

## ORIGINAL RESEARCH

## Patient Perceptions of Video Visits in a Fee-for-Service Model

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**Introduction:** We studied perceptions of patients who receive telemedicine services in the fee-for-service setting of an academic medical center's family medicine department. To the best of our knowledge, this study is the first to investigate patient sentiments on both experiential and financial aspects of telemedicine primary care with copayment collection.

**Methods:** A 53-question cross-sectional digital survey was delivered to patients' e-mail addresses after their telemedicine visit. We tabulated summary statistics and performed 2-sample *t*-tests to compare survey responses across groups.

**Results:** Of 3,414 potential respondents, 903 responded, corresponding to a 26.7% effective response rate; 797 completed surveys were analyzed. Of these, 91% described their video visit experience as more convenient than office-based care, 74% reported shorter wait times, 87% felt confident about protection of privacy, 29% perceived copayments to be unreasonable, and 91% are willing to use telemedicine again.

**Discussion:** Our findings suggest that telemedicine is a viable alternative to in-person visits and that most patients find a copayment reasonable. The findings suggest that telemedicine offers convenience and consistency with continuity and corroborate previous studies investigating telemedicine viewpoints. Payers should consider copayment in detail when designing telehealth benefits to ensure they do not become a barrier in seeking care. (J Am Board Fam Med 2022;35:497–506.)

**Keywords:** Academic Medical Centers, Cross-Sectional Studies, Family Medicine, Fee-for-Service Plans, Patient Satisfaction, Physician-Patient Relations, Primary Health Care, Telemedicine

## Introduction

Synchronous or live telemedicine video visits have been implemented in various health care settings<sup>1</sup> and have rapidly scaled up<sup>2–5</sup> due to COVID-19. Before the pandemic, strict reimbursement policies resulted in limited use of these services. Since the current public health crisis, legislation under the

CARES Act<sup>6</sup> has enabled more payors to reimburse for telemedicine services. Our study examines patient perceptions of telemedicine visits, with specific regard to experience and copayment, in the primary care setting of an academic medical center located in Los Angeles, California.

While previous research reveals that video visits garner positive impressions from patients and providers in a variety of specialties,<sup>7–12</sup> the literature on patient perceptions of telemedicine in primary care,<sup>13–16</sup> as well as provider perceptions of telemedicine in primary care,<sup>17,18</sup> is scarce.<sup>19</sup> Several studies support these positive experiences but are limited to instances when telemedicine is provided at no cost and/or to established patients only. A study performed at the Massachusetts General Hospital,<sup>8</sup> for example, appraises the value between telemedicine and office-based visits when telemedicine is provided free of charge. Another study considers the video visit experience of patients from the National Health Service of

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Scotland,<sup>14</sup> where beneficiaries are offered “free care, based on need and funded by general taxation.” Such studies may not be applicable in the fee-for-service model, where copayment or other costs may be required.

With the pandemic, our study investigates the perceptions of new and established patients who have been offered synchronous telemedicine services, regardless of insurance carrier. Some studies<sup>20–22</sup> evaluate the financial view of clinical care in the emergency department and urgent care settings; to the best of our knowledge, we believe we are one of the first studies to focus on both the experiential and financial views of telemedicine primary care services when patients may need to provide a copayment.

## Methods

### *Study Design and Setting*

Our study describes completed survey results from patients who completed a telemedicine video visit between April and December 2020.

### *University of Southern California Telemedicine Program*

The Department of Family Medicine launched telemedicine services in October 2019 with 1 provider in 1 clinic location. Given physical distancing recommendations and health policy waivers prompted by the COVID-19 pandemic, these services expanded to more than 20 providers across 4 clinical sites. A workflow was designed to replicate the face-to-face office visit experience, which allowed clerical staff to collect copayments efficiently.

Once a telemedicine visit was scheduled, a personalized link was sent to the patient’s e-mail. At the time of the visit, the patient used the link to log into the telemedicine platform, which then initiated the encounter. The patient received and signed an electronic consent form that enabled the delivery of health care services. Like face-to-face office visits, the patient was greeted by clerical staff and a copayment was collected as pertinent to the patient’s health insurance. Next, the patient connected to the medical assistant and eventually to the provider, who completed the virtual visit. Based on the level of complexity or time spent with the patient, an evaluation and management charge was submitted and billed to insurance.

### *Telemedicine Video Visit Survey*

Study participants were identified through the electronic medical record. A personalized link generated through Qualtrics was sent to the participant’s e-mail address with an invitation to participate in a 53-item electronic survey following the telemedicine visit. Participants who did not respond to the initial e-mail notification were sent e-mail reminders via Qualtrics on days 7, 14, 21, and 28.

The cross-sectional digital survey queried participants on demographics like age, sex, race/ethnicity, marital status, education, employment status, and income. Patient experience and satisfaction questions were developed by the Family Medicine faculty, along with insights from review of the literature. In particular, the National Quality Forum’s report for quality measures in telehealth guided development of questions<sup>23</sup> related to quality of care received, satisfaction, technology, communication, and time with the provider, transportation, and copayment. An earlier version of the survey was piloted during the department’s pilot of telemedicine services, from October 2019 to March 2020.

The study was reviewed and approved by the University of Southern California Institutional Review Board as an expedited study (IRB ID: HS-19-00678).

### *Analyses*

#### *Survey Sampling*

In all, 903 participants completed the survey. Respondents who declined to participate or provided feedback that was not consistent with that of Family Medicine telemedicine practices (eg, a phone call took place, or the provider was not from Family Medicine) were excluded from the analyzed sample.

#### *Data Coding*

Respondents who entered values corresponding to an unreasonable age, for example, 775, had their age cleared. Free text responses with “other” were reviewed and recoded into default responses when possible. Free text entries noting a copayment to be unreasonable were coded under assigned themes.

#### *Distance from Clinic*

In determining differences between typical and actual distance from the patient and the clinic, each patient’s zip code was cross-referenced with the

provider's clinic zip code using the NBER Zip Code Distance Database.<sup>24</sup>

### *Statistical Analysis*

The data are described as absolute numbers and percent frequency of occurrence. We perform a statistical analysis to compare the actual and typical distance from the clinic using paired *t*-tests and subgroup analyses between reported demographics using 2-sample *t*-tests. Stata 15 and the usespss package was used to process the Qualtrics data.

## **Results**

3414 potential respondents received the survey, of which 3377 were successfully contacted. In all, 903 respondents replied to the study, corresponding to a 26.7% effective response rate. Of these, 73 declined to participate, and 33 provided feedback inconsistent with Family Medicine telemedicine practices. A total of 797 surveys were analyzed and represent patient experiences from 25 Family Medicine physicians and advanced practice providers.

### *Primary Analyses*

#### *Demographics and Baseline Medical*

##### *Appointment Visits*

Baseline demographics and medical appointment information of study respondents are reported in Table 1 and Table 2. Survey respondents were of similar backgrounds to commercial telehealth users.<sup>1</sup> Fifty-four percent (427/797) of respondents reported being first-time telehealth users.

##### *Transportation*

Survey respondents used their personal vehicle most frequently to travel to their in-person visits (84%, 666/797) and most frequently mentioned that they were 4 to 10 miles away (51%, 480/797) or 16 to 30 minutes away (39%, 308/797) from their provider's clinic.

##### *Distance*

Table 2 shows the typical and actual distance to the indicated provider's clinical site, as measured by zip code. Using a paired 2-tailed *t*-test, we found statistical significance between the 2 metrics when looking at respondents whose typical distances were less than 200 miles (*n* = 721; typical: mean 11.2 miles, SD 16.7 miles; actual: mean 14.1 miles, SD 39.1 miles). The difference between the 2 values

suggests that respondents are located farther away from their medical home during the pandemic, possibly due to a permanent or temporary move of place of residence.

### *Logistics*

While 82% (650/797) of respondents spent less than 15 minutes coordinating their visit, 7% (58/797) reported coordination times lasting longer than 30 minutes. Most respondents conducted their visits from home (91%, 724/797) or workplace (6%, 51/797). Other indicated locations included their vehicle and the homes of other family members. Respondents typically used a laptop (48%, 379/797) or smartphone (34%, 268/797) for their visit; desktops (11%, 87/797) and tablets (7%, 59/797) were less used.

### *Comparisons to Office Visits*

Figure 1 reports survey respondents' perceptions of video visits compared with office visits.

Ninety-one percent (727/797) of respondents described their telemedicine video visit as somewhat or very convenient. Seventy-four percent (592/797) reported somewhat or much shorter wait times, and 72% (572/797) reported a shorter time for coordinating and taking part in their visit.

### *Provider Experience*

Survey respondents revealed positive interactions with providers, and nearly all respondents agreed that they could see (93%, 743/797) and hear (96%, 762/797) their provider clearly. An overwhelming majority felt that the provider spent enough time with them (96%, 767/797) and had enough time to discuss their issues (93%, 745/797). When asked about communication, 97% (775/797, 773/797) found that their clinician explained things in a way that was easy to understand and that they were carefully listened to. Most felt confident about the care plan provided (89%, 710/797).

### *Privacy*

While 87% (693/797) of respondents felt confident that their privacy was protected during their video visit, 70% (558/797) were comfortable in discussing their concerns, and 26% (205/797) felt uncomfortable to discuss their concerns via this modality.

### *Outlook*

Eighty-one percent (653/797) of respondents strongly agreed that a telemedicine visit was a good

**Table 1. Participant Baseline Medical Appointment Experiences and Characteristics**

Question and Response	n (Percent)
<i>How do you usually get to your medical appointment?</i>	
I drive in my personal vehicle	666 (84%)
A friend or family member drives me in that person's personal vehicle	134 (17%)
Bus, train, or some form of public transportation	34 (4%)
Rideshare (eg, Uber, Lyft, others)	36 (5%)
Senior ride program (Dial-a-ride, others)	4 (1%)
Taxi	3 (0%)
Bicycle	7 (1%)
Walk	23 (3%)
Scooter	0 (0%)
<i>Approximately how long does it take you to get to your medical appointments?</i>	
Less than 10 minutes	62 (8%)
10 to 15 minutes	172 (22%)
16 to 30 minutes	308 (39%)
31 to 45 minutes	147 (18%)
46 to 60 minutes	67 (8%)
Over 1 hour	41 (5%)
<i>Approximately how many miles do you usually travel to get to your medical appointments?</i>	
1 to 3 miles	93 (12%)
4 to 6 miles	207 (26%)
7 to 10 miles	199 (25%)
11 to 15 miles	126 (16%)
Over 15 miles	172 (22%)
<i>What is your stated gender?</i>	
Male	199 (25%)
Female	591 (74%)
Other:	7 (1%)
<i>What is your race? Choose all that apply.</i>	
White	403 (51%)
Black or African American	44 (6%)
American Indian or Alaska Native	6 (1%)
Asian Indian	14 (2%)
Chinese	43 (5%)
Filipino	18 (2%)
Japanese	20 (3%)
Korean	15 (2%)
Vietnamese	2 (0%)
Other Asian	15 (2%)
Native Hawaiian	0 (0%)
Guamanian or Chamorro	1 (0%)
Samoan	0 (0%)
Other Pacific Islander	4 (1%)
Mexican, Mexican American, Chicano/a	197 (25%)
Puerto Rican	3 (0%)
Cuban	4 (1%)
Another Hispanic, Latino/a or Spanish origin	64 (8%)
<i>What is your insurance type?</i>	
EPO (exclusive provider organization)	200 (25%)
PPO (preferred provider organization)	410 (51%)
HMO (health maintenance organization)	11 (1%)

*Continued*

**Table 1. Continued**

Question and Response	n (Percent)
Medicare	122 (15%)
Medicaid/Medi-Cal	39 (5%)
Other	15 (2%)
<i>What is your current employment status?</i>	
Employed	491 (62%)
Unemployed	50 (6%)
Homemaker	23 (3%)
Student	31 (4%)
Retired	137 (17%)
Disabled	34 (4%)
Other:	31 (4%)
<i>What is your role at the University of Southern California?</i>	
Student	22 (3%)
Faculty	51 (6%)
Staff	168 (21%)
Alumni	49 (6%)
Family member/dependent	72 (9%)
Not affiliated with University of Southern California	435 (55%)
<i>What is your marital status? Mark only one.</i>	
Married	394 (49%)
Not married but living with a partner	57 (7%)
Divorced	91 (11%)
Widowed	47 (6%)
Separated	6 (1%)
Single, never been married	202 (25%)
<i>What is the highest grade or level of schooling you completed?</i>	
Less than 8 years	8 (1%)
8 to 11 years	9 (1%)
12 years or completed high school (including GED)	39 (5%)
Post high school training other than college	36 (5%)
Some college	145 (18%)
College graduate	252 (32%)
Postgraduate	308 (39%)
<i>Thinking about members of your family living in this household, what is your combined annual income, meaning the total pretax income from all sources earned in the past year?</i>	
\$0 to \$9999	20 (3%)
\$10000 to \$14999	18 (2%)
\$15000 to \$19999	19 (2%)
\$20000 to \$34999	34 (4%)
\$35000 to \$49999	68 (9%)
\$50000 to \$74999	115 (14%)
\$75000 to \$99999	116 (15%)
\$100000 to \$199999	216 (27%)
\$200000 or more	127 (16%)
Omitted	64 (8%)
<i>Are you a new patient to family medicine?</i>	
Yes	295 (37%)
No	498 (62%)
Omitted	4 (1%)



**Table 2. Participant Demographics and Visit Distances**

Attribute	n	Mean	SD	p50	Min	Max
Age	788	48.70	17.67	47.00	18.00	98.00
Children under age of 18 in household	797	0.48	0.79	0.00	0.00	4.00
Typical distance from clinic	729	12.86	40.11	6.27	0.00	955.97
Actual distance from clinic	735	14.43	40.24	6.56	0.00	823.27
Difference between typical and actual distance from clinic	723	1.56	50.78	0.00	−944.78	805.51

Abbreviations: SD, standard deviation.

option to see their doctor due to COVID-19 concerns. More than 90% of respondents (719/797) were satisfied or very satisfied with their visit, with 91% (723/797) expressing that they would be fairly (19%, 158/797) or completely (71%, 565/797) willing to use telemedicine again. Figure 2 shows preferred times for video visits to be 9 AM–3 PM, and on weekdays more than weekends generally.

### Secondary Analyses

To understand whether there was heterogeneity in survey responses, we ran 2-sample *t*-tests on the 5-point Likert scale questions by demographics (above median income—\$75,000 or above, some college education, gender, elderly—above 65 years old, patient status with Family Medicine, new user of telehealth). We found significant variation in responses for the following areas, as summarized in Table 3:

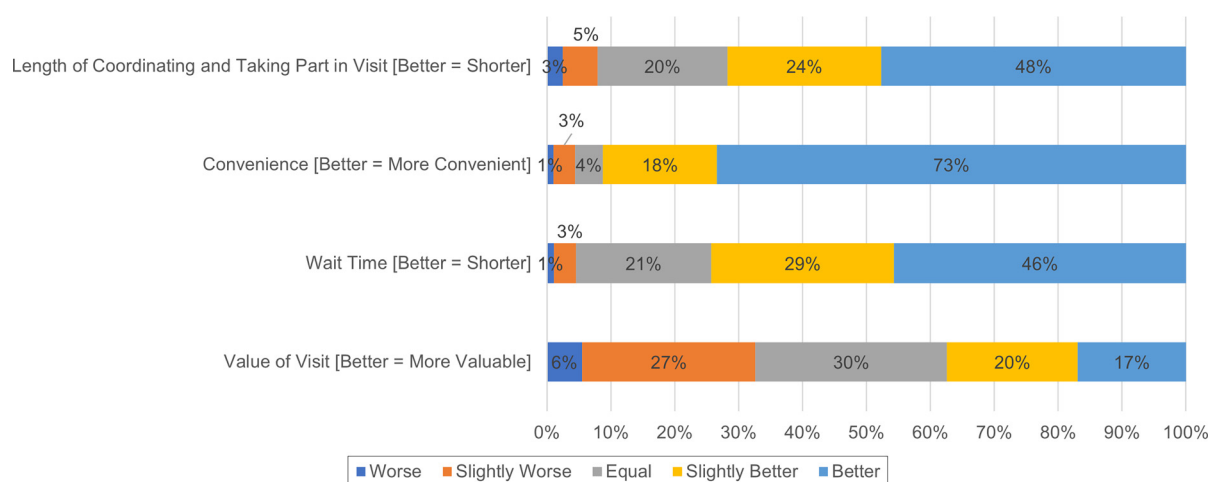
1. Respondents of higher household income ( $P < 0.001$ ) and new users of telehealth ( $P < 0.001$ ) were more willing to be seen by other Family

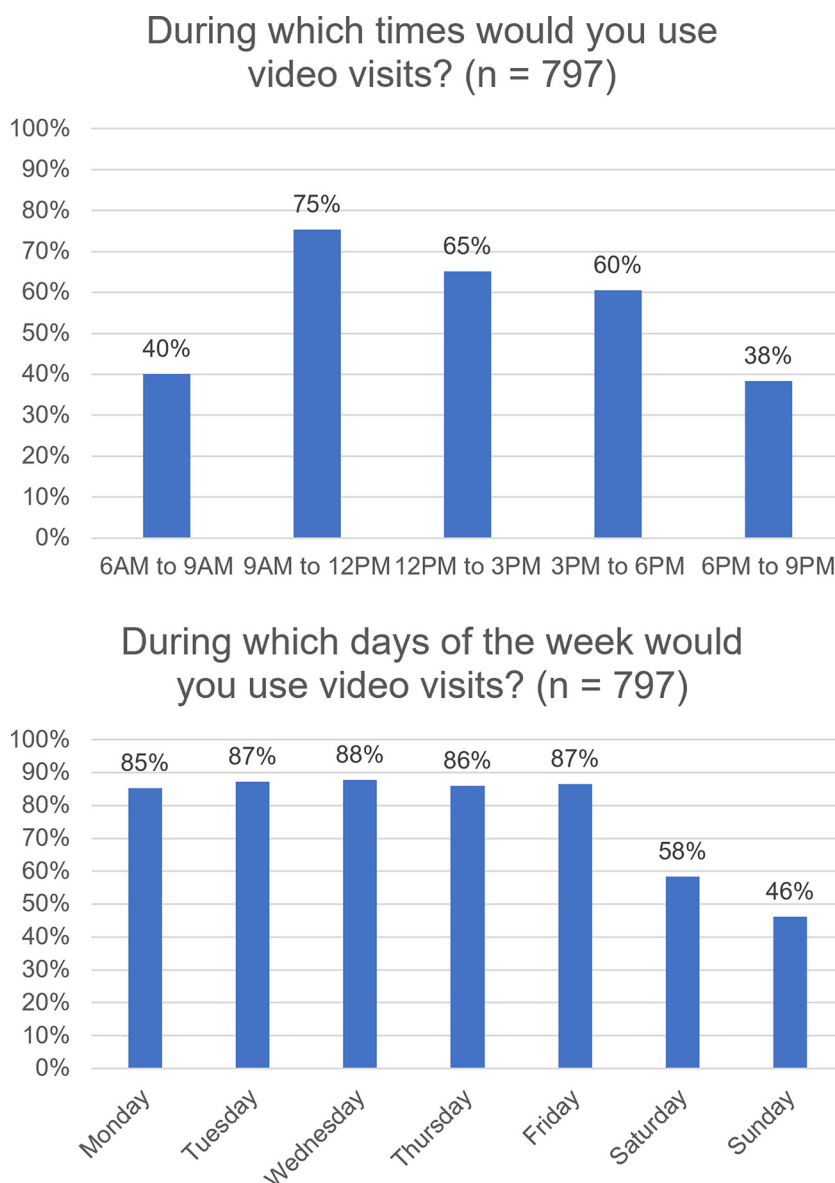
Medicine providers (not their regularly assigned provider for a returning patient, or not the assigned provider for the visit of a new patient).

2. Respondents who were new users of telehealth were more willing to use video visits again in the future ( $P = 0.0303$ ).
3. Respondents with some college education felt less confident about their privacy being protected ( $P = 0.0415$ ), while those with higher incomes and the elderly felt more confident about their privacy being protected ( $P = 0.0139$ ,  $P = 0.0151$ ).
4. Elderly respondents felt more satisfied about their video visits ( $P = 0.0123$ ) but also felt less strongly about telehealth taking less time to coordinate and take part in an office visit ( $P < 0.001$ ).

### Copayment

Twenty-nine percent (235/797) of respondents indicated that a copayment was unreasonable. Of

**Figure 1. Video visits rated better than office visits in 3 domains (n = 797).**

**Figure 2. Times and days of the week in which patients were willing to use video visits (multiple selections allowed).**

these responses, 25% (59/235) were EPO (exclusive provider organization) carriers, 47% (111/235) were PPO (preferred provider organization) carriers, 23% (54/235) Medicare/Medi-Cal beneficiaries, and 5% (11/235) had other insurance or had no insurance. Using 2-sample *t*-tests, we find that patients with some college education (73% average with vs 51% average without,  $P = .0000$ ), with above median household income (78% average if above vs 60% if below,  $P = .0000$ ), and who are existing Family Medicine patients (73% average if existing, 66% average if new,  $P = .0317$ ) are more likely to find a copayment reasonable. Willingness to see other Family Medicine physicians ( $\rho = -0.2575$ ) and satisfaction with video visits

( $\rho = -0.2077$ ) had the strongest correlations with willingness to submit a copayment.

A lack of a physical examination (34%, 79/235) was the most common explanation for the sentiment. Some patients felt strongly about this: “They cannot really check your vitals. That is mainly the point of visiting a doctor.” “I cannot have my doctor check for concerns that need to be assessed through looking or feeling,” “touch and smell are not involved.” A perceived sense of lessened care was noted in 2 primary aspects: (1) respondents felt the health system/provider saved resources/overhead costs by not needing to visit a clinic space or that providers conducted the visit from their own

**Table 3. Secondary Analyses (Means of Responses Provided by Demographic Group)**

How willing would you be using the TeleCARE platform to be seen by other physicians at University of Southern California Family Medicine? (1 = completely willing. . . 5 = not at all willing)			
Income	<\$75000 (n = 459)	>=\$75000 (n = 274)	P value
	1.861	1.588	< 0.001
Telehealth use	Existing user (n = 365)	New user (n = 427)	P value
	1.825	1.595	< 0.001
In the future, how willing are you to use a TeleCARE video visit again? (1 = completely willing. . . 5 = not at all willing)			
Telehealth use	Existing user (n = 365)	New user (n = 427)	P value
	1.485	1.365	0.0303
How confident are you that this TeleCARE video visit has protected your privacy as a patient? (1 = not at all confident. . . 5 = completely confident)			
Education	No college education (n = 92)	Some college education (n = 705)	P value
	4.554	4.356	0.0415
Income	<\$75000 (n = 459)	>=\$75000 (n = 274)	P value
	4.296	4.458	0.0139
Age	<65 (n = 626)	65+ (n = 162)	P value
	4.343	4.531	0.0151
Overall, how satisfied are you with your telehealth visit? (1 = very satisfied. . . 5 = very dissatisfied)			
Age	<65 (n = 626)	65+ (n = 162)	P value
	1.597	1.389	0.0123
Compared to an office visit, how long did it take for you to coordinate and participate in your TeleCARE video visit? (1 = much shorter than an office visit. . . 5 = much longer than an office visit)			
Age	<65 (n = 626)	65+ (n = 162)	P value
	1.823	2.204	< 0.001

home (12%, 28/235), and (2) the reason for a video visit was straightforward (ie, a prescription refill, bloodwork) or took less time as compared with an in-person visit (25%, 59/235). Relevant financial concerns (14%, 34/235) consisted of (1) those respondents not needing to submit a copayment (9%, 20/235), (2) preference to see a reduced copay versus in person (7%, 17/235), or (3) combination of other reasons. Technical concerns and COVID-19 were given as justification in 13 and 8 responses, respectively.

### Other Feedback

Additional free text commentary of video visit experiences is described here. Some respondents were especially satisfied with their experience (“It was amazing and long overdue,” “I have more health care appointments than most people and have been DELIGHTED by telecare system. So much less

commute time!”) and expressed continued use of the service postpandemic (“Please continue telehealth even after covid”). While some commented on the strengths of the modality (“I do have anxiety about seeing the doctor, so this was good for my comfort level”), while other respondents described difficulties of interacting through video (“hard to explain myself through a computer,” “In addition, I’ve back problems, and sitting waiting an hour for the visit to begin can aggravate it”). Seven patients were resistant toward telehealth (“During COVID 19 I can understand its need, but when conditions return to normal, I am not interested in this process”).

### Discussion

Conducted in the family medicine setting of an academic medical institution, where cost for services is rendered, our study finds that survey respondents



perceive telemedicine services favorably, with 71% of respondents perceiving a copayment to be reasonable. However, 29% of respondents felt that a copayment was unreasonable, listing a lack of a physical examination and personal financial concerns as reasons for this sentiment. Despite these observations, we find that respondents value telemedicine visits as equal to or greater than traditional office visits and describe positive experiences with efficiency, convenience, decreased wait time to see a provider, and time in coordinating and participating in care. This illustrates that telemedicine is useful in increasing access to primary care and suggests that video visits are an acceptable medium for care, as an overwhelming number of respondents (91%) were fairly or completely willing to use telemedicine video visits again in the future. Our findings contribute to the nascent literature on primary care telemedicine practices,<sup>13,16,19,25,26</sup> telemedicine video visits,<sup>7,8,18,27</sup> and patients' copayment perceptions.<sup>20–22</sup>

To the best of our knowledge, this study is one of the first to explore patient perceptions of telemedicine services in primary care when patients may need to pay for services, unlike previous studies where visits were free of charge.<sup>8</sup> This study took place during the COVID-19 pandemic, a time when patients were offered telemedicine as an alternative to in-person visits. Under these circumstances, the study collected responses from a multitude of providers' patients. This differs from other studies where respondents were either self-selected or selected by their provider to participate in a telemedicine visit.<sup>8,10</sup> Given this population sample, we believe our study to be more externally valid.

One limitation of the study is that we received a relatively low response rate. Incidentally, the low response rate of the study may have introduced bias, as possibly noted by the overrepresentation of specific demographic groups (e.g. female, higher educational/income backgrounds). In addition, our study was partially conducted during the shelter-at-home orders put in place by the state of California, which likely affected responses on where patients were conducting their visits from. In addition, this might have caused providers to be considered as front-line workers, possibly leading to higher satisfaction rate in responses. Respondents were neither queried on the amount or existence of a copayment nor other cost related to care. Conversely, about half of respondents were first-time users of telehealth, which is a significant increase from prior studies.<sup>27</sup> Similarly, the

percentage of respondents who expressed high willingness to use telemedicine in the future may be upward biased, as the study was conducted during a period when patients may have especially feared having in-person visits. Lastly, as our study focuses on those who were able to conduct a telemedicine video visit, our study does not capture the perceptions of patients who do not have access to telemedicine video visits, such as those without Internet access, those who do not have access to a computer or smartphone, or the very elderly who may be unable to operate technologies by themselves, among other groups. Given these limitations, we suggest that generalizing these results should be done with careful consideration, although our results may be applicable to other academic medical centers as well.

The findings of this study suggest that telemedicine video visits continue to be a promising modality for accessing primary care. Moreover, the findings suggest that payors should consider copayment in detail when designing telehealth benefits to ensure such copayments do not become a barrier in seeking care. That is, payors may be able to affect telemedicine use by setting the copayment rates and reimbursement rates for telemedicine visits accordingly. For example, payors could discourage telemedicine use by setting very high copayments for patients. They also underline the need to establish best practices for patients and providers that could determine the use of telehealth in the future. Our study suggests that further inquiry is needed to determine the significance of the Internet as a household utility and technology as determinants of health care access. Additional studies may consider the factors that contribute to telemedicine use to ensure that telemedicine does not widen the health disparities in our communities.

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To see this article online, please go to: <http://jabfm.org/content/35/3/497.full>.

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