

Disparities in dermatology educational resources

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Patients with dark skin can present with morphologic variants, subtle disease presentations, and disease manifestations requiring unique management and therapies. With African Americans, Asians, and Hispanic Americans becoming a significant portion of the population, dermatologists must be able to diagnose and manage skin conditions in people of color. In this study, core dermatology educational sources were examined to determine if they provide dermatologists and trainees with the knowledge base necessary to diagnose and treat skin disease in the ethnic patient. Overall, the coverage of dark skin at national meetings and in photographs in the major dermatology resources is limited and variable. More consistent photographic coverage and textual information describing common and serious skin diseases in people of color should be incorporated into educational resources. (*J Am Acad Dermatol* 2006;55:687-90.)

Cultural competency in health care delivery relates to a physician's ability to effectively communicate and provide care for members of different ethnic backgrounds. With the growing diversity of the US population, dermatologists are seeing a more ethnically diverse patient population. This changing patient mix requires having the knowledge base to care for the skin of people of color. Studies have demonstrated that, compared with generalists, dermatologists are better equipped to care for patients with skin diseases.^{1,2} No study, however, has explicitly examined dermatologists' ability to diagnose and manage skin disorders in people of color. Some may argue that few to no differences exist in caring for light versus dark skin. However, the literature supports differences between the two in basic structure³⁻⁵ and in the presentation of common skin diseases.⁵⁻⁷ From a diagnostic perspective, the difficult visualization of erythema or subtle purpura in patients who are deeply pigmented can be a challenge to the most experienced dermatologist. Thus, as a starting point, we hypothesized that core educational resources in dermatology might not reflect the changing demographic of our populace. Do our lectures, words,

and images reflect the reality of our multicultural population?

METHODS

Data were gathered from two areas: program guides from American Academy of Dermatology (AAD) annual meetings and 7 key textbooks for dermatologists and generalists. The AAD annual meeting contains 6 types of educational sessions: "postgraduate courses," "symposia," "forums," "focus sessions," and (beginning in 1997) "discussion groups" and "poster discussion sessions." To determine the educational opportunities devoted to skin of color, program guides from 1996 to 2005 were examined. The total number of lectures was tallied. Then sessions pertaining to individuals with skin of color were counted and categorized under one of the 6 event types above. Sessions were included if: "dark skin," "skin of color," or "ethnic skin" were part of the course title; if the title or course description included African Americans, Asian Americans, Hispanic/Latino Americans, Native Americans, or countries where members of these group may originate; the event was listed in the subject index under "black skin"; or a combination of these was present. Finally, for each of the 6 types of event, the percentage dedicated to dark skin was calculated.

To determine the knowledge on ethnic skin available on a daily basis to dermatologists and generalists, 7 dermatology textbooks were examined. The Brandon/Hill⁸ selected list of print books and journals was created to assist librarians with acquiring quality medical literature for the small medical library. Using a combination of the Brandon/Hill list and an informal poll of local dermatologists in our community, the following books

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Table I. Images of different skin phototypes in dermatology textbooks

Textbook	Dark	Light	Indeterminate	Total	Dark skin images
Bologna	254	1011	61	1326	19%
Freedberg	240	1339	67	1646	15%
Rook	178	1255	79	1522	12%
Fitzpatrick 5th	97	721	39	857	11%
Fitzpatrick 4th	73	602	26	701	10%
Sauer's	57	550	8	615	9%
Habif	36	944	32	1012	4%

Dark, Skin prototype V-VI; light, skin prototype I-IV.

were chosen: *Dermatology* (Bologna),⁹ *Rook's Textbook of Dermatology, 7th ed*, (Burns),¹⁰ *Color Atlas & Synopsis of Clinical Dermatology, 4th ed*, (Fitzpatrick),¹¹ *Fitzpatrick's Dermatology in General Medicine, 6th ed*, (Freedberg),¹² *Clinical Dermatology: A Color Guide to Diagnosis and Therapy, 4th ed*, (Habif),¹³ *Sauer's Manual of Skin Diseases, 8th ed*, (Hall),¹⁴ and *Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology, 5th ed*, (Wolff).¹⁵ The most recent editions of the textbooks were used. With the recent publication of the 5th edition of Fitzpatrick's Color Atlas, both editions were included to compare potential changes in the knowledge base for dark skin. Rook was chosen for its international perspective.

The photographs in each textbook were examined using the following method. First, an initial decision of "light," "dark," or "indeterminate" was made. Figure text was initially ignored to avoid bias in classification. Using Fitzpatrick's skin phototypes, light = skin types I to IV and dark = skin types V to VI. V designates a constitutive skin color of brown and VI designates black skin.¹⁶ Skin type V was chosen as the cutoff for dark skin because it is easier than type IV (light brown) to classify in pictures. In addition, with the wide variety of skin types in racial groups, the use of a higher cutoff may focus the findings on the ethnic groups of interest. The figure text was then read to finalize the decision. Photographs were categorized as dark if the figure text stated that the person in the picture was African American, African, Asian, Asian American, Indian, Hispanic-American, Native American, or from a country where members of these groups originate. Synonyms for these terms were used. Photographs were categorized as indeterminate if a definitive decision could not be made. These included: close-up photographs (eg, oral mucosa, genitalia, nail, palms and soles), poorly lit pictures, or those where the pathology obscured the surrounding skin. The following images were excluded: repeated or black-and-white pictures,

images demonstrating diagnostic and therapeutic procedures, pictures taken through a dermoscope, histology, and animal photographs.

RESULTS

Educational opportunities on skin of color at AAD annual meetings

From 1996 to 2005, the percentage of teaching events at AAD annual meetings focused on skin of color has remained at 2%. On average, of the approximately 370 events available each year, 8 events (range: 4-10) are devoted to ethnic skin. These events are held as forums and focus sessions. No postgraduate course, discussion group, or poster discussion group has focused on ethnic skin. From 1996 to 1998, there was a symposium entitled "Ethnic Skin Diseases" dedicated to individuals with dark skin. From 1999 to 2004, there were no symposia on skin of color. Rather, there were individual lectures, within broader symposia, focused on ethnic skin. For example, in the 2004 Women's Symposium, there was a lecture titled "Alopecia in Women of Color." In 2005, a symposium entitled "Spectrum of Skin Color" appeared to be the first event to explicitly incorporate Asians and Hispanics into the lectures on ethnic skin. In general, issues related to Asian, Hispanic, and Native American skin are underrepresented at the annual meetings. On average, there are 1 to 2 events each year clearly focused on Hispanic/Latin Americans and none for Asians. An exception was "Use of Cutaneous Surgery in Asians" in 2002.

Images of dark skin in dermatology textbooks

In summary, the dermatology textbooks aimed at dermatologists contained more images and textual content focused on ethnic skin than those believed to be read by generalists. The percent of dark skin images in the books are as follows: Bologna, 19%; Freedberg, 15%; Rook, 12%; Fitzpatrick 5th, 11%; Fitzpatrick 4th, 10%; Sauer's, 9%; and Habif, 4%. Indeterminate pictures comprised an average of 4% of all images for all books except Sauer's (Table I).

Of importance was the range and types of diseases shown in dark skin. Several articles have outlined common dermatologic diseases in African Americans, Asians, and Hispanic/Latino Americans.^{17,18} The following diagnoses were examined: acne vulgaris, alopecia, atopic dermatitis, pityriasis rosea, psoriasis, seborrheic keratosis, secondary syphilis, and tinea infections. In addition, three medical diseases with cutaneous manifestations and ethnic predispositions were examined: sarcoidosis, erythema dyschromicum perstans (ashy dermatosis), and cutaneous amyloidosis.

Table II. Representation of common dermatologic diseases in dark skin

Diagnosis	Bologna	Freedberg	Rook	Fitzpatrick 5th	Fitzpatrick 4th	Sauer's	Habif
Common dermatologic diseases							
Acne vulgaris	0/13	0/13	4/36	1/5	1/5	0/7	0/27
Alopecia	1/6	3/10	3/17	0/10	0/8	1/9	0/9
Atopic dermatitis	7/15	2/10	1/8	3/9	1/4	0/16	0/20
Pityriasis rosea	1/4	0/4	0/3	0/1	0/1	1/11	0/8
Psoriasis	2/24	2/46	0/34	1/17	1/12	0/21	0/34
Syphilis, secondary	6/10	9/16	3/13	2/7	1/2	9/16	3/5
Tinea infection	4/20	4/15	1/13	4/20	4/17	1/24	3/39
General medical diseases with racial or ethnic predisposition							
Sarcoidosis	3/6	1/6	4/12	2/4	1/3	0/3	0/0
Erythema dyschromicum perstans (ashy dermatosis)	3/3	1/1	0/0	0/0	0/0	0/0	0/0
Cutaneous amyloidosis	1/7	0/4	4/11	1/4	0/2	0/0	0/0

Numbers = dark skin pictures/total number of pictures for each disease.

Overall, for common dermatologic diseases, the texts aimed at dermatologists were more likely to have a dark skin image than the dermatology texts more widely read by generalists (Table II). Surprisingly, acne vulgaris, one of the top 3 diagnoses for individuals with dark skin, was not represented in most books. Only Rook and Fitzpatrick had at least one image of this condition in dark skin. Pityriasis rosea, another condition known to have a unique presentation in dark skin, was also poorly represented. For infectious diseases, dermatology texts more widely read by generalists were just as likely as dermatologist-read texts to represent these images in dark skin. For example, 9 images of secondary syphilis were shown in Sauer's and Freedberg. With the more complicated diseases such as sarcoidosis (common in African Americans), amyloidosis (common in Asians), and ashy dermatosis (common in Latin Americans), the strength of dermatologist-aimed texts was shown as coverage was missing from the generalist books such as Sauer's and Habif.

CONCLUSION AND RECOMMENDATIONS

The United States is currently 29% non-Caucasian and is estimated to increase to approximately 48% non-Caucasian by the year 2050.¹⁸ Although there is information on the disparities in access to dermatologic care among minorities,¹⁹ this is one of the first studies to look at the disparities in educational resources. The coverage of ethnic skin has remained essentially the same at the AAD annual meetings despite the growing patient population of people of color. Furthermore, although the texts most frequently used by dermatologists provided more images of dark skin, for many common diseases, there

were no photographs representing the common and serious skin disorders.

The chapters on acne vulgaris illustrate this educational gap. Acne vulgaris affects 40 to 50 million individuals in the United States each year.²⁰ There is evidence in the literature of differences in presentation, sequela, and treatment of acne, particularly for African Americans.²¹⁻²⁶ Despite this, the discussion of acne was limited for dark-skinned individuals in all the textbooks. Only Rook and both editions of Fitzpatrick have at least one image of acne vulgaris in dark-skinned individuals. Furthermore, in the textbook chapters on acne, either ethnic differences are not mentioned^{11,13,14} or there is only a line about nodulocystic acne^{9,12} and/or pomade acne.^{9,10,15} More information needs to be incorporated. For example, it would be important to note that acne hyperpigmented macules are common in the majority of dark-skinned individuals with acne and the reason many seek treatment for this condition.²¹ Although treatment reviews for acne in ethnic skin are available in the literature²⁴ and "throw-away" monographs, certainly this common disease should be better represented in our core literature.

Thus, what steps can be taken to improve the knowledge base in dermatology textbooks, atlases, and at annual meetings for dark skin?

1. More studies are needed to evaluate key differences in the diagnosis and management of skin disease in Hispanic Americans, Asian Americans, and other ethnic groups. Too often, when ethnic skin or dark skin is covered in lectures, the focus is on African Americans and a small set of diseases thought to be more prevalent in African Americans. Although the data for African Americans are far from complete, more work is

needed on the other groups. A good example of inclusion of these groups is in the October 2003 edition of *Dermatologic Clinics* entitled "Ethnic Skin Diseases."

- As new editions of the most widely read dermatology textbooks are published, a chapter highlighting unique racial differences in skin diseases should be incorporated. For the common conditions, paragraphs and photographs highlighting racial differences in diagnosis and management could be presented side by side to highlight differences.
- At AAD annual meetings, dermatology educators should look for opportunities to highlight disease presentation differences in dark and ethnic skin. Although individual forums and sessions are important, self-selection may lead to a majority of attendees missing the information. In the future, for practicing dermatologists, medical and cosmetic Continuing Medical Education-approved forums, courses, and symposia should provide examples of disease in both light and dark skin types when the distinction is educationally relevant.

This study evaluated two core areas of dermatology education: the AAD annual meeting and dermatology textbooks. Future studies are needed to determine whether the limited information on skin of color in dermatology texts more widely read by generalists extends to the Continuing Medical Education educational activities and journals read by nondermatologists as well.

REFERENCES

- Solomon BA, Collins R, Silverberg NB, Glass AT. Quality of care: issue or oversight in health care reform? *J Am Acad Dermatol* 1996;34:601-17.
- Federman DG, Concato J, Kirsner RS. Comparison of dermatologic diagnoses by primary care practitioners and dermatologists: a review of the literature. *Arch Fam Med* 1999;8:170-2.
- Taylor SC. Skin of color: biology, structure, function, and implications for dermatologic disease. *J Am Acad Dermatol* 2002;46(Suppl):S41-62.
- Berardesca E, Maibach H. Ethnic skin: overview of structure and function. *J Am Acad Dermatol* 2003;48(Suppl):S139-42.
- Johnson BL, Moy RL, White GM, editors. *Ethnic skin medical and surgical*. St Louis: Mosby; 1998.
- Gawkrodger DJ. Racial influences on skin disease. In: Burns T, editor. *Rook's textbook of dermatology*. 7th ed. Boston: Blackwell Science; 2004. pp. 69.1-.21.
- McLaurin CI. Unusual patterns of common dermatoses in blacks. *Cutis* 1983;32:352-60.
- Hill DR, Stickell HN, Crow S. Brandon/Hill selected lists: print books and journals for the small medical library 2003. Available at: http://www.mssm.edu/library/Brandon-hill/small_medical/index.shtml. Accessed June 26, 2005.
- Bolognia JL, Jorizzo JL, Rapini RP, Horn TD, Mascaro JM, Mancini AJ, et al, editors. *Dermatology*. Philadelphia: Mosby; 2003.
- Burns T, editor. *Rook's textbook of dermatology*. 7th ed. Boston: Blackwell Science; 2004.
- Fitzpatrick TB, Johnson RA, Wolff K, Suurmond D, editors. *Color atlas and synopsis of clinical dermatology*. 4th ed. New York: McGraw-Hill; 2001.
- Freedberg IM, Eisen AZ, Wolff K, Austen KF, Goldsmith LA, Katz SI, editors. *Fitzpatrick's dermatology in general medicine*. 6th ed. New York: McGraw-Hill; 2003.
- Habif TP, editor. *Clinical dermatology: a color guide to diagnosis and therapy*. 4th ed. Philadelphia: Mosby; 2004.
- Hall JC, editor. *Sauer's manual of skin diseases*. 8th ed. Philadelphia: Lippincott Williams and Wilkins; 2000.
- Wolff K, Johnson RA, Suurmond D, editors. *Fitzpatrick's color atlas and synopsis of clinical dermatology*. 5th ed. New York: McGraw-Hill; 2005.
- Fitzpatrick TB. The validity and practicality of sun-reactive skin types I through VI. *Arch Dermatol* 1988;124:869-71.
- Taylor SC. Epidemiology of skin diseases in people of color. *Cutis* 2003;71:271-5.
- Halder RM, Nootheti PK. Ethnic skin disorders overview. *J Am Acad Dermatol* 2003;48:143-8.
- McMichael AJ, Jackson S. Issues in dermatologic health care delivery in minority populations. *Dermatol Clin* 2000;18:229-33.
- White GM. Recent findings in the epidemiologic evidence, classification, and subtypes of acne vulgaris. *J Am Acad Dermatol* 1998;39:PS34-7.
- Taylor SC, Cook-Bolden F, Rahman Z, Strachan D. Acne vulgaris in skin of color. *J Am Acad Dermatol* 2002;46(Suppl):S98-106.
- Halder RM, Brooks HL, Callender VD. Acne in ethnic skin. *Dermatol Clin* 2003;21:609-15.
- White GM. Common diseases in the darker-skinned adult. In: Johnson BL, Moy RL, White GM, editors. *Ethnic skin medical and surgical*. St Louis: Mosby; 1998. pp. 43-51.
- Callender VD. Acne in ethnic skin: special considerations for therapy. *Dermatol Ther* 2004;17:184-95.
- Halder RM. The role of retinoids in the management of cutaneous conditions in blacks. *J Am Acad Dermatol* 1998;39:PS98-103.
- Fleischer AB, Simpson JK, McMichael A, Feldman SR. Are there racial and sex differences in the use of oral isotretinoin in acne management in the United States? *J Am Acad Dermatol* 2003;49:662-6.