Patient Satisfaction with Telehealth Services in Primary Care

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Abstract

Objective: *Patient satisfaction is an imperative factor in integrating telehealth services as a treatment modality in health care systems. Here, we compared patient satisfaction from telehealth versus in-person health care visits in a large heterogeneous population.*

Methods: *We conducted a retrospective cohort study of patients making telehealth or in-person primary care visits between January 2021 and August 2022. Patient satisfaction with both service types was evaluated using a validated survey. Logistic regression models were employed to assess the association between type of visit (in-person/telehealth) and patient satisfaction (satisfied/unsatisfied) while accounting for sociodemographic and clinical characteristics.*

Results: *Of the 247,087 surveys included in the study, 86,580 (35%) were answered following telehealth visits. Telehealth visitors were more satisfied than in-person visitors in aspects related to doctor-patient interactions, such as "courtesy and respect," "attentive listening," and "coherent explanations" (aOR = 1.17, 95% CI: 1.14–1.21; aOR = 1.16, 95% CI: 1.12–1.19; aOR = 1.15, 95% CI: 1.12–1.18, respectively), and less satisfied in aspects related to indirect services, such as adherence to appointment scheduling, effort required on the part of the patient, and staff cooperation (aOR = 0.95, 95% CI: 0.93–0.97; aOR = 0.89, 95% CI: 0.87–0.91; aOR = 0.85, 95% CI: 0.83–0.87, respectively). Importantly, considerably more telehealth visits were delayed (44%) than in-person visits (27%). Adjustment for this factor further strengthened the observed association between telehealth services and patient satisfaction.*

Conclusions: *While telehealth was associated with high levels of satisfaction in doctor–patient interaction, improvements are still needed in indirect services. Addressing issues related to staff cooperation and streamlining processes to reduce delays could improve overall patient satisfaction with telehealth.*

Keywords: *patient satisfaction, telehealth, health services, primary care, telemedicine*

Introduction

Remote health services, also known as "telehealth," may be described as the delivery of health services via telecommunication technologies (usually phone or video conference calls).[1] These services were developed to address the increasing demand for health services in a reality of consistently increasing rates of life expectancy and comorbidity.[2] In many countries, the integration of telehealth into health services has both improved the accessibility of health services and reduced their costs.[3,4] Nonetheless, patient satisfaction remains an important factor if telehealth services are to become an integral treatment modality in health care systems.[5] In practice, an increasing body of evidence has demonstrated high patient satisfaction with telehealth, with most telehealth users reporting that they would continue to use telehealth services.[6–8]

A major accelerator in the implementation of telehealth services in primary care was the COVID-19 pandemic. Long lockdown periods during the pandemic encouraged people needing primary care to use the more accessible remote health services.[6–8] Importantly, it was reported that telehealth users during the COVID-19 pandemic were more satisfied with most aspects of their visits compared with in-person visitors.[9] Subsequently, a significant increase in telehealth visits in primary care was noted worldwide.[10] including in Israel.[11] Notably, this increase included a rise in telehealth use among patients who would otherwise not have been likely to adopt this service.[12]

Most studies of patient satisfaction with telehealth were conducted during the COVID-19 pandemic, when in-person visits were less prevalent. Furthermore, many of those studies included relatively small samples and did not account for clinical and sociodemographic characteristics that may affect patient satisfaction.[13] Therefore, our objective was to assess patient satisfaction with telehealth services compared with in-person visits in a large population with diverse sociodemographic and clinical patient characteristics in the post-COVID-19 era of wide use of telehealth services.

Methods

STUDY DESIGN AND PARTICIPANTS

We conducted a retrospective cohort analysis of patient satisfaction in a population receiving primary care through the Clalit Health Services (CHS) HMO, the largest of four health care organizations in Israel that provides health services to approximately 51% of the population (4.8 million people). CHS patients can choose freely between in-person and telehealth visits when scheduling appointments with their primary care physician. The study sample comprised patients making a primary care physician visit between January 2021 and August 2022 at a clinic offering both in-person and telehealth visits. We included in the cohort only visits of patients who answered the CHS primary care satisfaction survey (see below).

PATIENT SATISFACTION SURVEY

The patient satisfaction survey used in this study was sent each week to a randomly sampled 5.8% of the patients who had primary care visits in participating clinics (~95% of CHS primary care clinics distributed all over the country) via SMS messages. This message contained a link to an online version of the survey. Participants without smartphones were contacted and responded to the survey via interactive voice response (IVR). The survey comprises seven statements to be rated on a scale of 1–5 (1—completely unsatisfied, 5—highly satisfied). The statements address various aspects of the health care experience, including doctor–patient interactions, clinic staff coordination, adherence to appointment time, and effort (on the part of the patient to get requests attended to), all of which are detailed in the Supplementary Data S1. This survey has been used by the CHS for the past 2 decades as a part of an organizational effort to improve patients' service experience. The scores generated by the surveys are used in the ongoing evaluation and improvement efforts of CHS to improve the services provided by its clinics. In 2020, the survey was digitalized and validated using four different approaches, as detailed in the Supplementary Data S1.

STATISTICAL ANALYSIS

Since most (~90%) of the responders to the survey rated their experience from the visit as "highly satisfied" (score of 5), we transformed the scale of each statement in the survey into a dichotomous variable, with scores of 5 being defined as "satisfied," and all other scores (i.e., ≤4), as "unsatisfied." Furthermore, patients were defined as "satisfied" if they scored all seven statements as 5, and "unsatisfied" otherwise.

We compared the sociodemographic and clinical characteristics of telehealth and in-person visitors. Sociodemographic characteristics included the patient's sector classified into general Jewish, Jewish Ultra-Orthodox, and Arab. Socioeconomic score was classified into three categories: low, medium, and high (designated 1, 2, and 3). Patient's age was divided into four age groups: 0–17, 18–43, 44–64, and 65+. Immigration status was defined as "immigrant" if the patient's duration of residence in Israel was less than 7 years. Clinical characteristics included common chronic diseases (malignancy, asthma, chronic obstructive pulmonary disease, hyperlipidemia, ischemic heart disease, and obesity) and smoking status. The main diagnosis given by the physician at the primary care visit was categorized into three groups: administration, observation, and others, as specified in Supplementary Data S1. In addition, visits were classified into "self-scheduled" if the patients scheduled them via the CHS online website, the CSH app, or IVR, and "assisted-scheduling" if they were helped by the clinic office or the CHS call center to schedule their appointments.

Logistic regression analysis was used to assess the association between the type of visit (in-person/telehealth) and patient satisfaction (satisfied/unsatisfied). Four overlapping logistic regression models were built: (1) a univariate model that included only the type of visit (in-person/telehealth); (2) a multivariate model that included the type of visit + sociodemographic variables (sex, age, sector, socioeconomic score, and immigration status) and self-scheduled; (3) a multivariate

model that included model 2 + common chronic diseases and smoking status; (4) a multivariate model that included model 3 + visit diagnoses. Since the timekeeping of the scheduled appointment may significantly impact patient satisfaction,[14] a fifth model was built to include a timekeeping variable, which was classified into "on-time" (visits starting within 15 min of the scheduled time) and "delayed" visits. Importantly, timekeeping information was available only for self-scheduled visits (44%). This study was approved by the CHS's Helsinki Institutional Review Board, protocol number 0204-21-COM2.

Results

STUDY POPULATION

A total of 2,494,854 surveys were sent out during the study period. Of these, 712,949 (28.6%) were sent following a telehealth visit, and 1,781,904 (71.4%), following an in-person visit. Compliance with the survey was slightly higher for telehealth visits than for in-person visits (12% vs. 9%, respectively). The characteristics of the two groups of patients, namely, telehealth and in-person groups, who answered the entire survey are presented in *Table 1*. Children (0–18 years old) and females were more prevalent in the telehealth group versus the in-person group (17% vs. 25% and 60% vs. 52%, respectively). In the Arab sector, a lower proportion of people made telehealth visits (6.1%) compared with in-person visits (15%). Patients who used the telehealth service were characterized by higher rates of chronic conditions than patients making in-person visits. Furthermore, "observation" visits, as recorded by the physician, were more prevalent in telehealth than in in-person visits (14% vs. 11%, respectively). Finally, 60% of telehealth visits were self-scheduled compared with only 36% of the in-person visits.

ASSOCIATION BETWEEN VISIT TYPE AND PATIENT SATISFACTION

The results of four logistic regression models that tested the association between visit type (telehealth/in-person) and patient satisfaction are presented in *Table 2*. Overall, the odds ratios of patient satisfaction between visit types remained relatively stable across all four models. Therefore, only the results of the fully adjusted model (Model 4) are discussed. Overall, patients using telehealth visits were slightly less likely to be satisfied with their visits than patients making in-person visits (aOR = 0.91, 95% CI: 0.90–0.93). Examination of the specific aspects of the visits revealed that telehealth visitors were less satisfied with aspects related to indirect services, such as "appointment schedule," "effort," and "staff cooperation" (aOR = 0.95, 95% CI: 0.93–0.97; aOR = 0.89, 95% CI: 0.87–0.91; and 0.85, 95% CI: 0.83–0.87, respectively). However, they were more satisfied with aspects related to doctor–patient interactions, such as "courtesy and respect," "attentive listening," and "coherent explanations" (aOR = 1.17, 95% CI: 1.14–1.21, aOR = 1.16, 95% CI: 1.12–1.19, and aOR = 1.15, 95% CI: 1.12–1.18, respectively). No difference in patient satisfaction was observed in aspects related to the patient feeling to be "in good hands" (aOR = 1.00, 95% CI: 0.97–1.02).

EFFECT OF TIMEKEEPING ON THE ASSOCIATION BETWEEN VISIT TYPE AND PATIENT SATISFACTION

A comparison of the characteristics of "self-scheduled" and "assisted-scheduling" patients is presented in *Table 3*. Notably, telehealth visits were twice as common among "self-scheduled" than among "assisted-scheduling" patients (48% vs. 25%). In addition, "self-scheduled" patients were characterized by higher proportions of patients from the general Jewish and Ultra-Orthodox sectors and lower proportions from the Arab sector (85%, 8.5%, and 6.9% vs. 79%, 4.9%, and 16%, respectively). Furthermore, "self-scheduled" patients had a higher socioeconomic status and a lower rate of administrative diagnoses. Notably, 44% of "self-scheduled" telehealth visits were delayed by 15 min or more compared with only 27% of in-person visits (*Table 4*). Of these, 12% were delayed by 30–60 min (vs. 8% of the in-person visits), and 13% were delayed by more than an hour after their scheduled time (vs. 2%).

We hypothesized that adherence to the scheduled time of the visit would affect the association between visit type (telehealth/in-patient) and patient satisfaction. To test this hypothesis, we applied the same analyses to a subset of self-scheduled visits (44% of the visits) that included information regarding the timekeeping of the visit. Applying the fully adjusted logistic regression model (Model 4) to the data of "self-scheduled" patients revealed overall higher odds ratios of patient satisfaction than seen in the total population, suggesting that telehealth visitors were generally more satisfied when they "self-scheduled" their visits (*Table 5*). Of note, further adjustment of the models for the timekeeping of the visit (Model 5) further improved the satisfaction of telehealth compared with in-person visitors (*Table 5*).

Discussion

The integration of telehealth services into primary care represents a shift in health care delivery, particularly in response to the surging demand for and changing dynamics of patient care. Our findings show a higher level of satisfaction from telehealth compared with in-person visits in

Table 1. Patient Characteristics

	OVERALL, $N = 247,087$	IN-PERSON, $N = 160,507$ 65%	TELEHEALTH, $N = 86,580$ 35%
Age (years), *n* (%)			
0–18	55,005 (22%)	40,199 (25%)	14,806 (17%)
18–44	63,846 (26%)	40,035 (25%)	23,811 (28%)
44–65	69,515 (28%)	43,102 (27%)	26,413 (31%)
65+	58,721 (24%)	37,171 (23%)	21,550 (25%)
Sex, *n* (%)			
Male	111,527 (45%)	76,593 (48%)	34,934 (40%)
Sector, *n* (%)			
General Jewish	201,920 (82%)	126,695 (79%)	75,225 (87%)
Ultra-Orthodox	16,014 (6.5%)	9,924 (6.2%)	6,090 (7.0%)
Arab	29,153 (12%)	23,888 (15%)	5,265 (6.1%)
Socioeconomic score, *n* (%)			
1	88,501 (36%)	63,668 (40%)	24,833 (29%)
2	100,293 (41%)	61,631 (38%)	38,662 (45%)
3	58,035 (24%)	34,981 (22%)	23,054 (27%)
(Missing)	258	227	31
Immigrant, *n* (%)			
Yes	1,128 (0.5%)	653 (0.4%)	475 (0.5%)
Smoking, *n* (%)			
Yes	70,351 (28%)	44,375 (28%)	25,976 (30%)
Chronic diseases, *n* (%)			
Malignancy	24,623 (10.0%)	15,142 (9.4%)	9,481 (11%)
Asthma	14,858 (6.0%)	9,197 (5.7%)	5,661 (6.5%)
COPD	5,898 (2.4%)	3,659 (2.3%)	2,239 (2.6%)
Hyperlipidemia	96,153 (39%)	60,395 (38%)	35,758 (41%)
IHD	19,613 (7.9%)	12,624 (7.9%)	6,989 (8.1%)
Obesity	62,200 (25%)	38,844 (24%)	23,356 (27%)
Visit diagnoses, *n* (%)			
Administration	63,578 (26%)	40,706 (25%)	22,872 (26%)
Observation	30,728 (12%)	18,397 (11%)	12,331 (14%)
Others	181,639 (74%)	120,473 (75%)	61,166 (71%)
Self-scheduling, *n* (%)	108,942 (44%)	56,981 (36%)	51,961 (60%)

COPD, chronic obstructive pulmonary disease; IHD, ischemic heart disease.

primary health care in aspects of doctor–patient interaction, but lower satisfaction regarding indirect services. Furthermore, the higher patient satisfaction for doctor–patient interaction in telehealth visits was even more marked when adjusting for timekeeping of the visit, thus further underscoring the importance of doctor–patient interaction and

Table 2. Association between Type of Visit and Patients' Satisfaction

	MODEL 1		MODEL 2		MODEL 3		MODEL 4	
REFERENCE = IN-PERSON VISIT	OR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI
Overall satisfaction	0.84	0.83, 0.86	0.92	0.90, 0.93	0.92	0.90, 0.93	0.91	0.90, 0.93
Doctor–patient interactions								
Courtesy and respect	1.17	1.14, 1.21	1.16	1.13, 1.20	1.16	1.13, 1.20	1.17	1.14, 1.21
Attentive listening	1.16	1.13, 1.20	1.15	1.11, 1.18	1.15	1.11, 1.18	1.16	1.12, 1.19
Coherent explanations	1.15	1.12, 1.18	1.15	1.12, 1.18	1.15	1.12, 1.18	1.15	1.12, 1.18
Indirect services								
Appointment schedule	0.87	0.85, 0.89	0.95	0.93, 0.97	0.95	0.93, 0.97	0.95	0.93, 0.97
Effort	0.87	0.85, 0.88	0.89	0.87, 0.91	0.89	0.87, 0.91	0.89	0.87, 0.91
Staff cooperation with the patient	0.82	0.81, 0.84	0.85	0.83, 0.87	0.85	0.83, 0.87	0.85	0.83, 0.87
Good hands								
Good hands	0.97	0.94, 0.99	1.00	0.97, 1.02	1.00	0.97, 1.02	1.00	0.97, 1.02

Variables in the model.

Model 1: Type of visit (in-person/telehealth).

Model 2: Model 1 + Socio-demographic variables (sex, age, sector, socioeconomic score, and immigration status).

Model 3: Model 2 + common chronic diseases.

Model 3: Model 3+ visit diagnoses.

timekeeping of the visit in shaping patient satisfaction in the implementation of telehealth in primary health care services.

Telehealth's ability to facilitate meaningful and respectful doctor–patient interactions emerged as a notable strength. Patients reported high levels of satisfaction in areas such as courtesy and respect during telehealth visits, suggesting that the essential core of health care delivery remains intact in telehealth visits. This finding aligns with previous research findings emphasizing the importance of doctor–patient relationship as a central component of successful telehealth visits.[15] In the CHS, patients are assigned to a specific primary care physician. Thus, a possible explanation for the high satisfaction from doctor–patient interaction is a prolonged acquaintance with the doctor.

In contrast, telehealth visitors were less satisfied with aspects of indirect services, particularly cooperation between the clinical staff and the patient in his/her efforts to receive the service. This challenge may derive from technological barriers experienced by the patients, and/or limited availability of the services.[16] In addition, the patient who attends the clinic in person can obtain assistance from the clinic staff for a variety of administrative and clinical needs. Thus, facilitating telehealth services to the population, especially in minority populations with low rates of digitally oriented patients, such as the Arab community in Israel, are still needed to enhance overall patient satisfaction with primary care services.

Our findings demonstrating that the timekeeping of the visit had a notable negative effect on patient satisfaction were in in accordance with several studies that found that longer wait times were associated with lower patient satisfaction.[17,18] In this context, it is important to note that almost half of telehealth visits were delayed, compared with 27% of in-person visits, leading to a confounding effect whereby there was allegedly no difference in overall satisfaction between telehealth and in-person visits in the general population. The higher rates of '"not-on-time" telehealth visits in our study is probably due to the tendency of physicians to prioritize patients waiting outside their office over patients waiting for a phone call. Allocation of specific time during the day for telehealth appointments and strict compliance with the schedule on the part of the health care providers may further improve patient satisfaction with telehealth services.

The results of this study should be considered in the context of the following limitations. First, the compliance rate with the survey was only 10%, and the resulting sample might not fully represent all CHS patients. Nevertheless, the remarkably large sample size of the study and the adjustment of the regression models for sociodemographic and clinical

Table 3. Patient Characteristics by "Assisted-Scheduling" and "Self-Scheduled" Visits

	OVERALL, *N* = 247,087	ASSISTED-SCHEDULING, *N* = 138,145 (56%)	SELF-SCHEDULED, *N* = 108,942 (44%)
Type of visit, *n* (%)			
Telehealth	86,580 (35%)	34,619 (25%)	51,961 (48%)
Age (years), *n* (%)			
0–18	55,005 (22%)	30,776 (22%)	24,229 (22%)
18–44	63,846 (26%)	38,189 (28%)	25,657 (24%)
44–65	69,515 (28%)	39,128 (28%)	30,387 (28%)
65+	58,721 (24%)	30,052 (22%)	28,669 (26%)
Sex, *n* (%)			
Male	111,527 (45%)	63,805 (46%)	47,722 (44%)
Sector, *n* (%)			
General Jewish	201,920 (82%)	109,781 (79%)	92,139 (85%)
Ultra-Orthodox	16,014 (6.5%)	6,750 (4.9%)	9,264 (8.5%)
Arab	29,153 (12%)	21,614 (16%)	7,539 (6.9%)
Socioeconomic score, *n* (%)			
1	88,501 (36%)	58,216 (42%)	30,285 (28%)
2	100,293 (41%)	53,219 (39%)	47,074 (43%)
3	58,035 (24%)	26,525 (19%)	31,510 (29%)
Immigrant, *n* (%)			
Yes	1,128 (0.5%)	446 (0.3%)	682 (0.6%)
Smoking, *n* (%)			
Yes	70,351 (28%)	38,497 (28%)	31,854 (29%)
Chronic diseases			
M alignancy, *n* (%)	24,623 (10.0%)	12,949 (9.4%)	11,674 (11%)
Asthma, *n* (%)	14,858 (6.0%)	8,034 (5.8%)	6,824 (6.3%)
COPD, *n* (%)	5,898 (2.4%)	3,034 (2.2%)	2,864 (2.6%)
Hyperlipidemia, *n* (%)	96,153 (39%)	52,004 (38%)	44,149 (41%)
IHD, *n* (%)	19,613 (7.9%)	10,678 (7.7%)	8,935 (8.2%)
Obesity, *n* (%)	62,200 (25%)	34,045 (25%)	28,155 (26%)
Visit diagnoses			
Administration, *n* (%)	63,578 (26%)	38,480 (28%)	25,098 (23%)
Observation, *n* (%)	30,728 (12%)	16,130 (12%)	14,598 (13%)
Others, *n* (%)	181,639 (74%)	96,384 (70%)	85,255 (78%)
Timekeeping of the visit[a]			
Delayed by 15–30 min, *n* (%)			19,931 (18%)
Delayed by 30–60 min, *n* (%)			10,806 (10%)
Delayed by >60 min *n* (%)			7,776 (7%)

[a]Date on the timekeeping of the visit was available only for self-scheduled visits.

COPD, chronic obstructive pulmonary disease; IHD, ischemic heart disease.

Table 4. Timekeeping of the Visit

	OVERALL $N = 108,942$	IN-PERSON $N = 56,981$ 52%	TELEHEALTH $N = 51,961$ 48%
On time	70,429 (65%)	41,456 (73%)	28,973 (56%)
Delayed (15 Min+), *n* (%)	38,513 (35%)	15,525 (27%)	22,988 (44%)
Delayed by 15–30 min, *n* (%)	19,931 (18%)	10,107 (18%)	9,824 (19%)
Delayed by 30–60 min, *n* (%)	10,806 (10%)	4,327 (8%)	6,479 (12%)
Delayed by >60 min *n* (%)	7,776 (7%)	1,091 (2%)	6,685 (13%)

characteristics may partially address this limitation. Second, it is possible that some patients could have answered the survey more than once. To minimize the replication of patients in the data, surveys could be sent to the same patients in a gap of at least 1 month between the surveys. Third, timekeeping was available only for visits that were self-scheduled by the patients. Therefore, the conclusions about timekeeping are relevant only for the more digitally oriented patients, who are more likely to self-schedule their clinic appointments.

Conclusions

While telehealth was associated with high satisfaction levels in aspects of doctor–patient interaction, improvements are still needed for indirect services. Addressing issues related to staff cooperation and streamlining processes to reduce delays could improve overall patient satisfaction with telehealth. Future studies should explore this result in other areas of health care services and other minority sectors, which may reveal specific barriers and needs. Addressing these barriers will enrich our understanding of telehealth's impact on various health care domains and diverse populations, contributing to more inclusive and effective telehealth practices. As we navigate the evolving landscape of health care delivery, a patient-centric approach that combines the strengths of telehealth with a focus on refining operational aspects will be instrumental in realizing the full potential of remote health services.

Table 5. Association between Type of Visit and Patients' Satisfaction for Patients Who Self-Scheduled Their Visits

	MODEL 4[a]		MODEL 5[b]	
REFERENCE = IN-PERSON VISIT	aOR	95% CI	aOR	95% CI
Overall satisfaction	1.00	0.98, 1.03	1.05	1.02, 1.08
Doctor-patient interactions				
Courtesy and respect	1.26	1.21, 1.32	1.28	1.23, 1.34
Attentive listening	1.24	1.19, 1.29	1.26	1.21, 1.31
Coherent explanations	1.22	1.17, 1.27	1.23	1.18, 1.28
Indirect services				
Appointment schedule	1.02	0.99, 1.05	1.11	1.08, 1.15
Effort	0.99	0.96, 1.02	1.02	0.99, 1.05
Staff cooperation with the patient	0.91	0.88, 0.94	0.95	0.92, 0.98
Good hands				
Good hands	1.09	1.05, 1.12	1.12	1.08, 1.16

[a]Type of visit, socio-demographic variables, common chronic diseases, and visit diagnoses.

[b]Timekeeping.

Authors' Contributions

T.R.: Conceptualization, methodology, formal analysis, investigation, data curation, writing—original draft. N.R.: Investigation, data curation. Y.W.S.: Conceptualization, methodology, writing—original draft. R.A.: Conceptualization, project administration. M.S.: Data Curation, visualization, and I.M.: Conceptualization, methodology, writing—review and editing, supervision. All authors reviewed and approved the final version of the article.

Disclosure Statement

The authors have no conflict of interest to declare.

Funding Information

No funding was received for the study.

Supplementary Material

Supplementary Data S1

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Received: June 8, 2024
Revised: June 19, 2024
Accepted: June 19, 2024
Online Publication Date: July 8, 2024