

Artificial Intelligence in Dermatology

Neupane S

Professor, Department of Dermatology, Gandaki Medical College, Pokhara, Nepal

Received: August 27, 2023

Accepted: October 17, 2023

Published: July 31, 2023

Cite this paper: Neupane S. Artificial intelligence in Dermatology. *Nepal Journal of Medical Sciences*.2023; 8(2):1-2. <https://doi.org/10.3126/njms.v8i2.61038>

Interest in the application of artificial intelligence (AI) models in medicine has increased as a result of recent developments in the field. [1] There are potential and difficulties in using AI in dermatology's daily operations. [2] The integration of artificial intelligence in dermatology in Nepal may still be an emerging field, but the potential applications and benefits are noteworthy. AI has been increasingly employed globally to assist dermatologists in diagnosis, treatment planning, and research.

Dermatological conditions are diverse, ranging from common issues like acne and eczema to more severe diseases like skin cancer. AI's ability to analyze vast datasets and recognize patterns makes it well-suited for dermatological applications, especially in image-based diagnostics.

One primary application of AI in dermatology is in the analysis of skin images. AI algorithms can be trained to identify various skin conditions by analyzing images of skin lesions, moles, or rashes. [3] This technology assists dermatologists in making more accurate and timely diagnoses. Given the shortage of dermatologists in certain areas of Nepal, AI can play a crucial role in expanding access to dermatological expertise.

Moreover, AI in dermatology contributes to

the early detection of skin cancers, a significant public health concern. [4,5,6] Algorithms can analyze dermoscopic images, helping identify malignant lesions and prompting timely intervention. In a country like Nepal, where sun exposure is high, skin cancer prevalence might be underreported. In the detection of skin cancer, the computer program reported a comparable sensitivity and specificity to dermatologists. [7] Potential applications for automated systems include cancer detection. [8] AI tools could enhance preventive measures and contribute to improved outcomes.

In addition to diagnosis, AI can aid in personalized treatment plans. By analyzing patient data, including genetics, lifestyle, and treatment history, AI can recommend tailored approaches for managing skin conditions. This not only enhances the efficiency of treatments but also minimizes the risk of adverse reactions.

Telemedicine is another area where AI can make dermatological expertise more accessible. AI-driven chatbots or virtual dermatology assistants can provide initial assessments, answer patient queries, and offer guidance on skincare routines. This is particularly valuable in regions where dermatologists are scarce, allowing for timely advice and reducing the burden on the healthcare system.

Correspondence to: Saraswoti Neupane

Department of Dermatology

Gandaki Medical College

Email: sarunpn@gmail.com



Licensed under CC BY 4.0 International License which permits use, distribution and reproduction in any medium, provided the original work is properly cited

However, the integration of AI in dermatology in Nepal comes with challenges. Ensuring the privacy and security of patient data is crucial, and there is a need for appropriate regulatory frameworks to govern the use of AI in healthcare. Moreover, building awareness and providing training to healthcare professionals on the use of AI tools is essential for successful implementation.

In conclusion, while the specific developments in AI in dermatology in Nepal may require updated information, the potential for AI to revolutionize dermatological care in the country is evident. Through early diagnosis, personalized treatment plans, and improved accessibility to dermatological expertise, AI can contribute significantly to advancing skin healthcare in Nepal, particularly in areas where specialized medical services are limited. Ongoing collaboration between healthcare institutions, technology developers, and regulatory bodies will be essential for realizing the full potential of AI in dermatology in Nepal.

Keywords: *Artificial intelligence; Dermatology; Telemedicine*

References

1. Dorr DA, Adams L, Embí P. Harnessing the promise of artificial intelligence responsibly. *JAMA*. 2023;329(16):1347. <http://dx.doi.org/10.1001/jama.2023.2771>
2. Omiye JA, Gui H, Daneshjou R, Cai ZR, Muralidharan V. Principles, applications, and future of artificial intelligence in dermatology. *Front Med (Lausanne)*. 2023;10. <http://dx.doi.org/10.3389/fmed.2023.1278232>
3. Using generative artificial intelligence (AI) in dermatology. *Tibot*. 2023 [cited 2023 Dec 24]. <https://tibot.ai/using-generative-artificial-intelligence-ai-in-dermatology/>
4. Du-Harpur X, Watt FM, Luscombe NM, Lynch MD. What is AI? Applications of artificial intelligence to dermatology. *Br J Dermatol*. 2020;183(3):423–30. <http://dx.doi.org/10.1111/bjd.18880>
5. Gomolin A, Netchiporouk E, Gniadecki R, Litvinov IV. Artificial intelligence applications in dermatology: Where do we stand? *Front Med (Lausanne)*. 2020;7. <http://dx.doi.org/10.3389/fmed.2020.00100>
6. Young AT, Xiong M, Pfau J, Keiser MJ, Wei ML. Artificial intelligence in dermatology: A primer. *J Invest Dermatol*. 2020;140(8):1504–12. <http://dx.doi.org/10.1016/j.jid.2020.02.026>
7. Leiter U, Eigentler T, Garbe C. Epidemiology of skin cancer. In: *Sunlight, Vitamin D and Skin Cancer*. New York, NY: Springer New York; 2014. p. 120–40.
8. Bhatt H, Shah V, Shah K, Shah R, Shah M. State-of-the-art machine learning techniques for melanoma skin cancer detection and classification: a comprehensive review. *Intell Med [Internet]*. 2023;3(3):180–90. <http://dx.doi.org/10.1016/j.imed.2022.08.004>