

Comparison of Pediatric Dermatology Conditions Across Telehealth and In-Person Visits During the COVID-19 Pandemic

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ABSTRACT

Understanding the utility of virtual visits in pediatric dermatology practice has become increasingly important in the telehealth era. We compared the conditions diagnosed in pediatric dermatology between traditional in-person visits and virtual telehealth visits during the initial 8-month phase of the COVID-19 pandemic at an urban medical institution. When given the option, pediatric dermatology patients and their families were more likely to choose telehealth visits for the diagnosis and/or management of acne, hemangiomas, and contact dermatitis; however, they were more likely to choose in-person visits for atopic dermatitis, viral warts, and alopecia areata. These differences may be attributed to clinical features of pediatric skin conditions, treatment options, and other factors which may influence patient preference for telehealth or in-person care for their condition.

J Drugs Dermatol. 2022;21(11):1260-1263. doi:10.36849/JDD.6843

INTRODUCTION

Telehealth became widely implemented in pediatric dermatology practices as a result of the COVID-19 pandemic. However, patient preferences for using telehealth for specific skin conditions remain in question. Here, we sought to evaluate the patterns of telehealth use among patients and their families at a pediatric dermatology clinic by comparing the skin conditions seen between telehealth and in-person visits.

This single-center study aimed to compare the frequency of pediatric skin conditions seen via synchronous telehealth video visits versus in-person office visits during 8 months of the pandemic: June 1, 2020, to January 22, 2021. Data was obtained from an institutional database, and patients less than age 18 years who completed a telehealth or in-person visit with a pediatric dermatologist during the study period were included. Pediatric skin conditions were compared between the visit types using two-sided Fisher's exact tests with alpha set to 0.05 with Stata 16/MP 16.1; conditions were also compared for subgroups by age. Telehealth and in-person visits employed analogous protocols, except patients were asked to submit pictures of their skin condition prior to telehealth visits. During the study period, patients could freely schedule telehealth appointments without approval or special requirements.

Across 205 telehealth and 1,283 office visits, the ten most common conditions seen were acne vulgaris (24%), atopic dermatitis (17%), melanocytic nevi (11%), viral warts (10%), unspecified dermatitis (10%), seborrheic dermatitis (5%), hemangiomas (5%), molluscum contagiosum (4%), scars (4%), and postinflammatory pigmentation (3%). Table 1 shows the results of univariate comparisons of conditions seen via telehealth versus in-person visits. Acne vulgaris (odds ratio [OR]: 1.58), hemangiomas (OR: 5.02), and contact dermatitis (OR: 3.84) were significantly more likely to be seen via telehealth, while atopic dermatitis (OR: 0.57), viral warts (OR: 0.28), and alopecia areata (OR: 0.16) were significantly less likely to be seen via telehealth.

Table 2 shows the results of the subgroup analyses by age. Infants (ages 0-2 years) were less likely to be seen for atopic dermatitis (OR: 0.24) and more likely to be seen for hemangioma (OR: 5.19) at a telehealth visit (n=239) compared to in-person visit (n=59). No differences were found for children ages 3-12 years. Among adolescents (ages 13-17 years), acne vulgaris (OR: 1.85) was more likely to be seen via telehealth (n=88) versus in-person (n=502) while viral warts (OR: 0.20) and scars (OR: 0.02) were less likely.

TABLE 1.**Comparison of Pediatric Skin Conditions Seen During Visits Conducted Via Telehealth Versus In-Person During June 1, 2020, to January 22, 2021**

Condition, n (%)	In-Person Visit [†]	Telehealth Visit [†]	OR	95% CI		PValue
	n = 1,283	n = 205		Lower	Upper	
Acne vulgaris	322 (25.1)	71 (35)	1.58	1.14	2.19	0.0049**
Atopic dermatitis	252 (19.6)	25 (12)	0.57	0.35	0.89	0.0117*
Melanocytic nevus	156 (12.2)	19 (9)	0.74	0.42	1.23	0.2926
Viral warts	163 (12.7)	8 (4)	0.28	0.12	0.58	<0.0005***
Unspecified dermatitis	149 (11.6)	18 (9)	0.73	0.41	1.23	0.2831
Seborrheic dermatitis	81 (6)	7 (3)	0.52	0.20	1.15	0.1118
Hemangioma	44 (3)	31 (15)	5.02	2.97	8.36	<0.0005***
Molluscum contagiosum	61 (5)	8 (4)	0.81	0.33	1.74	0.7213
Scar	56 (4)	3 (1)	0.23	0.01	1.40	0.1631
Postinflammatory hyperpigmentation	45 (4)	6 (3)	0.83	0.29	1.98	0.8368
Neoplasm of uncertain behavior	40 (3)	2 (1)	0.31	0.04	1.20	0.1092
Alopecia areata	39 (3)	1 (0)	0.16	<0.01	0.94	0.0340*
Epidermal thickening	31 (2)	6 (3)	1.22	0.41	3.01	0.6294
Tinea	32 (2)	4 (2)	0.78	0.20	2.23	0.8087
Acanthosis nigricans	25 (2)	1 (0)	0.25	0.01	1.53	0.2437
Café au lait spots	20 (2)	2 (1)	0.62	0.07	2.59	0.7573
Vitiligo	19 (1)	1 (0)	0.33	0.01	2.08	0.5073
Xerosis cutis	18 (1)	1 (0)	0.34	0.01	2.21	0.4997
Benign neoplasm	17 (1)	1 (0)	0.37	0.01	2.36	0.4954
Congenital malformations of skin	17 (1)	0 (0)	0	0	1.40	0.1517
Contact dermatitis	10 (1)	6 (3)	3.84	1.13	11.79	0.0153*
Epidermal cyst	14 (1)	1 (0)	0.44	0.01	2.95	0.7084
Pityriasis versicolor	14 (1)	0 (0)	0	0	1.70	0.2390
Psoriasis	11 (1)	3 (1)	1.72	0.30	6.57	0.4261
Urticaria	9 (1)	4 (2)	2.82	0.63	10.20	0.0914
Nonscarring hair loss	12 (1)	1 (0)	0.52	0.01	3.55	1.0000
Hyperhidrosis	11 (1)	1 (0)	0.57	0.01	3.94	1.0000

PValue: <0.05 *, <0.01 **, <0.001 ***

[†] Includes only visits completed during June 1, 2020 to January 22, 2021.

Abbreviation: OR, odds ratio; CI, confidence interval.

The ease of virtual diagnosis or management of certain pediatric skin conditions may contribute to the differences in telehealth use found in this analysis. Specifically, acne and hemangiomas may be amenable to telehealth as they often affect localized areas and can be easily visualized using patient-submitted photographs.^{1,2} Contact dermatitis may be diagnosed virtually given it is often geometric and localized especially in combination with a carefully-obtained confirmatory history of localized cutaneous exposure to an allergen or irritant.³ In contrast, atopic dermatitis may require in-person evaluation, as it may present diffusely on the body and exhibit texture changes that are difficult to appreciate without direct examination.⁴ In-person visits may also be preferable for conditions such as

viral warts which are often treated with office procedures like cryotherapy or excision.⁵ Finally, challenges associated with telehealth for alopecia areata may include difficulty visualizing the scalp using patient photos and the need for in-person treatment for some patients.¹

Our report is consistent with existing literature on the effectiveness of tele dermatology for management of pediatric vascular tumors^{6,7} and acne.⁸ However, some studies suggest that atopic dermatitis and viral warts are also commonly managed using telemedicine,^{9,10} contrary to our findings. Since we examined patient preferences for telehealth rather than the clinical usefulness of telehealth, we hypothesize that patients

TABLE 2.

Subgroup Analysis of the Ten Most Common Pediatric Skin Conditions by Age Group						
Condition, n (%)	In-Person Visit†	Telehealth Visit†	OR	95% CI		PValue
				Lower	Upper	
	Age Group 0 to 2 Years					
	n = 239	n = 59				
Atopic dermatitis	87 (36)	7 (12)	0.24	0.09	0.55	<0.0005***
Hemangioma	42 (18)	31 (53)	5.19	2.69	9.99	<0.0005***
Melanocytic nevus	37 (15)	11 (19)	1.25	0.54	2.73	0.5558
Unspecified dermatitis	33 (14)	4 (7)	0.45	0.11	1.36	0.1866
Seborrheic dermatitis	25 (10)	2 (3)	0.30	0.03	1.27	0.1265
Congenital malformations of skin	11 (5)	0 (0)	0	0	1.37	0.1295
Diaper dermatitis	10 (4)	1 (2)	0.39	0.01	2.88	0.6989
Café au lait spots	8 (3)	0 (0)	0	0	1.91	0.3635
Epidermal cyst	6 (3)	0 (0)	0	0	2.58	0.6024
Molluscum contagiosum	5 (2)	1 (2)	0.81	0.02	7.42	1.0000
	Age Group 3 to 12 Years					
	n = 542	n = 58				
Atopic dermatitis	104 (19.2)	11 (19)	0.99	0.45	2.01	1.0000
Viral warts	109 (20.1)	6 (10)	0.46	0.16	1.11	0.0798
Unspecified dermatitis	78 (14)	9 (16)	1.09	0.45	2.37	0.8443
Melanocytic nevus	59 (11)	4 (7)	0.61	0.15	1.74	0.4980
Molluscum contagiosum	53 (10)	7 (12)	1.27	0.46	3.00	0.6433
Acne vulgaris	46 (9)	10 (17)	2.25	0.95	4.88	0.0523
Seborrheic dermatitis	28 (5)	1 (2)	0.32	0.01	2.03	0.3458
Alopecia areata	27 (5)	1 (2)	0.33	0.01	2.11	0.5064
Tinea	21 (4)	4 (7)	1.84	0.44	5.72	0.2895
Postinflammatory pigmentation	1 (2)	15 (3)	0.62	0.01	4.16	0.6392
	Age Group 13 to 17 Years					
	n = 502	n = 88				
Acne vulgaris	276 (55.0)	61 (69)	1.85	1.11	3.13	0.0140*
Atopic dermatitis	61 (12)	7 (8)	0.62	0.23	1.43	0.3641
Melanocytic nevus	60 (12)	4 (5)	0.35	0.09	0.99	0.0403*
Viral warts	52 (10)	2 (2)	0.20	0.02	0.79	0.0144*
Unspecified dermatitis	38 (8)	5 (6)	0.74	0.22	1.95	0.6597
Scar	36 (7)	1 (1)	0.15	<0.01	0.91	0.0298*
Postinflammatory pigmentation	27 (5)	5 (6)	1.06	0.31	2.90	0.8028
Seborrheic dermatitis	28 (6)	4 (5)	0.81	0.20	2.39	1.0000
Follicular disorder	20 (4)	2 (2)	0.56	0.06	2.38	0.7585
Neoplasm of uncertain behavior	19 (4)	0 (0)	0	0	1.12	0.0936

P Value: <0.05 *, <0.01 **, <0.001 ***

[†] Includes only visits completed during June 1, 2020 to January 22, 2021.

Abbreviation: OR, odds ratio; CI, confidence interval.

may have additional considerations that influence their decision to choose between telehealth or in-person visits for treating their dermatological condition. For example, pruritic or visually bothersome lesions may motivate patients and their families to seek face-to-face care in hopes of receiving more hands-on treatment or reassurance from their pediatric dermatologist.¹¹ Further work is needed to understand the social and emotional factors influencing a patient's decision to elect for telehealth over in-person visits.

DISCLOSURES

GYD, RAL, RSH, and AER have no conflicts of interest. This project was supported by the National Center for Advancing Translational Sciences (NCATS) of the National Institutes of Health (NIH) through Grant Number 5UL1TR002389-04 that funds the Institute for Translational Medicine (ITM). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH. All authors made substantial contributions to the conception, design, literature search, drafting, and critical revision of the article. The authors have no conflicts of interest to report.

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