1

CHAPTER 1
Defining Ethnic Dermatology: Challenges, Limitations, and Merits

Ophelia E. Dadzie

Department of Dermatology, North West London Hospitals NHS Trust and Centre for Clinical Science and Technology, University College London Division of Medicine, London, UK

Ethnic dermatology is a term used to describe an aspect of dermatology pertaining to individuals of diverse racial and ethnic backgrounds, who have richly pigmented skin and who share broadly similar cutaneous characteristics, notably the risk of scarring and dyspigmentation in response to cutaneous trauma. The term is analogous to skin of color, which is commonly used in North America. Defining the ethnic dermatology/skin of color cohort is challenging. However, broadly speaking and in this textbook, this cohort equates to individuals with Fitzpatrick skin phototypes (FSP) IV–VI and/or those of African, Asian, Middle Eastern, and/or Hispanic ancestry [1–2].

Unfortunately the use of terminologies such as ethnic dermatology and/or skin of color is not without its critics [3–4]. This is because of the problems and limitations of defining individuals by race, ethnicity, and/or skin pigmentation (an inherent problem in any scientific endeavor, which Richard Dawkins refers to as "the tyranny of the discontinuous mind") [5]. Essentially humans do not fit into neat racial or ethnic categories, but represent a continuum. Thus, at what point does someone become "black" or "white"? Since evidence indicates that modern humans originate from Africa [6], are we not all of African ancestry? Furthermore, in advocating separating and defining specific groups based on racial, ethnic and/or skin pigmentation, are we contributing to a divisive society? After all, at a genetic level, humans share more similarities than differences [6]. In addition, the use of FSP has specific limitations when applied to pigmented skin (see Box 1.1 for discussion on this issue).

There is also a risk that terms such as ethnic dermatology will justify studies that use skin color and/or ethnicity to validate a biological construction of race that is actually rooted in socio-historical processes [7], e.g., "scientific studies" that supported the notion that people of African race are less prone to contact sensitization and hence better able to handle certain noxious substances [8].

All the above represent challenging questions and difficulties that we have had to navigate before embarking on this ethnic dermatology/skin of color "journey." In response to these challenges we first have to consider the problems faced by practicing dermatologists.

First, epidemiological studies and data obtained from hospital and/or private practices indicate that there are differences in the observed dermatoses in different ethnic/racial groups [9–10]. For instance, hair and scalp disorders are one of the major concerns in individuals with Afro-textured hair. Cultural factors also impact the range of dermatoses observed (e.g., the misuse of skin lightening agents in certain racial and/or ethnic groups and the occurrence of prayer nodules in Muslims [Fig. 1.1]). Thus, as practicing dermatologists, we need to be aware of these observed differences and the implications for managing our patients. Second, studies have highlighted deficiencies in dermatological educational resources and the training of dermatologists with regard to the field of skin of color/ethnic dermatology [11–12]. Finally, the demographics of most western countries is changing. This means that

Ethnic Dermatology: Principles and Practice, First Edition. Edited by Ophelia E. Dadzie, Antoine Petit and Andrew F. Alexis.

Box 1.1 Fitzpatrick skin phototype

The Fitzpatrick skin phototype (FSP) classification system (see also Box 1.2) [15] is used routinely by dermatologists to categorize and classify different skin types. It was initially developed by Thomas Fitzpatrick in 1975 to classify persons with "white skin" in order to select the correct initial dose of UVA for an upcoming large-scale oral PUVA photo-chemotherapy trial in the US in the mid-1970s. It was based primarily on a brief personal interview to evaluate individuals' history of sunburn and tanning and not on phenotype (hair and eye color) [15]. The initial classification system placed all non-white/pigmented skin in one category, skin type V. Over time this classification system evolved and skin type V was divided into three sub-groups (IV, V, and VI) to encompass the diversity observed in those with pigmented skin. Furthermore, over time phenotype has had a greater impact on this classification system. It is the author's opinion that often phenotype is the prime method used to categorize skin types, instead of proper evaluation of ultraviolet radiation response. This is one of the main limitations of FSP as a method of classifying individuals with pigmented skin. Furthermore, studies have shown a lack of a direct correlation between constitutive skin color and response to ultraviolet radiation. For instance, individuals originating from various Asian countries encompass a diverse group and skin color does not always predict their skin phototypes [16,17]. Another limitation of FSP is that it is based on self-reported erythema sensitivity and tanning ability, and hence it is not quantitative or reliable. Furthermore, it cannot be applied for *in vitro* conditions. For this reason, new classification systems have been developed, such as the colorimetric classification of constitutive pigmentation by individual typology angle [18,19] and the Roberts skin classification system [20] (Box 1.2). The former is of relevance in the research setting, while the latter is of practical relevance in predicting response to trauma, prior to procedural dermatology. There are four elements to the Roberts skin classification system, which should be evaluated based on a thorough history, examination, and evaluation of test site reaction.

Box 1.2 Roberts skin type classification system

Fitzpatrick (FZ) scale: measures skin phototype

- FZ_1 White skin. Always burns, never tans
- FZ_2 White skin. Always burns, minimal tan
- FZ_3 White skin. Burns minimally, tans moderately and gradually
- FZ_4 Light brown skin. Burns minimally, tans well
- FZ_5 Brown skin. Rarely burns, tans deeply
- FZ_6 Dark brown/black skin. Never burns, tans deeply

Roberts hyperpigmentation (H) scale: propensity for pigmentation

- H_0 Hypopigmentation
- H_1 Minimal and transient (<1 year) hyperpigmentation
- H_2 Minimal and permanent (>1 year) hyperpigmentation
- H_3 Moderate and transient (<1 year) hyperpigmentation
- H_4 Moderate and permanent (>1 year) hyperpigmentation
- H_5 Severe and transient (<1 year) hyperpigmentation
- H_6 Severe and permanent (>1 year) hyperpigmentation

Glogau (G) scale: describes photoaging

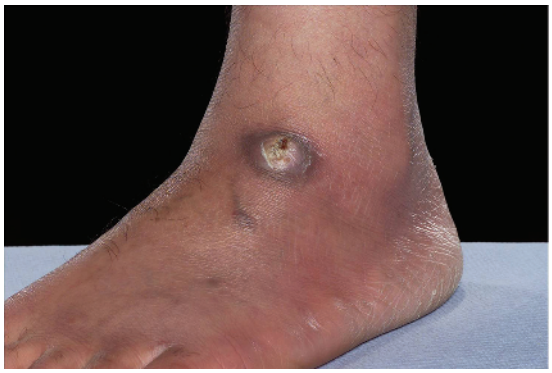
- G_1 No wrinkles, early photoaging
- G_2 Wrinkles in motion, early to moderate photoaging
- G_3 Wrinkles at rest, advanced photoaging
- G_4 Only wrinkles, severe photoaging

Roberts scarring (S) scale: describes scar morphology

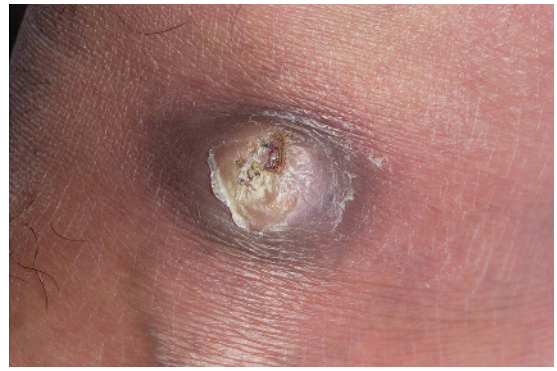
- S_0 Atrophy
- S_1 None
- S_2 Macule
- S_3 Plaque within scar boundaries
- S_4 Keloid
- S_5 Keloidal nodule

most practicing dermatologists need to be competent in the diagnosis and management of cutaneous disorders in people of diverse racial and ethnic backgrounds. For example, in 1990 the United States census revealed that 76% of the population was white; 12% black; 9% Hispanic; 2.8% Asian/Pacific Islander; and 0.7% American Indian, Eskimo, and Aleut [6]. Projections for the US population in 2050 forecast a substantial decline in the white population to approximately 53%, with an increase in other racial groups (black 14%; Hispanic 25%; Asian 8%; American Indian, Eskimo, and Aleut approaching 1%) [6]. In the United Kingdom, the 2001 census demonstrated that ethnic minorities made up 7.9% of the population, an increase of 53% compared to the previous 1991 census [13].

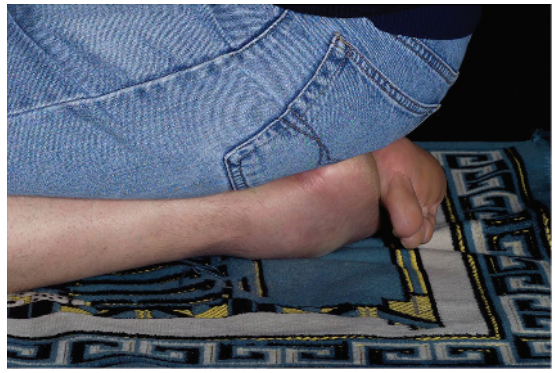
Based on the above and despite the valid limitations and difficulties in defining ethnic dermatology, the use of this term is helpful, given that it enables interested parties (dermatologists, other physicians, nurses, scientists, and patients) to come together to help advance this aspect of dermatology [2]. In time it is likely that advances in genomics will increase our understanding of the role of genetic variation among human populations, thereby influencing our use of terminologies such as ethnic dermatology and skin of color [14].



(A)



(B)



(C)

Figure 1.1 (A,B) A prayer nodule (talar callosity) located on the dorsal aspects of the left foot associated with the specific prayer stance undertaken by this devout Muslim (C).

References

1 Dadzie OE. Skin of colour: an emerging subspecialty of Dermatology. Br J Dermatol 2009; 160: 368–75.

2 Taylor SC, Cook-Bolden F. Defining skin of color. Cutis 2002; 69: 435–7.

3 Silver SE. Defining skin of color. Cutis 2003; 71: 141–2; author reply 142–3; discussion 143.

4 Elgart ML. Defining skin of color. Cutis 2003; 71: 142; author reply 142–3; discussion 143.

5 Dawkins R. *The Ancestor's Tale: A Pilgrimage to the Dawn of Life*, new edn. Phoenix, 2005.

6 Taylor SC. Skin of color: biology, structure, function, and implications for dermatologic disease. J Am Acad Dermatol 2002; 46: S41–62.

7 Lee C. "Race" and "ethnicity" in biomedical research: how do scientists construct and explain differences in health? Soc Sci Med 2009; 68: 1183–90.

8 Marshall J. *Skin Diseases in Africa*. Cape Town, South Africa: Maskew Miller Ltd, 1964.

9 Taylor SC. Epidemiology of skin diseases in people of color. Cutis 2003; 71: 271–275.

10 Alexis AF, Sergay AB, Taylor SC. Common dermatologic disorders in skin of color: a comparative practice survey. Cutis 2007; 80: 387–94.

11 Bede T, Papier A. Disparities in dermatology educational resources. J Am Acad Dermatol 2006; 55: 687–90.

12 Nijhawan RI, Jacob SE, Woolery-Lloyd H. Skin of color education in dermatology residency programs: does residency training reflect the changing demographics of the United States? J Am Acad Dermatol 2008; 59: 615–18.

13 http://www.ons.gov.uk/ons/rel/ethnicity/focus-on-ethnicity-and-identity/focus-on-ethnicity-and-identity-summary-report/focus-on---ethnicity-and-identity-summary-report.pdf (accessed 14 August 2012).

14 Lander ES. Initial impact of the sequencing of the human genome. Nature 2011; 470: 187–97.
15 Fitzpatrick TB. The validity and practicality of sun-reactive skin types I through VI. Arch Dermatol 1988; 124: 869–71.
16 Leenutaphong V. Relationship between skin color and cutaneous response to ultraviolet radiation in Thai. Photodermatol Photoimmunol Photomed 1996; 11(5–6): 198–203.
17 Wee LK, Chong TK, Quee DK. Assessment of skin types, skin colours and cutaneous responses to ultraviolet radiation in an Asian population. Photodermatol Photoimmunol Photomed 1997; 13(5–6): 169–72.
18 Chardon A, Cretois I, Hourseau C. Skin colour typology and sun tanning pathways. Int J Cosmet Sci 1991; 13: 191–208.
19 Del Bino S, Sok J, Bessac E, Bernerd F. Relationship between skin response to ultraviolet exposure and skin color type. Pigment Cell Res 2006; 19: 606–14.
20 Roberts WE. The Roberts skin type classification system. J Drugs Dermatol 2008; 7: 452–6.