the person whether they tan after sun exposure.

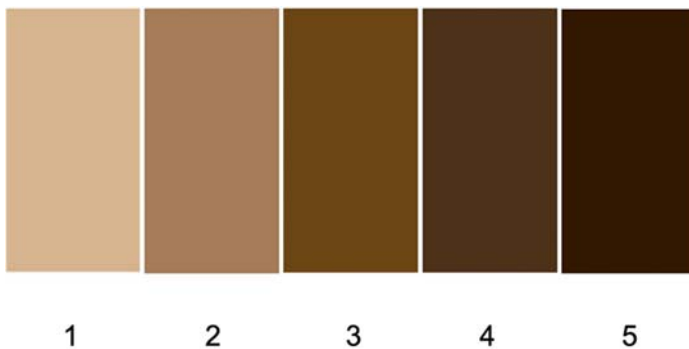


Figure 1. Colorimetric scale for individuals with skin of color. The color ranges from very light beige to very dark brown for people with skin of color. Each color corresponds to a numerical skin color type: very light beige (skin color type 1), light brown (skin color type 2), medium brown (skin color type 3), dark brown (skin color type 4) and very dark brown (skin color type 5). This colorimetric classification only includes individuals with skin of color. (The figure was previously published by Cohen PR, DiMarco MA, Geller RL, Darrisaw LA. Colorimetric scale for skin of color: a practical classification scale for the clinical assessment, dermatology management, and forensic evaluation for individuals with skin of color. *Cureus.* 2023;15(11):e48132.

<https://doi.org/10.7759/cureus.48132>. [15]).

In summary, the Fitzpatrick classification of sun-reactive skin types categorizes people based on not only whether they sunburn and their erythema reaction but also whether they tan and their tanning reaction. Individuals with white skin were classified into one of four groups: group I (yes sunburn and always burn, no tan and never tan), group II (yes sunburn and usually burn, minimal tan and tan less than average with difficulty), group III (yes sunburn and sometimes mild burn, yes tan and tan about average) and group IV (no sunburn and rarely burn, yes tan and tan more than average with ease). Individuals with brown skin and black skin were classified into in group V and group VI, respectively: group V (no sunburn and very rarely to never burn, yes tan and tan very easily) and group VI (no sunburn and never burn, yes tan and always tan), [7-11]. Importantly, the Fitzpatrick skin types classification is not appropriate for categorizing patients with skin of color.

Other scales for classifying skin of color are not clinically practical; these included the von Luschan skin color scale [12], the New Immigrant Survey skin color scale [13], and the Monk skin tone scale [14]. Initially, the von Luschan skin color scale was used for anthropological field research [12]. Subsequently, Martin and Massey's New Immigrant Survey skin color scale was used to evaluate whether lighter skinned immigrants fared better in a variety of social and economic settings than those with darker skin [13]. Thereafter, the Monk skin tone scale was used in sociology studies attempting to assess whether differences in human skin color (not categorized by either ethnicity or racial classifications) influenced the individual's health, education, and earnings [14].

In addition to these non-applicable scales for evaluating patients with skin of color, there are complicated methods, such as spectrophotometry, that can be used to evaluate skin types. However, this is time consuming and not readily available during patient encounters. A colorimetric color scale for patients with skin of color—that is not based on race or ethnicity—has recently been introduced; it is simple and rapid to perform [15].

The colorimetric scale has five colors (**Figure 1**). In order of increasing darkness, the colors include very

light beige (skin color type 1), light brown (skin color type 2), medium brown (skin color type 3), dark brown (skin color type 4) and very dark brown (skin color type 5). Using this classification system, a person with white skin such as in albinism has skin type 0 (**Table 1**), [15].

The classification system using the colorimetric scale of color can be incorporated into the first sentence of the clinical examination of a patient. For example, a person being evaluated for melasma, would be described as a 35-year-old woman with skin color type 3 presenting with acquired darkening of her forehead and bilateral hyperpigmentation of the cheeks. A younger person who has a history of acne and is presenting for consideration of microneedling would be described as a 26-year-old woman with skin type 1 and is seeking possible treatment for her post-acne scarring. Also, an older person with white

Table 1. Colorimetric classification of individuals with skin of color.

Color of skin	Very light beige	Light brown	Medium brown	Dark brown	Very dark brown
Skin color type ^a	1	2	3	4	5

^aOnly individuals with skin of color are categorized by the colorimetric scale. However, since an individual with white skin does not have skin of color, a person with white skin would have a skin color type 0 using this classification of patient skin color.

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skin in whom a non-melanoma skin lesion is suspected would be described as a 70-year-old man with skin color type 0 presents for evaluation of an erythematous keratotic plaque on the dorsal hand.

Conclusion

It is crucial to be able to provide a non-racial and non-ethnic classification of skin color for individuals. Neither the Fitzpatrick classification of sun-reactive skin types nor the currently existing scales of skin color adequately address this important issue. A new colorimetric scale for evaluating skin of color that is not based on race or ethnicity, has been developed. The scale provides the clinician with a simple approach to rapidly categorize individuals with skin of color. In conclusion, for people with skin of color, the colorimetric scale allows for better assessment of skin cancer risk, more appropriate management of cosmetic dermatologic procedures and aesthetic devices, and enhanced ability for focused counseling regarding hair products, skin care interventions, and color-targeted makeup based on the person's skin tone.

Potential conflicts of interest

The author declares no conflicts of interest.

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