Representation of Fitzpatrick skin type in dermatology textbooks compared with national percentiles

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Abstract

As time progresses, more patients with skin of color will be seen by dermatologists. To meet the needs of the ever-changing population, medical education needs to analyze how residents are trained in recognizing dermatological disorders in patients with skin of color. The aim of this study was to analyze dermatology textbooks to evaluate how well skin of color patients are represented compared to the current national distributions. The most common skin types depicted in the textbooks were Fitzpatrick skin types II and III, whereas the least common skin types depicted were skin types V and VI. There was a significant difference between a national distribution of skin types when compared to photographs in each of the textbooks (P<0.001). These findings emphasize the need to better represent patients with skin of color in medical textbooks.

Keywords: skin of color, medical education, photography, color

Introduction

By the year 2044, more than half of all Americans are projected to belong to a minority group [1]. To better meet the needs of our ever-changing population, medical education must recognize how to better train dermatology residents in patients with skin of color (SoC). Previous studies emphasize the need for increased exposure, education, and training in disease pertaining to SoC. However, only half of residents receive lectures on recognizing diseases in SoC patients [2,3]. Given this lack of formal training, other resources, such as textbooks, should adequately represent dermatological conditions in SOC patients. The aim of this study was to analyze dermatology textbooks to evaluate how well SoC patients are represented compared to the current national distributions.

The four dermatological textbooks selected were *Dermatology* by Jean L. Bolognia et al. (Bolognia), *Andrews' Diseases of the Skin: Clinical Dermatology* (Andrews), *Lookingbill & Marks' Principles of Dermatology* (Marks), and *Fitzpatrick's Dermatology in General Medicine* (Fitzpatrick). Skin tone was examined using Fitzpatrick Skin Test. If the skin type could not be determined owing to poor picture quality or a lack of distinguishable skin color, the picture was excluded from the study. Percentages of skin type within each book were compiled. Results were compared against the United States national distribution of skin types using chi square analyses [4]. Significance was established with P<0.05.

The distribution of Fitzpatrick skin color types differed among textbooks (**Figure 1**). The most common skin types depicted were skin types II and III. The majority of pictures in Bolognia, Andrews, and Marks were skin type II or III, whereas the majority of pictures in Fitzpatrick were of either skin type II or type I. In each textbook, the least common skin types depicted were skin types V and VI. There was a significant difference between a national distribution of skin types when compared to

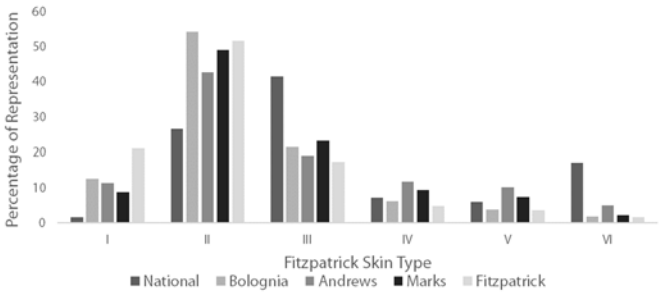

Figure 1. *Distribution of Fitzpatrick Skin Types. Images from dermatological textbooks were categorized according to Fitzpatrick Skin Type (I-VI). Percentages were then compared to national percentages of Fitzpatrick Skin Types. All textbooks significantly differed (P<0.001) from national percentages.*

photographs in Bolognia, Andrews, Marks, and Fitzpatrick (P<0.001), (**Figure 1**).

Discussion

These findings emphasize the need to better represent SoC patients in medical textbooks. The photos used in Bolognia, Andrews, Marks, and Fitzpatrick did not accurately reflect patient demographics seen in the United States. These results are consistent with previous work which demonstrated that medical textbooks portrayed lighter skin tones more often than darker skin tones [5]. However, it appears the over-representation of lighter skin patients in dermatology texts has already had an effect on education. Medical students have been demonstrated to better identify dermatologic disease processes such as urticaria and atopic dermatitis in lighter skinned populations than SoC [6]. This reduced ability to recognize skin changes in skin of color further demonstrates the need to expand upon the existing photographs used in dermatology textbooks.

Limitations of this study include the use of the Fitzpatrick Skin Test to categorize the textbook pictures. Although the Fitzpatrick Skin Test was designed to assess a patient's propensity to burn by questioning patients about burning and pigmentation related to sun exposure, it is commonly used to classify patient skin colors. The Fitzpatrick Skin Type is used as a proxy for color because there is no other widely adopted classification system [7]. Although there are inconsistencies with its accuracy, the Fitzpatrick Skin Test did enable comparison of textbook pictures to national data regarding skin of color demographics in the United States. Additionally, we believe that a more culturally appropriate and clinically relevant method for describing skin type should be developed to better assess the representation of skin of color in educational tools.

Conclusion

Why this discrepancy between dermatology textbooks and the national population persists remains unclear. Regardless of why this difference exists, its presence holds potential significance in the training of medical students and residents. As the demographics of the United States change, so must the ways in which we train our health care professionals. To accurately diagnose skin conditions in skin of color patients, students need examples and graphics from which to learn. It is clear that resources currently available, while potentially effective as teaching tools, are inadequate in accurately reflecting the population in which future physicians of America will serve.

Potential conflicts of interest

The authors declare no conflicts of interests.

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