



ORIGINAL RESEARCH PAPER

Public Health

TRANSFORMING DERMATOLOGY: BENEFITS OF ARTIFICIAL INTELLIGENCE ON DIAGNOSING AND MANAGING SKIN DISEASES IN SCHOOL CHILDREN

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INTRODUCTION:

Skin diseases are one of the major health problems among all the age group, particularly in children. Skin diseases continue to be the 4th leading cause of nonfatal disease burden worldwide according to the Global Burden of Disease project. (1) Skin and subcutaneous diseases like acne, alopecia, bacterial skin infections, decubitus ulcers, fungal skin diseases, pruritus, psoriasis, scabies, urticaria and viral skin diseases are the leading causes of global disease burden. The disease affects not only the physical health, but also mental health and quality of life even after diseases has resolved. (2) Different climatic, cultural factors, low socioeconomic status, malnutrition, overcrowding and poor standard of hygiene are the important attributable factors accounting for the prevalence of skin diseases in developing countries like India. (3) The status of health, hygiene, and personal cleanliness of a society can be judged from the prevalence of certain skin diseases in the children of the community. (4)

The prevalence of dermatoses in school going children is as high as more than 50% where cases of infectious dermatoses were high followed by non-infectious dermatoses and nutritional dermatoses. (5)

School survey can be utilized to screen large number of children to detect the disease but due to lack of specialist and expensive diagnostic test, the skin diseases are often underestimated. The advent of artificial intelligence (AI) in the era of digital health has a promising role in diagnosing and managing skin diseases among school children. This perspective article explores the key reasons supporting the use of AI in diagnosing and managing skin diseases among school children.



Fig 1: Benefits of incorporating AI in Dermatology

Benefits of AI in dermatology:

1. Early Detection and Intervention:

AI tools can analyze skin conditions accurately, enabling early detection and diagnosis of diseases. Thus, early intervention helps in preventing the progression of skin conditions and minimizing their impact on the affected children over all well-being.

2. Reduced Diagnostic Delays:

AI and machine learning algorithms can process photograph of the lesion rapidly, reducing the time required for diagnosis. This is particularly significant in school settings where quick identification of skin diseases can prevent their spread and address individual cases promptly.

3. Overcoming Limited Access to Healthcare:

In hard-to-reach areas or rural areas with limited access to healthcare facilities, AI-enabled devices can serve as a valuable resource in diagnosing early. These devices or the applications can be deployed in schools, offering diagnostic capabilities where consultation with the expert dermatologist is not feasible or where medical infrastructure for diagnoses may be lacking.

4. Cost-Effective Solutions:

AI can provide cost-effective diagnostic solutions, especially in resource-constrained environments. This makes it feasible to implement regular screenings in schools without imposing a significant financial burden on educational institutions or parents. It even reduces direct and indirect out-of-pocket expenditure incurred during consultation, management, or follow-up.

5. Scalability and Accessibility:

With the help of AI technologies a large number of children can be accommodated to screen for skin diseases. This scalability makes it possible to extend diagnostic services to a broad demographic, ensuring that a significant number of students benefit from timely and accurate assessments.

6. Integration with Telemedicine:

Integration with tele-medicine platforms allows remote consultation with expert dermatologist and diagnosis. This is particularly advantageous in situations where physical access to healthcare professionals is limited, providing an avenue for expert opinions and guidance.

Some other benefits of AI incorporation in diagnosis includes:

Learning and Training:

School staff and grass-root level health professionals can be educated and trained using AI applications. By providing insights into the identification of various skin diseases, these tools empower individuals to recognize symptoms early and seek timely medical attention.

Assessing trends:

AI can identify outbreaks or patterns of specific skin diseases within school populations by analyzing aggregated data. This allows for targeted interventions and preventive measures in school children.

There can be other advantages of AI incorporation which can be known once the application is used on a regular basis in screening, diagnosis, managing and preventing skin diseases.

Challenges and Ethical Considerations:

Despite its potential, the integration of AI in dermatology comes with challenges. Ethical considerations, data privacy, and the need for transparent algorithms must be addressed to build trust among parents, educators, and healthcare professionals.

CONCLUSION:

The incorporation of AI in diagnosing and managing skin diseases among school children represents a transformative shift in pediatric dermatology. As AI continues to evolve, its application holds the promise of enhancing early detection, ultimately contributing to the well-being of school communities.

REFERENCES:

1. Seth D, Cheldize K, Brown D, Freeman EF. Global Burden of Skin Disease: Inequities and Innovations. *Curr Dermatol Rep.* 2017 Sep;6(3):204-210. doi: 10.1007/s13671-017-0192-7. Epub 2017 Aug 7. PMID: 29226027; PMCID: PMC 5718374.
2. Aobuliximu yakupu et al, the burden of sin and subcutaneous diseases: findings from the global burden of disease study 2019
3. Dogra S, Kumar B. Epidemiology of skin diseases in school children: a study from northern India. *Indian J Pediatr Dermatol* 2003;20(6):470-3
4. Balai M, Khare AK, Gupta LK, Mittal A, Kuldeep CM. Pattern of pediatric dermatoses in a tertiary care centre of South West Rajasthan. *Indian J Dermatol* 2012;57:275-8.
5. Jose C, Vellaisamy SG, Govindarajan N, Gopalan K. Prevalence of common dermatoses in school children of rural areas of Salem; a region of South India. *Indian J Paediatr Dermatol* 2017; 18:202-8.