

Structured Evidence Base for Best practices and research in skin of color: A Call to Action

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The spectrum of diseases and their associated cultural modifications are particular to every geographical area globally and they form the basis of differential presentations and therapeutic approaches towards them.

Dermatology being a visual specialty should showcase global variations and disease spectra equally, but we see under representation of skin of color. So, the literature in curriculum books, AI datasets, image banks and guidelines has been historically focused on brighter skin tones more than darker ones. So, the clinical decision making largely is tunneled down into a narrower insight and does not truly depict our own patient and disease specifications.¹

South Asia constituting only 3-4% of worlds land area, yet harbors 25% of world's population with diverse Fitzpatrick skin types III-V also carries a disproportionately high burden of both infectious and non-communicable diseases in which pigmentary disorders, inflammatory dermatoses, infections, hair disorders, acne, melasma, vitiligo, and post-inflammatory hyperpigmentation are worth mentioning. In skin of color, skin conditions are perceived differently, e.g. erythema may be less obvious, pigmentary sequel are more pronounced

cosmetic expectations and definitions of beauty differ, and the outcome is modified by climate, sun-exposure, cultural beliefs and practices, clothing and access to care. Therefore, the western evidence available is an incomplete guide to dermatologists in this area.²

Training and teaching in dermatology is largely image dependent and pattern recognition. Without image repositories at local level, teaching and research remain largely dependent on foreign images. Role of AI in dermatology has been adequately stressed globally but it also depends on image data and if data is representing darker skin and its diseases unequally, the AI interpretation and input shall be unfair. Consequently, we might witness their poor performance. The concerns of biased machine learning and non-generalizability of dermatology datasets have already been conveyed by research studies. Other than image banks of clinical pictures, south Asia urgently requires well curated dermoscopic, onychoscopic and trichoscopic image banks that are histopathology linked too.³

Dermoscopy teaching had started a century ago in the western population and majority of metaphoric and analytic terminologies have been coined by their researchers but the dermoscopic patterns described in west might not always depict skin of color e.g. pigment network patterns, vascular morphology, erythema, follicular details, hair disorders, nail pigmentation, acral lesions, and inflammatory dermatoses vary in their presentation. We need to establish our own standardized clinical image banks,

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dermoscopy image registry and meta data consisting of patients age, sex, diagnosis, biopsy status, diagnosis and treatment response. To establish such banks and registries at national level, multicenter contribution from teaching hospitals countrywide is essential.⁴

There is a need for developing context sensitive treatment protocols and guidelines in Melasma in our skin types, management of acne and prevention of consequent hyperpigmentation. Other examples are expert guidelines on management of steroid misuse and fairness cream complications, fungal infection recurrence and resistance, psoriasis with biologics in resource-limited settings, alopecia with local economic concerns, vitiligo and its psychosocial burden and photoprotection adapted to cultural and climatic realities

Western guidelines might not cater local affordability, product availability, cultural adherence, climate, delayed presentation, and patient expectations.⁵

A major gap in evidence base is lack of registries which holds us from stating prevalence of common dermatoses, rural versus urban burden of melasma, vitiligo, psoriasis, fungal infections, acne and scarring. This also hinders our vision statements on treatment outcomes, adverse effects of drugs, recurrence rates of diseases and regional variations in the country. Here we proudly propose PAD & JPAD-led registries for psoriasis, vitiligo, melasma, alopecia areata, acne scarring, chronic urticaria, dermatophyte infections, cutaneous adverse drug reactions and dermoscopy.⁶

Artificial intelligence is rapidly reshaping all areas in medicine especially dermatology. It offers new areas in diagnostic evaluation, risk stratification and clinical decision making. The more the dataset used in training is diverse and authentic qualitatively, the more the performance of AI tools is. Encouragingly, international initiatives such as Stanford's Diverse Dermatology Images dataset and emerging regional

directives have confidently demonstrated the feasibility of representative dermatology datasets. If we in South Asia do not act proactively and develop its own clinical and dermoscopic datasets today, there is a possibility that tomorrow's AI tools might interpret our patients through someone else's reference standards. Datasets from all teaching institutions shall not only serve as a research seedling but also an investment in the future of precision dermatology.³

Bridging the evidence gap in skin of color research requires coordinated efforts from clinicians, researchers, academic institutions, professional societies, and scientific journals throughout the region. As the official academic leading platform of Pakistani dermatology, JPAD encourages skin of color research, prioritizing locally relevant clinical data, publishing clinical and dermoscopic image series, promoting multicenter collaborative studies, and supporting authors through research capacity-building initiatives. While the journey toward a comprehensive South Asian evidence base requires consistent commitment, it presents a unique opportunity for our region to take steps from a consumer of global evidence into a meaningful contributor to it. By investing in registries, image banks, collaborative research networks, and high-quality scientific reporting, we can ensure that future dermatological practice is informed not only by international experience but also by evidence generated from the populations we serve. The goal is not to replace global evidence, but to enrich it with our perspectives, data, and experiences that reflect the realities of South Asian skin.⁷

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