

# Telehealth use and Satisfaction among U.S. Households: Results of a National Survey

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#### **Abstract**

Telehealth services have expanded dramatically during the coronavirus disease-2019 pandemic; we provide estimates of telehealth use and satisfaction based on a nationally representative, random survey of 3454 U.S. households. Fifty percent of households reported using telehealth because they could not receive medical care in person. Satisfaction was high among telehealth users (86%). However, satisfaction with telehealth was lower (65%) among households who reported experiences of delayed medical care for serious problems. Telehealth use was lower among rural households than urban households (46% vs. 53%) and among <\$30,000 annually (47%), \$30,000–<\$50,000 (39%), and \$75,000–<\$100,000 (49%) compared with those earning \$100,000 + (60%). Telehealth use was lower among households without high-speed internet compared to those with it (36 vs. 53%). Among users, satisfaction did not differ significantly by metro area, income, or internet quality. Telehealth may play a valuable role in access for many patient populations, but may not always be a perfect substitute for in-person care.

#### **Keywords**

patient Satisfaction, telehealth, COVID-19, survey Data

# Introduction

Telehealth accelerated dramatically during the coronavirus disease-2019 (COVID-19) pandemic, driven by the imperatives of social distancing and supported by regulatory changes easing health care providers' logistical and financial barriers to offering virtual care (1,2). Virtual visits increased rapidly at the outset of the COVID-19 pandemic out of necessity, but as in-person care has returned, the enduring role of telehealth in patient care remains uncertain (3,4). The pandemic has generated a wealth of new insights about virtual care (4–7). However, while evidence from administrative and claims data provide important insights about the evolving applications of telehealth, they give an incomplete picture of telehealth use in the U.S. population as a whole (7-9). Data reporting national trends in telehealth use is emerging, but to date other high-quality national surveys do not collect data on patient satisfaction with their telehealth experience (10,11). To fill that gap, we report findings from a large, nationally representative survey examining telehealth use and satisfaction among households in America during the COVID-19 pandemic.

The promise of telehealth, predating the pandemic, is that it may offer transformative opportunities to increase convenience and access to care (12,13). Studies of telehealth use during the COVID-19 pandemic corroborated many insights about the

potential of virtual care to enhance patient experience. Telehealth can decrease the burden of lengthy rural travel requirements (14,15). Virtual consults enable scarce specialists with long waiting lists to provide consultations more quickly (16). Physically or socially vulnerable patients for whom in-person appointments pose logistical or financial challenges can engage with their care team from home via phone or video (9,17,18). Telehealth offers simple convenience for routine issues (16). Indeed, an examination of patients with a diagnosis of diabetes found that while office visits decreased during the pandemic, prescriptions and glycemic control remained steady, which might in part be due to the increased use of telehealth to support continued access to care (19). However, the COVID-19 pandemic has also hinted that

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Table 1. Sample Characteristics of American Households During COVID-19 Pandemic.

	N (unweighted)	% (weighted)
Race		
White	1750	50
Black	666	19
Latino	648	19
Other	390	12
Income		
<\$30,000	993	32
\$30-<\$50,000	525	16
\$50-<\$75,000	507	15
\$75-<\$100,000	440	13
\$100,000+	934	23
DK/refused	55	1
Households including children <18	33	•
Yes	1000	24
		36
No .	2450	64
Region	2211	
Urban	2311	67
Suburban	598	17
Rural	543	16
High-speed internet at home		
Yes	2928	85
No	512	15
DK/refused	14	0
Insured		
Yes	3055	87
No	393	13
Primary insurance type		
ESI	1470	44
Plan purchased yourself	285	8
Medicare	696	25
Medicaid	378	13
Other	226	11
Household includes someone diagnosed with chronic condition?	220	
Yes	1713	EO
No		50
	1733	49
DK/refused	8	0
Household includes someone living with a disability?		
Yes	676	22
No	2771	77
DK/refused	7	0
Household includes someone at higher COVID-19 risk due to age or diagnosis?		
Yes	1511	44
No	1930	56
DK/refused	13	0
Household includes someone who was unable to get or delayed care for a serious medical issue?		
Yes	727	20
No	2720	79
DK/refused	7	0

**Source:** Authors' analysis of *The Impact of Coronavirus on Households Across America - COVID-19 Epidemic Survey (n = 3454).* **Notes:** Column 2 reports the number of responses in each category. Column 3 reports responses as survey-weighted percentages. Percentages in a category may not sum to 100% because of rounding and responses of "don't know" (DK) or refusals to answer that were included in the total but not shown. ESI = employer sponsored insurance.

uneven access and equity remain potential threats to patients' access and experience that require continued attention (5,20).

In-person visits have rebounded from their nadir early in the pandemic, indicating that while telehealth has broad applications, it is not always a replacement for in-person care (6). Recent increases in access to care via telehealth were made

possible by rapid policy changes alleviating legal, regulatory, and payment barriers to virtual care. Medicare introduced reimbursement parity for professional services rendered during virtual office visits, in addition to suspending geographic restrictions on where Medicare providers could serve beneficiaries and relaxing Health Insurance Portability and Accountability

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Act (HIPAA) requirements for virtual engagement; many private insurers followed suit (1). As the end of the pandemic comes into view, sustaining regulatory and payment support for patients' access to virtual care is a burgeoning practice and policy issue. Many policies supporting patients' access to virtual care, such as the ability of physicians to conduct telehealth visits with patients in a different state, are being scaled back—to the potential detriment of patient experience (15,21,22). Understanding population-level trends in telehealth use and satisfaction may inform enduring approaches to integrating virtual care into health care delivery.

#### **Methods**

# Sampling

We analyzed survey data from a nationally representative, random sample of U.S. households. This work is part of a larger study examining the broad impact of coronavirus on American households, conducted jointly by the Harvard T.H. Chan School of Public Health, National Public Radio, and the Robert Wood Johnson Foundation. The survey was conducted by phone (cell and landline) and internet between July 1 and August 3, 2020. Respondents were invited to complete surveys using address-based sampling United States Postal Service Computerized Delivery Sequence file, and this survey yielded an 87% cooperation rate. The study was determined exempt by the Office of Human Research Administration at the Harvard T.H. Chan School of Public Health.

Sampled households were sent an invitation letter including a link to complete the survey online, and a toll-free number that respondents could call to complete the survey with a telephone interviewer. All respondents were sent a reminder postcard, which also included a QR code they could scan to be linked to the survey via a smart device. Households who were flagged in the sample file as either living in cities or in high-Hispanic areas, received bilingual mailings, including text in both English and Spanish.

Data weighting involved multiple stages to account for oversampling and the probability of selection, based on known demographic characteristics. All estimates were weighted to match the distribution of the population based on data from the U.S. Census Bureau's 2018 American Community Survey (ACS). Weighting parameters included: gender, age, race/ethnicity, education level, Census region, and party identification. Additional details on sampling and weighting are available in the Appendix in the Supplemental Material. All statistical tests of significance account for the effect of weighting. The margin of sampling error including the design effect for the full sample is ±3.3 percentage points.

# Survey Questions

The first telehealth question asked whether, since the start of the coronavirus outbreak, the respondent or anyone in the household had used telehealth (phone or virtual encounter) to receive advice or treatment from a doctor or other health care professional because they could not see one in person. Those responding "yes" were then asked whether they were satisfied with their household's most recent telehealth encounter (yes/no).

# Analysis

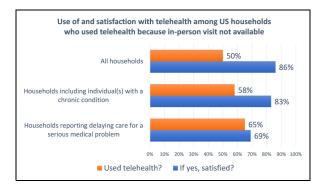
We drew on a rich set of household data collected in the overall survey to produce weighted descriptive statistics profiling telehealth use and satisfaction. We used *t*-tests to compare differences between groups within a category. Additional methodological detail is available in Appendix A.

#### Results

The question about households' use of telehealth during the pandemic was posed to the entire survey sample (n = 3454) (Table 1). The follow-up question about satisfaction with telehealth was posed to those who had used telehealth (n = 1763). Half of all U.S. households (50%) reported using telehealth because they could not receive medical care in person. Satisfaction was high among telehealth users (86%) (Figure 1).

Telehealth use and satisfaction varied across some demographic differences but not others. With respect to race/ethnicity, there were slight differences in telehealth use by racial/ethnic group, but no significant difference in satisfaction (Table 2).

Household telehealth use varied significantly by income: 60% of households earning >\$100,000 per year reported using telehealth, compared to 49% of households earning \$75,000—<\$100,000, 56% of households earning \$50,000—<\$75,000, 39% of households earning \$30,000—<\$50,000, and 47% of households earning \$30,000 per year (Table 2). Satisfaction with telehealth among users ranged from 82% for households earning \$30,000—<\$50,000 to 94% for households earning \$50,000—<\$75,000.



**Figure 1.** Use of and satisfaction with telehealth among U.S. households who used telehealth because in-person visit not available. **Source:** Authors' analysis of The Impact of Coronavirus on Households Across America - COVID-19 Epidemic Survey.

**Table 2.** Demographic Characteristics Associated with Telehealth use and Satisfaction among American Households During the COVID-19 Pandemic.

	Characteristics of households using telehealth <sup>a</sup>		Characteristics of households who used telehealth and were satisfied <sup>b</sup>	
	N(%)	P-value	N(%)	P-value
Race		.009		.632
White	926 (52)		809 (88)	
Black	354 (47)		293 (80)	
Latino	310 ( <del>44</del> )		261 (79)	
Other	173 (49)		141 (85)	
Income		.0104	(**)	.005
<\$30,000	488 (47)		400 (83)	
\$30-<\$50,000	249 (39)		196 (82)	
\$50-<\$75,000	265 (56)		232 (94)	
\$75-<\$100,000	223 (49)		200 (85)	
\$100,000 +	515 (60)		460 (86)	
Households incl. children <18	313 (33)	.093	100 (00)	.227
Yes	54	.075	83	,
No	48		87	
Region	10	.161	O7	.558
Urban	1214 (53)	.101	1038 (84)	.550
Suburban	292 (50)		246 (83)	
Rural	256 (46)		219 (88)	
High-speed internet at home	230 (40)	<.001	217 (00)	.704
Yes	1536 (53)	١٠٥٥،	1322 (86)	.704
No	223 (36)		179 (86)	
Insured	223 (30)	<.001	177 (00)	.975
Yes	1632 (52)	<b>\.</b> 001	1408 (86)	.773
No	` '		` '	
	130 (32)	.994	95 (85)	.631
Primary insurance type ESI	701 (54)	.//٦	402 (04)	.031
	781 (56)		682 (86)	
Plan purchased yourself	141 (48)		124 (88)	
Medicare	380 (50)		344 (92)	
Medicaid	200 (50)		162 (77)	
Other	129 (52)	- 001	95 (83)	405
Household includes someone ever diagnosed with chronic condition?	1045 (50)	<.001	070 (02)	.485
Yes	1045 (58)		878 (83)	
No	716 (41)	001	624 (89)	227
Household includes someone living with a disability?	457 (41)	.001	272 (00)	.336
Yes	457 (61)		372 (80)	
No	1304 (47)		1130 (88)	410
Household includes someone at higher COVID risk due to age or diagnosis?	004 (40)	<.001	770 (05)	.612
Yes	924 (60)		779 (85)	
No	835 (42)		721 (86)	
Household includes someone unable to get or delayed care for a serious medical issue?	471 (47)	.01	225 (12)	<.001
Yes	471 (65)		335 (69)	
No	1290 (46)		1167 (92)	
If unable to get care, negative consequences as result		.477		.811
Yes	287 (62)		187 (68)	
No	182 (69)		147 (73)	

**Source:** Authors' analysis of *The Impact of Coronavirus on Households Across America - COVID-19 Epidemic Survey.* **Notes:** All percentages weighted. Percentages in a category may not sum to 100% because of rounding and responses of "don't know" (DK) or refusals to answer that were included in the total but not shown. ESI = employer sponsored insurance. *P-values* represent a  $\chi^2$  test conducted across all groups within that category.

 $<sup>^{</sup>a}$ Question: Did you or someone in your household use telehealth? (yes/no) asked of total sample (n = 3454).

 $<sup>^{</sup>b}$ Question: If yes, were you/they satisfied? (yes/no) ask of respondents who said "yes" to using telehealth (n = 1763).

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Rural households (46%) and suburban households (50%) were less likely to report telehealth use than urban households (53%), although satisfaction among users was not significantly different.

The insured were more likely than the uninsured to report using telehealth (52% vs. 32%, P<.001), although satisfaction among these groups was nearly identical. We decomposed telehealth use by insurance type: employer-sponsored insurance (ESI), marketplace, Medicare, Medicaid, and other. We found no significant difference in use of or satisfaction with telehealth by insurance type.

Consistent with utilization patterns across all types of care wherein patients with more health needs use more care, we found that households including members with greater health needs—such as having a chronic condition, living with a disability, or being at higher risk for COVID-19 reported telehealth use more often than those without those needs. Households including someone diagnosed with a chronic disease (58% vs. 41%, P < .001), someone living with a disability (61% vs. 47% P < .001), or someone at higher risk for serious illness from COVID-19 due to age or health conditions (60% vs. 42%, P < 0.001) were more likely to use telehealth than households without those characteristics. Sixty-five percent of households who delayed medical care for serious problems during the pandemic reported using telehealth, compared to 46% of households without these delays. Households reporting delayed care reported lower satisfaction than households without this delayed care (69% vs. 92%, P < 0.001).

Finally, 53% of households with high-speed internet reported telehealth use, compared to 36% of households without high-speed internet (P < 0.001). Satisfaction among telehealth users was similar for both groups.

#### **Discussion**

Timely access to care is an enduring priority in health care delivery (23). Our findings show that telehealth can play a key role in access for many patients and, importantly, that satisfaction with telehealth among users is consistently high across a wide range of populations. Taken together, these findings suggest that access to virtual care is a valuable aspect of patient experience, and preserving the availability of telehealth should be a focus of practice, policy, and research going forward.

While the market for telehealth is large, our results suggest a substantial share of U.S. households is at risk of being left behind in terms of expanded access. We find lower telehealth use among rural households, households earning <\$100,000 annually, and households without high-speed internet. Our findings provide household-level data on telehealth use and internet access that corroborates analyses identifying digital disparities as a potential barrier to telehealth access (24,25). Medicare has been especially flexible in the technological specifications it requires for a virtual visit, whereas some

commercial insurers have been more restrictive in platforms and modalities (e.g., specific apps, video visits only). Ensuring that telehealth services are inclusive of lower-tech options, such as telephone visits, is an important consideration for preventing inequities in virtual access, both for households unable to afford high-speed internet, and those—especially in rural areas—who live in areas without a high-speed grid. Addressing gaps in telehealth among rural populations warrants special attention because virtual care is ideally suited to address barriers in access related to long travel times for in-person visits, and has the potential to relieve state-level provider shortages by giving patients access to specialists in other states.

Telehealth likely needs to be integrated into the overall continuum of care rather than approached as a standalone service. Our findings indicate that a priority focus for future research lies in identifying the types of patients and conditions where telehealth may yield the greatest benefit, as well as which patient needs or clinical services are not suited to virtual care. While a majority of households with chronic diseases reported telehealth use with high satisfaction during this time, we found about one-third of households with immediate, serious health needs reported they did not use telehealth during the COVID-19 pandemic. And among those households with these serious needs who did use telehealth, satisfaction was lower than households who did not struggle to get care for serious health needs. This suggests important limitations to the reach of telehealth as a substitute for in-person care for some individuals or clinical scenarios. The potential limitations of telehealth among some patient populations underscores the importance of integrating telehealth into the wider system of care so that patients can be triaged to the type of access they need, whether in-person or virtual. In addition to understanding the ideal uses of telehealth, examining the drivers of patient satisfaction is an important area for future work.

Our findings indicate that telehealth has the potential to be both widespread and popular among patients. Preserving gains in virtual access achieved during the COVID-19 pandemic will require enduring payment and policy changes. However, state regulators are already rolling back pandemic-specific policies supporting telehealth, for example, allowing physicians to treat patients across state lines (15,26,27). Additionally, several major health insurers recently announced they will no longer pay for telehealth after the COVID-19 pandemic ends (22). Such changes may lower the widespread use and satisfaction with telehealth documented in this study.

# Limitations

Our study had several limitations. Survey data is self-reported and subject to recall bias and selection bias. This survey was strengthened by its probability sample, multimodal response options, and multi-staged weighting scheme, adhering closely to best practices set by the

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American Association of Public Opinion Research. A limitation of our survey instrument is that it was designed to report household-level experiences, and as such focused on the household experience of telehealth rather than examining particular patient encounters. The survey included two questions about telehealth, and the questions did not distinguish modality of telehealth use (e.g., video vs. telephone); this limited our ability to analyze potential differences in patterns of telehealth use and satisfaction by type of technology used. Finally, our survey asked about access to needed care, but did not ask about the type of care needed (e.g., routine, urgent, emergent), nor did it elicit detail about purpose of the visit (e.g., medication refills, regular check-up, evaluation for a new illness).

# Conclusion

Telehealth use and satisfaction is widespread among American households, including those with chronic illnesses. However, this may cease if recent policy announcements by major health insurers not to pay for it are implemented.

# **Declaration of Conflicting Interests**

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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#### **Ethical Statement**

The study was determined exempt by the Office of Human Research Administration at the Harvard TH Chan School of Public Health (#161785). Participants were asked for consent when they were randomly invited to participate in the survey; see enclosed letter template (the same script was conveyed verbally to participants contacted by phone). Note that the sampling and data collection was administered by a polling firm. Identifying details were not collected in the dataset and the research team had no contact with subjects or access to identifiable information about the sample.

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# Supplemental Material

Supplemental material for this article is available online including Appendix and Appendix A

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