

# Disparities in Telemedicine Satisfaction Among Older and Non-White Dermatology Patients: A Cross-Sectional Study

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## INTRODUCTION

Telemedicine use has expanded rapidly during the COVID-19 pandemic. There is limited data on patient satisfaction with teledermatology; therefore, we examined patient teledermatology experiences at a large academic center.

After Weill Cornell Medicine Institutional Review Board approval, patients scheduled for teledermatology visits (1/2021–4/2021) were enrolled and sent pre/post-consultation questionnaires about telemedicine satisfaction, expectations, and concerns (5-point Likert scale) (82% response rate). Continuous outcomes were reported as means and categorical outcomes as percentages. Fisher's exact and Chi-squared tests compared responses based on gender, age group, race, and clinic distance, respectively. Identical pre/post-consultation questions were compared with Wilcoxon signed-rank test ( $P < 0.5$ ).

Of 202 participants, 120 (59%) were female with mean age 49

years. Participants were largely White (78%) and non-Hispanic (86%). The majority had at least a college degree (94%) and were employed (66%; Supplemental Table 1).

Younger patients (21–40) were more satisfied with telemedicine ( $P = .016$ ), and its convenience ( $P = .001$ ), compared to older participants ( $\geq 66$ ;  $P = .001$ ,  $P = .019$ ). Those with shorter travel times ( $< 30$  min) preferred in-person visits ( $P = .031$ ; Table 1). Non-White race was associated with greater concerns for conversation privacy and inappropriate information access (both  $P = .004$ ). White race was associated with greater confidence in telemedicine diagnosis ( $P = .032$ ; Figure 1).

Participants had less trouble hearing and seeing than anticipated ( $P = < .001$  and  $P = .005$ ). Patients were more interested in using telemedicine and preferred it over in-person appointments post vs pre-consultation ( $P < .001$  both; Supplemental Table 2).

**FIGURE 1.** Distribution of responses for White vs non-White participants.

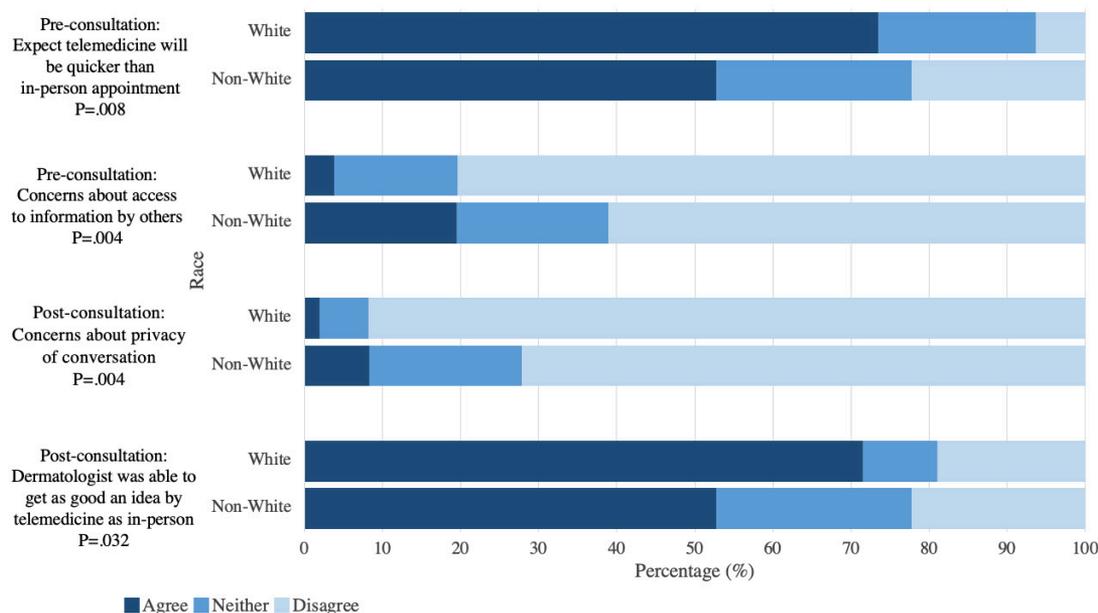


TABLE 1.

Selected Survey Responses Based on Patient Characteristics									
Questions Pre-Consultation		Gender		Age			Travel Time (min)		
		Female	Male	21-40	41-65	≥66	<30	30-60	>60
My skin/nail/hair issue can be managed via telemedicine	Agree	64 (53%)	46 (57%)	55 (69%)	38 (49%)	18 (40%)	43 (52%)	39 (60%)	29 (54%)
	Neither	42 (35%)	25 (31%)	17 (21%)	30 (39%)	50 (44%)	27 (33%)	20 (31%)	20 (37%)
	Disagree	14 (12%)	10 (12%)	8 (10%)	9 (12%)	7 (16%)	13 (16%)	6 (9%)	5 (9%)
	<i>P</i> -value	0.83		0.016			0.64		
I would prefer to not have to leave my home for my medical appointments	Agree	56 (47%)	32 (39%)	40 (50%)	31 (40%)	17 (38%)	29 (35%)	35 (54%)	24 (44%)
	Neither	35 (29%)	24 (30%)	25 (31%)	23 (30%)	12 (27%)	26 (31%)	19 (29%)	15 (28%)
	Disagree	29 (24%)	25 (31%)	15 (19%)	23 (30%)	16 (35%)	28 (34%)	11 (17%)	15 (28%)
	<i>P</i> -value	0.5		0.29			0.13		
I am afraid that my dermatologist will miss something because my appointment is not in-person	Agree	43 (36%)	29 (36%)	31 (39%)	24 (31%)	17 (38%)	35 (42%)	24(37%)	16(24%)
	Neither	35 (29%)	27 (33%)	23 (29%)	27 (35%)	12 (27%)	29 (35%)	19 (29%)	14(26%)
	Disagree	42 (35%)	25 (31%)	26 (32%)	26 (34%)	16 (35%)	19 (23%)	22 (34%)	27(50%)
	<i>P</i> -value	0.771		0.808			0.027		
I fear having worse quality of care because my visit is not in-person	Agree	30 (25%)	25 (31%)	17 (21%)	23 (30%)	15 (33%)	28 (34%)	16 (25%)	11 (20%)
	Neither	31 (26%)	16 (20%)	18 (23%)	20 (26%)	9 (20)%	23 (28%)	15 (23%)	9 (17%)
	Disagree	59 (49%)	40 (49%)	45 (56%)	34 (44%)	21 (47%)	32 (38%)	34 (52%)	34 (63%)
	<i>P</i> -value	0.5		0.47			0.089		
I would prefer to be seen in-person for my appointment	Agree	34 (28%)	23 (28%)	20 (25%)	21 (27%)	16 (36%)	32 (39%)	15 (23%)	10 (19%)
	Neither	47 (39%)	33 (41%)	34 (43%)	27 (35%)	19 (42%)	33 (40%)	26 (40%)	21 (39%)
	Disagree	39 (33%)	25 (31%)	26 (26%)	29 (38%)	10 (22%)	18 (21%)	24 (37%)	23 (42%)
	<i>P</i> -value	0.965		0.415			0.031		
I am looking forward to my telemedicine appointment	Agree	102 (85%)	60 (74%)	66 (83%)	65 (85%)	32 (71%)	61 (74%)	54 (83%)	48 (89%)
	Neither	18 (15%)	17 (21%)	13 (16%)	11 (14%)	11 (24%)	20 (24%)	10 (15%)	5 (9%)
	Disagree	0	4 (5%)	1 (1%)	1 (1%)	2 (5%)	2 (2%)	1 (2%)	1 (2%)
	<i>P</i> -value	0.018		0.353			0.182		

Our study demonstrates overall positive attitudes towards tele dermatology. However, decreased satisfaction and confidence were found amongst older and non-White patients. Patients with longer vs shorter clinic proximity preferred telemedicine to in-person visits, which may improve access to care in areas without dermatologists.

Our study showed privacy concerns among non-White participants. Similarly, in a study using a semi-structured interview script to survey African-Americans (n=43) on perceived advantages/disadvantages of telemedicine, participants were concerned with confidentiality.<sup>1</sup> In a cohort study of 148,402 patients scheduled for primary care and subspecialty telemedicine visits, Asians were 31% less likely to use telemedicine and Blacks were 35% less likely to have their videos on compared to Whites.<sup>2</sup> While telemedicine has facilitated access to dermatological care during the pandemic, it is important to manage confidentiality concerns to encourage equitable telemedicine use.

There was less telemedicine acceptance for older vs younger patients in our study. Similarly, in the previously referenced cohort study, patients <55 vs ≥55 were more likely to use telemedicine (<55:43%, 55–64:22%, 65–74:21%, ≥75:15%; *P*<.001).<sup>1</sup> The 2018 National Health and Aging Trends Study estimated that 13 million (38%) older adults in the United States would have technological difficulties with telemedicine.<sup>4</sup> Simplified connections, education on photography, and practice runs preceding televisits may overcome challenges for older patients.<sup>5</sup>

This study is subject to limitations. Results may not be generalizable as participants were English-speaking adults in a single academic medical center in New York. The majority were White and non-Hispanic with a college education or higher. Additionally, tele dermatology utilization during the COVID-19 pandemic may not be representative of tele dermatology in more balanced times.

TABLE 1. (CONTINUED)

Selected Survey Responses Based on Patient Characteristics									
Questions Post-Consultation		Gender		Age			Travel Time (min)		
		Female	Male	21-40	41-65	≥66	<30	30-60	>60
I am afraid that my dermatologist missed something because my appointment was not in-person	Agree	9 (8%)	6 (7%)	6 (8%)	6 (8%)	3 (7%)	7 (8%)	6 (9%)	2 (4%)
	Neither	18 (15%)	16 (20%)	17 (21%)	13 (17%)	4 (9%)	17 (21%)	13 (20%)	4 (7%)
	Disagree	93 (77%)	59 (73%)	57 (71%)	58 (75%)	38 (84%)	59 (71%)	46 (78%)	48 (89%)
	P-value	0.68		0.5			0.12		
I feel confident in the diagnosis and management of my issue	Agree	97 (81%)	70 (86%)	72 (90%)	64 (83%)	32 (71%)	68 (82%)	53 (82%)	47 (87%)
	Neither	10 (8%)	6 (8%)	5 (6%)	5 (7%)	6 (13%)	9 (11%)	6 (9%)	1 (2%)
	Disagree	13 (11%)	5 (6%)	3 (4%)	8 (10%)	7 (16%)	6 (7%)	6 (9%)	6 (11%)
	P-value	0.5		0.074			0.33		
My telemedicine appointment was more convenient than an in-person appointment	Agree	110 (92%)	73 (90%)	77 (96%)	73 (95%)	34 (76%)	70 (84%)	62 (95%)	52 (96%)
	Neither	10 (8%)	6 (7%)	3 (4%)	4 (5%)	9 (20%)	11 (13%)	3 (5%)	2 (4%)
	Disagree	0	2 (3%)	0	0	2 (4%)	2 (3%)	0	0
	P-value	0.316		0.001			0.073		
I enjoyed not having to leave my home to receive medical care	Agree	104 (86%)	64 (79%)	73 (91%)	64 (83%)	32 (71%)	67 (81%)	56 (86%)	46 (85%)
	Neither	14 (12%)	13 (16%)	6 (8%)	12 (16%)	9 (20%)	11 (13%)	8 (12%)	8 (15%)
	Disagree	2 (2%)	4 (5%)	1 (1%)	1 (1%)	4 (9%)	5 (6%)	1 (15%)	0
	P-value	0.274		0.019			0.399		
I would rather have my problem managed through telemedicine than have to wait a few weeks to see the dermatologist in-person	Agree	74 (62%)	50 (62%)	55 (69%)	49 (63%)	21 (47%)	44 (53%)	42 (64%)	39 (72%)
	Neither	39 (32%)	16 (20%)	20 (25%)	23 (30%)	12 (27%)	27 (33%)	18 (28%)	10 (19%)
	Disagree	7 (6%)	15 (18%)	5 (6%)	5 (27%)	12 (27%)	12 (14%)	5 (8%)	5 (9%)
	P-value	0.007		0.009			0.189		
I would be happy to use this system again	Agree	111 (93%)	72 (89%)	74 (93%)	73 (95%)	37 (82%)	70 (84%)	60 (92%)	54 (100%)
	Neither	8 (6%)	7 (9%)	6 (7%)	3 (4%)	6 (14%)	11 (13%)	4 (6%)	0
	Disagree	1 (1%)	2 (2%)	0	1 (1%)	2 (4%)	2 (3%)	1 (2%)	0
	P-value	0.627		0.079			0.012		
I am satisfied with the care I received	Agree	116 (97%)	76 (94%)	79 (99%)	75 (97%)	39 (87%)	77 (93%)	62 (95%)	54 (100%)
	Neither	4 (3%)	3 (4%)	1 (1%)	2 (3%)	4 (9%)	4 (5%)	3 (5%)	0
	Disagree	0	2 (2%)	0	0	2 (4%)	2 (2%)	0	0
	P-value	0.306		0.013			0.241		

Older age and non-White race are associated with poorer telemedicine satisfaction. Our study clarified specific concerns that may be utilized to devise strategies to encourage universal utilization of tele dermatology where appropriate.

**DISCLOSURES**

Declarations: Michelle Chang has no conflicts of interest. Dr. Lipner is a consultant for Orth-dermatologics, Verrica, and Hoth Therapeutics.

**REFERENCES**

1. Eberly LA, Kallan MJ, Julien HM, et al. Patient characteristics associated with telemedicine access for primary and specialty ambulatory care during the COVID-19 pandemic. *JAMA Netw Open.* 2020;3(12):e2031640.

2. George SM, Hamilton A, Baker R. Pre-experience perceptions about telemedicine among African Americans and Latinos in South Central Los Angeles. *Telemed J E Health.* 2009;15(6):525-30.

3. Tripathi R, Knusel KD, Ezaldeen HH, Scott JF, Bordeaux JS. Association of demographic and socioeconomic characteristics with differences in use of outpatient dermatology services in the United States. *JAMA Dermatol.* 2018;154(11):1286-1291.

4. Lam K, Lu AD, Shi Y, Covinsky KE. Assessing telemedicine unreadiness among older adults in the United States during the COVID-19 pandemic. *JAMA Intern Med.* 2020;180(10):1389-1391.

5. Lipner SR, Ouchida K. Novel solutions for dermatologic care of geriatric patients and the role of the dermatology house call. *J Am Acad Dermatol.* 2020;83(6):e419.

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**SUPPLEMENTAL TABLE 1.**

<b>Demographic of Survey Respondents</b>	
Characteristics	N=202
Age in years (Mean[Range])	49 (21-87)
21-40	80 (39.6%)
41-65	77 (38.1%)
>65	45 (22.3%)
<b>Ethnicity</b>	
Hispanic or Latino	11 (5.5%)
Not Hispanic or Latino	173 (85.6%)
Unknown	5 (2.5%)
Prefer not to say	13 (6.4%)
<b>Race</b>	
White	158 (78.2%)
Asian	25 (12.4%)
Black or African-American	9 (4.5%)
American Indian/Alaska Native	2 (1.0%)
Unknown	1 (0.5%)
Prefer not to answer	7 (3.5%)
<b>Gender</b>	
Female	120 (59.4%)
Male	81 (40.1%)
Prefer not to answer	1 (0.5%)
<b>Education</b>	
Some high school, but no degree	1 (0.5%)
High school degree or GED	1 (0.5%)
Some college, but no degree	9 (4.5%)
College degree	82 (40.6%)
Post-graduate degree	108 (53.5%)
<b>Employment status</b>	
Employed full time	100 (49.5%)
Employed part time	33 (16.3%)
Unemployed	3 (1.5%)
Homemaker	9 (4.5%)
Student	9 (4.5%)
Disabled	2 (1.0%)
Retired	42 (20.8%)
Other	4 (2.0%)
<b>Income (\$)</b>	
<30,000	17 (8.4%)
30,000-60,000	19 (9.4%)
60,000-100,000	43 (21.3%)
100,000-150,000	36 (17.8%)
>150,000	50 (24.8%)
Prefer not to answer	37 (18.3%)
First time at Weill Cornell	27 (13.4%)
<b>Travel time (minutes)</b>	
<10	25 (12.4%)
10-30	58 (28.7%)
30-60	65 (32.2%)
60-120	41 (20.3%)
>120	13 (6.4%)
First time using telemedicine	45 (22.3%)

## SUPPLEMENTAL TABLE 2.

Summary of Results from Pre- and Post-consultation Surveys					
Pre-Consultation	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I am concerned about my skin/nail/hair issue.	97 (48.0%)	81 (40.1%)	13 (6.4%)	8 (4.0%)	3 (1.5%)
My skin/nail/hair issue can be managed via telemedicine.	29 (14.4%)	83 (41.1%)	66 (32.7%)	16 (7.9%)	8 (4.0%)
I would prefer to not have to leave my home for my medical appointments.	35 (17.3%)	54 (26.7%)	60 (29.7%)	45 (22.3%)	8 (4.0%)
I worry I will have technical difficulties during the telemedicine appointment.	3 (1.5%)	25 (12.4%)	29 (14.4%)	90 (44.6%)	55 (27.2%)
I worry I will have trouble hearing my physician.	0	5 (2.5%)	18 (8.9%)	107 (53.0%)	72 (35.6%)
I worry I will have trouble seeing my physician.	0	5 (2.5%)	13 (6.4%)	107 (53.0%)	77 (38.1%)
I expect the appointment to be quicker than an in-person appointment.	45 (22.3%)	95 (47.0%)	43 (21.3%)	12 (5.9%)	7 (3.5%)
I expect the physician to be more casually dressed than at an in-person appointment.	10 (5.0%)	32 (15.8%)	11 (5.4%)	41 (20.3%)	8 (4.0%)
I am worried about who would have access to my information on the computer.	2 (1.0%)	12 (5.9%)	36 (17.8%)	92 (45.5%)	60 (29.7%)
I am afraid that my dermatologist will miss something because my appointment is not in-person.	18 (8.9%)	54 (26.7%)	62 (30.7%)	53 (26.2%)	15 (7.4%)
I fear having worse quality of care because my visit is not in-person.	7 (3.5%)	48 (23.8%)	47 (23.3%)	75 (37.1%)	25 (12.4%)
I would prefer to be seen in-person for my appointment.	16 (7.9%)	41 (20.3%)	80 (39.6%)	49 (24.3%)	16 (7.9%)
I am looking forward to my telemedicine appointment.	41 (20.3%)	123 (60.9%)	34 (16.8%)	2 (1.0%)	2 (1.0%)
Post-Consultation	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I had trouble logging on to the telemedicine site.	3 (1.5%)	5 (2.5%)	11 (5.4%)	45 (22.3%)	138 (68.3%)
I had trouble hearing my physician.	2 (1.0%)	7 (3.5%)	6 (3.0%)	47 (23.3%)	140 (69.3%)
I had trouble seeing my physician.	4 (2.0%)	2 (1.0%)	3 (1.5%)	43 (21.3%)	150 (74.3%)
I had trouble showing my physician my concern.	3 (1.5%)	12 (5.9%)	19 (9.4%)	56 (27.7%)	112 (55.4%)
I am afraid that my dermatologist missed something because my appointment was not in-person.	4 (2.0%)	11 (5.4%)	34 (16.8%)	60 (29.7%)	93 (46.0%)
I would feel that something was missing if I did not see the dermatologist in-person in the future.	14 (6.9%)	44 (21.8%)	44 (21.8%)	54 (26.7%)	46 (22.8%)
I feel confident in the diagnosis and management of my issue.	81 (40.1%)	87 (43.1%)	16 (7.9%)	4 (2.0%)	14 (6.9%)
I think the dermatologist was able to get as good an idea about my problem by using the computer as they would have in-person.	65 (32.2%)	71 (35.1%)	26 (12.9%)	29 (14.4%)	11 (5.4%)
I missed the face-to-face interaction with my physician.	9 (4.5%)	50 (24.8%)	71 (35.1%)	40 (19.8%)	32 (15.8%)
My physician was dressed appropriately for the appointment.	134 (66.3%)	56 (27.7%)	9 (4.5%)	1 (0.5%)	2 (1.0%)
My telemedicine appointment was more convenient than an in-person appointment.	137 (67.8%)	47 (23.3%)	16 (7.9%)	1 (0.5%)	1 (0.5%)
I enjoyed not having to leave my home to receive medical care.	115 (56.9%)	54 (26.7%)	27 (13.4%)	4 (2.0%)	2 (1.0%)
I worry about the privacy of our conversation.	3 (1.5%)	3 (1.5%)	19 (9.4%)	73 (36.1%)	104 (51.3%)
I would prefer to discuss my skin/nail/hair problems with the dermatologist in-person.	13 (6.4%)	35 (17.3%)	75 (37.1%)	48 (23.8%)	31 (15.3%)
I would rather have my skin/nail problem managed through telemedicine than have to wait a few weeks to see the dermatologist in-person.	58 (28.7%)	67 (33.2%)	55 (27.2%)	18 (8.9%)	4 (2.0%)
I would be happy to use this system again.	98 (48.5%)	86 (42.6%)	15 (7.4%)	1 (0.5%)	2 (1.0%)
I am satisfied with the care I received.	110 (54.5%)	83 (41.1%)	7 (3.5%)	0	2 (1.0%)
I am satisfied with the way in which my skin/nail/hair problem was managed.	102 (50.5%)	85 (42.1%)	13 (6.4%)	0	2 (1.0%)