

Editorial

Cutaneous signs of rheumatic diseases in skin of colour: are we failing our patients?

Skin, the largest organ, is readily accessible for inspection, it can signal pathology and facilitate diagnosis in autoimmune or autoinflammatory conditions. Accordingly, considerable teaching material describing and illustrating cutaneous signs is readily available. It was therefore a surprise when one of us, a medical student on a rheumatology attachment in Central London, found that his teaching materials bore no relationship to the cutaneous signs of the racially diverse patients he encountered with conditions such as lupus. This observation will come as no surprise to rheumatologists in many countries, from Sub-Saharan Africa to Asia, who for years have struggled to create their own libraries of cutaneous signs of rheumatological diseases because textbooks, publications and websites, slanted towards lighter skin types, were not useful in their practice. In this article, we highlight problems with the poor availability of educational material describing cutaneous rheumatology signs in skin of colour and suggest solutions.

Many reports, including a systematic review in *Rheumatology*, indicate underrepresentation of images of cutaneous rheumatological signs in skin of colour, compounded by inappropriate or inaccurate descriptive medical terminology [1]. For example, detecting ‘erythema’ in darker skin types is difficult. While lighter skin may show ‘classic erythema-redness’ changes, more subtle darker skin signs include violaceous, grey, brown or black colour changes, with tenderness, heat, swelling, peeling, texture or contour changes, prominent skin papules and pores in addition to redness. This has led to a call for the term ‘erythema’ to be dropped [2]. Other signs, from Gottron’s papules to cutaneous lupus look quite different in skin of colour compared with images in textbooks. This is especially concerning given that some rheumatological conditions, such as lupus, have a higher incidence and worse outcome in people with darker skin.

Reviews of images in rheumatology educational material show the proportion of dark skin types is 5.9% to 13.6% compared with 56.4% to 86.5% in lighter skin [1]. Even Google, arguably the most readily accessible source to learn about cutaneous signs, gets this wrong: the underrepresentation of darker skin types in cutaneous lupus was greatest in Google Images [3]. Given the continued increase of virtual material and autonomous learning after the Covid-19

pandemic, this bias may get even worse [4]. While journals and skin tone atlases are the most representative, they are the least accessible, due to high cost: a problem in developing countries [3].

Underrepresentation of darker skin in educational images and inaccurate descriptive terminology can be detrimental for patients and lead to inequality of care. A US study reported that clinicians were less confident in diagnosing lupus-related rashes in darker compared with lighter skin [5]. The only independent factor associated with greater confidence was clinical experience, but is it acceptable that knowledge of darker skin types should only be picked up through ‘everyday exposure’ rather than medical education? Other US studies found that educational material did not reflect the census population with clinicians inadequately prepared for their patients [6]. This can lead to bias, with some diagnoses only considered in patients of lighter skin types. Zickuhr [7] highlights that the ‘typical’ presentation of scleroderma in educational material is a 40–50-year-old Caucasian female with skin thickening and RP. Yet in darker skin, RP may appear dusky and not the ‘classic’ triphasic colour changes of lighter skin, and sclerodermatous skin may show considerable dyspigmentation. Are clinicians less likely to diagnose scleroderma in non-Caucasian populations?

Unfortunately, it gets even worse. Kaundinya and Kundu [4] identified a disturbing problem of stereotyped clinical vignettes by skin colour. For example, in dermatology textbooks darker skin types are more commonly used to portray sexually transmitted infections, with negative connotations, whereas lighter skin types tend to illustrate acne, considered by society to be more common and benign [8]. Poorer outcomes for patients with darker skin types may further alienate communities, often already marginalised, with trust in health-care providers lost. Clinical trials fare no better: underdiagnosis of rheumatology disorders in patients with dark skin types may lead to their inappropriate exclusion from clinical trials, exacerbating the problem yet further.

So, what should be done? It is the responsibility of us all to correct this and not just accept the status quo. The authors of this article also include a Professor of Rheumatology in Kenya, a medical dermatologist (editor of a major USA/UK dermatology textbook and international dermatology

website) and a simple rheumatologist. We can each play our part and, with the whole rheumatology community, address this. Medical educational materials, whether in medical schools, textbooks, journals or websites, and non-medical resources, such as Google Images, must improve representation of darker skin types.

Change must occur at all levels, from universities to national guidelines and professional bodies, with teaching guidelines and curricula ensuring equal representation of skin types. We must avoid the experience reported from South Africa where locally published dermatology textbooks ‘follow international practices’ set by European and North American textbooks, where lighter skin types make up the majority of images. Guidelines and curricula must also be updated, reflecting the importance of identifying cutaneous signs in all skin types. Clinicians can learn much about signs of inflammation from rheumatologists around the world, such as the leading work from Kenyan rheumatologists.

Finally, the historical ‘difficulty’ in photographing cutaneous signs in darker skin types, lazily cited as a primary factor for the lack of representative images is no longer credible [4]. Changes in traditional medical resources can be complemented by encouraging a bottom-up/grass roots approach led by patients and students, utilising the high-quality digital imaging readily available today. *Mind the Gap: A Handbook of Clinical Signs in Black and Brown Skin* and *Brown Skin Matters* are freely available yet relatively unknown resources that accurately reflect the spectrum of skin types [9]. Dermnet, one of the largest and most frequently visited dermatological information sites, is striving to have representative images of as many dermatoses as possible in all skin types [10]. We challenge you to join us in this. Standing still can only further exacerbate the inequality of care and, through our ignorance, harm our patients.

Data availability

Data are available upon reasonable request by any qualified researchers who engage in rigorous, independent scientific research, and will be provided following review and approval of a research proposal and Statistical Analysis Plan (SAP) and execution of a Data Sharing Agreement (DSA). All data relevant to the study are included in the article.

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Jonathan Haddad¹, Ian Coulson², G. Omondi Oyoo³, Robert J. Moots^{4,*}

¹GKT School of Medical Education, Kings College London, London, UK

²Department of Medicine, BMI The Beardwood Hospital, Blackburn, UK

³Department of Medicine, University of Nairobi, Nairobi, Kenya

⁴Department of Rheumatology, Liverpool University Hospitals NHS Foundation Trust, Liverpool, UK

*Correspondence to: Robert J. Moots, Clinical Sciences Centre, Aintree University Hospital, Longmoor Lane, Liverpool L9 7AL, UK.

E-mail: robert.moots@liverpoolft.nhs.uk

References

1. Babool S, Bhai SF, Sanderson C, Salter A, Christopher-Stine L. Racial disparities in skin tone representation of dermatomyositis rashes: a systematic review. *Rheumatology* 2022;61:2255–61.
2. Finlay AY, Griffiths TW, Belmo S, Chowdhury MMU. Why we should abandon the misused descriptor “erythema.” *Br J Dermatol* 2021;185:1240–1.
3. Rana A, Witt A, Jones H *et al.* The representation of skin colors in images of patients with lupus erythematosus. *Arthritis Care Res* 2022;74:1835–41.
4. Kaundinya T, Kundu RV. Diversity of skin images in medical texts: recommendations for student advocacy in medical education. *J Med Educ Curric Dev* 2021;8:23821205211025855.
5. Kannuthurai V, Murray J, Chen L, Baker EA, Zickuhr L. Health care practitioners’ confidence assessing lupus-related rashes in patients of color. *Lupus* 2021;30:1998–2002.
6. Strait A, Graf J, Margaretten M, Yazdany J, Goglin SR. Ethnicity and disparities in rheumatology educational materials. *Arthritis Care Res* 2022;74:1416–20.
7. Zickuhr L. Learn to recognize dermatologic changes in patients of color with rheumatic disease. *ACR Convergence Today*. 2021. <https://www.acrconvergencetoday.org/learn-to-recognize-dermatologic-changes-in-patients-of-color-with-rheumatic-disease/> (7 November 2022, date last accessed).
8. Adekun A, Onyekaba G, Lipoff JB. Skin color in dermatology textbooks: an updated evaluation and analysis. *J Am Acad Dermatol* 2021;84:194–6.
9. Mukwende M. *Mind the Gap: A handbook of clinical signs in Black and Brown skin*. figshare. 2020. https://sgul.figshare.com/articles/online_resource/Mind_the_Gap_A_handbook_of_clinical_signs_in_Black_and_Brown_skin/12769988/1 (18 May 2023, date last accessed).
10. DermNet NZ – All about the skin | DermNet NZ. <https://dermnetnz.org/> (18 May 2023, date last accessed).