



Pediatric Tele dermatology in Global Settings: A Systematic Review of Conditions, Modalities, and Outcomes

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WebLog Open Access Publications

Article ID : wjd.2026.e2503
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OPEN ACCESS

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Received Date: 30 Apr 2026

Accepted Date: 23 May 2026

Published Date: 25 May 2026

Citation:

Gregory J, Bowers J, Jean P, Henderson D, Lee D, Fleischer C. Pediatric Tele dermatology in Global Settings: A Systematic Review of Conditions, Modalities, and Outcomes. *WebLog J Dermatol.* wjd.2026.e2503. <https://doi.org/10.5281/zenodo.20685283>

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Introduction

In 2019, the global incidence of skin and subcutaneous diseases in children and adolescents reached 57,967 per 100,000, with the burden disproportionately concentrated in low- and middle-income countries (LMICs) [1]. Severe shortage of pediatric dermatologists and the geographic workforce maldistribution severely limit access to pediatric dermatology care within LMICs [2]. Long wait times and delayed diagnosis can worsen outcomes for even common cutaneous conditions [2]. Tele dermatology, including asynchronous store-and-forward, synchronous live video, and electronic consultations (eConsults), offers scalable solutions in resource-constrained environments.

Prior reviews have focused on adult tele dermatology or individual conditions, but comprehensive synthesis of pediatric-specific outcomes remain limited. This systematic review summarizes evidence on pediatric tele dermatology, focusing on study characteristics, patient demographics, dermatologic conditions, telehealth modalities, provider involvement, and outcomes including satisfaction and diagnostic concordance.

Method

Literature search in Medline, Embase, Scopus, and Web of Science identified studies evaluating tele dermatology interventions in global pediatric populations (≤ 18 years). Both prospective and retrospective designs were included, as were randomized controlled trials. Observational studies, case series, and case reports and mixed-age populations were included if pediatric data was available. Two independent reviews screened studies and extracted data, with disagreements resolved by a third reviewer. Narrative and quantitative data were synthesized to characterize study design, age distribution, dermatologic conditions, telehealth modalities used, concordance, and satisfaction.

Results

Thirty-one studies met inclusion criteria, encompassing 11,808 participants. The most common study design was retrospective observational ($n = 8$), followed by randomized controlled trials ($n = 6$), cross-sectional studies ($n = 4$), prospective observational studies ($n = 3$), case series ($n = 3$), case reports ($n = 2$), and other designs ($n = 4$).

Studies represented Europe, North America, South America, Asia, Africa, and Oceania. Although most studies were conducted in a single country, a few included global partnerships or cross-border tele consultations.

Participants' ages ranged from 0.06 years (approximately three weeks) to 53.6 years, reflecting inclusion of older adolescents or adults in mixed-age studies. Across pediatric cohorts, the mean age was approximately 7.6 ± 4.7 years, with study-specific mean ages ranging from 0.06 to 14.6 years. Racial and ethnic demographic data was limited. Only eight studies reported racial or ethnic demographics; the majority ($n = 23$) did not report these data, limiting evaluation of disparities.

Various dermatologic conditions were managed via tele dermatology. As described in Table 1, inflammatory and eczematous dermatoses were most prevalent, (29–75% of cases), with atopic dermatitis most common. Benign tumors and pigmented lesions accounted for 10–23% of cases, while infectious dermatoses represented 5–28.8% (Table 1). Acne and sebaceous disorders comprised 11–30% of cases, particularly among adolescents.

Table 1: Frequency and Examples of Dermatologic Conditions Managed via Pediatric Teledermatology.

Condition / Category	Approx. Frequency / % of Cases	Notes / Examples
Inflammatory / Eczematous Dermatoses	High; 29–75% in multiple studies	Atopic dermatitis (AD) most common (mild, moderate, severe), childhood eczema, seborrheic dermatitis, pityriasis alba, xerosis, keratosis pilaris
Benign Tumors / Pigmented Lesions	10–23%	Congenital melanocytic nevus, acquired melanocytic nevus, atypical naevi, Spitz nevi, sebaceous nevus, pilomatricoma, vascular tumors/hemangiomas, pyogenic granuloma
Infections	5–28.8%	Viral: molluscum, warts, enterovirus, Gianotti-Crosti, herpes; Fungal: tinea, tinea unguium, pityriasis versicolor; Bacterial: impetigo, folliculitis, pitted keratolysis; Parasitic: scabies
Acne / Sebaceous Gland Disorders	11–30%	Acne vulgaris common in adolescents, keratosis pilaris sometimes included
Urticaria / Allergic Dermatoses	~7–10%	Chronic spontaneous urticaria, hives
Psoriasis / Papulosquamous Disorders	1–12%	Psoriasis vulgaris, seborrheic/psoriasis dermatitis
Vascular Malformations / IH	1–10%	Infantile hemangioma, non-IH vascular malformations, angioma, angiokeratoma
Other Dermatoses / Rare Conditions	<5%	Cutaneous leishmaniasis, congenital lamellar ichthyosis, juvenile palmar dermatitis of swimming pools (“pool palms”), epidermal cysts, keloid scars, rosacea, alopecia areata, vitiligo, post-inflammatory hyperpigmentation
Miscellaneous / Unspecified Wounds	Small	19 instances of wound; 6 with positive swab/infection

This table summarizes the main categories of pediatric dermatologic conditions managed via teledermatology, including their approximate frequency across studies and representative diagnoses within each category.

Store-and-forward (asynchronous) teledermatology was most commonly used (n = 21), followed by eConsults (n = 9), live video (synchronous) visits (n = 7), mobile health platforms (n = 3), and other modalities including telephone-based care, AI-supported platforms, and interactive educational tools (n = 5). Of note, mobile health applications and digital platforms were used primarily for follow-up, disease monitoring, or caregiver education.

A dermatologist was involved in 27 studies, usually serving as a primary consultant. Pediatricians participated in 15 studies, via referral or shared-care roles. Interestingly, although 3 studies utilized teledermatology services across borders, interpreter or formal language support was reported in only one study. Also, dermatology trainees and multidisciplinary teams were reported in a subset of

studies, suggesting potential educational benefits alongside service delivery.

Satisfaction outcomes were inconsistently reported. Seven studies (23%) provided quantitative measures (e.g., mean satisfaction scores, percentage satisfaction) and five studies (16%) reported qualitative satisfaction (Table 2). Diagnostic concordance with in-person or reference diagnoses was reported in 17 studies (Table 2).

This table summarizes how included studies reported patient satisfaction and diagnostic concordance, categorized as numeric, qualitative, or not reported, highlighting variability in outcome reporting.

Discussion

This systematic review of 31 studies encompassing 11,808 participants demonstrates that teledermatology represents a feasible and effective modality for delivering pediatric dermatologic care across diverse global settings. The predominance of store-and-forward teledermatology (68% of studies, n=21) reflects both its practical advantages in resource-constrained environments and its alignment with the asynchronous workflow patterns of primary care-specialist consultation. The concentration of cases involving inflammatory and eczematous dermatoses (29–75% across studies), particularly atopic dermatitis, mirrors both the epidemiologic burden of these conditions in pediatric populations and their suitability for photographic assessment.

The heterogeneity in study designs—ranging from retrospective observational studies (n=8, 26%) to randomized controlled trials (n=6, 19%)—reflects the evolving evidence base for pediatric teledermatology but also limits the ability to conduct meta-analysis. The mean age of participants (7.6±4.7 years) with a range extending from 0.06 years (approximately three weeks) to adolescence demonstrates teledermatology's applicability across the pediatric developmental spectrum. However, the inclusion of mixed-age populations in some studies, with ages extending to 53.6 years, introduces potential heterogeneity in diagnostic patterns and outcomes that warrant careful interpretation.

The geographic distribution of studies across six continents underscores teledermatology's global relevance, yet the predominance of research from high-income countries limits generalizability to low- and middle-income countries (LMICs) where dermatologist shortages are most severe and the burden of pediatric skin disease is disproportionately concentrated.² Notably, only three studies utilized cross-border teledermatology services, and formal language support or interpreter services were reported in only one study, highlighting a

Table 2: Reporting of Patient Satisfaction and Diagnostic Concordance Across Included Studies (n = 31).

Satisfaction Reporting	Number of Studies	% of Total (n=31)	Notes
Numeric (mean, % satisfied, 0–10 scale)	7	23%	Provided exact numeric values or percentages
Qualitative / descriptive only	5	16%	Reported satisfaction or perceptions without numeric measures
Not reported / NA	19	61%	No satisfaction data provided
Concordance Reporting	Number of Studies	% of Total (n=31)	Notes
Numeric (percent agreement, κ values, correlation)	13	42%	Provided exact numeric concordance or agreement rates
Qualitative / descriptive only	4	13%	Described agreement as “good,” “moderate,” or “high” without numeric data
Not reported / NA	14	45%	No concordance data provided

critical gap in addressing linguistic and cultural barriers to equitable care delivery.

The condition-specific variation in diagnostic accuracy observed across studies reflects inherent differences in the photographic assessability of dermatologic conditions. Inflammatory dermatoses, particularly atopic dermatitis, demonstrated high concordance rates (89-92% for rashes), while alopecia-related diagnoses showed substantially lower concordance (64%). This pattern aligns with the finding that teledermatologists in one large eConsult program felt comfortable managing rashes remotely but frequently required formal in-person evaluation for alopecia, pigmented and vascular lesions, and warts. The inability to perform tactile examination—critical for assessing hair pull tests, lesion texture, and subcutaneous characteristics—represents a fundamental limitation of remote assessment for certain condition categories.

Key limitations include inconsistent reporting of satisfaction outcomes (23% quantitative), limited demographic data (74% of studies), and heterogeneity in study designs, which precluded meta-analysis. Most studies were from high-income countries, potentially limiting generalizability to LMICs.

Recommendations include standardized outcome reporting, systematic collection of demographic data, strategies to address language and digital literacy barriers, and hybrid care models balancing remote and in-person care. Investment in infrastructure, such as broadband access, is critical to equitable implementation.

In conclusion, pediatric teledermatology effectively expands access to care for common skin conditions. Attention to equity, standardized outcomes, and patient experience is essential to optimize its impact and reduce disparities in pediatric dermatologic care.

References

1. Lv M, Zheng B. Global burden of skin and subcutaneous diseases and its association with socioeconomic status in children and adolescents: an analysis of the Global Burden of Diseases Study 2019. *Arch Dermatol Res.* 2024; 316, 457. <https://doi.org/10.1007/s00403-024-03212-9>
2. Renteria JA, Ghali H, Albers SE. Advancing Pediatric Teledermatology: Trends, Barriers, and Innovations in Access and Equity (2020-2024). *Pediatr Dermatol.* 2025; 42(6): 1133-1141. doi:10.1111/pde.70044