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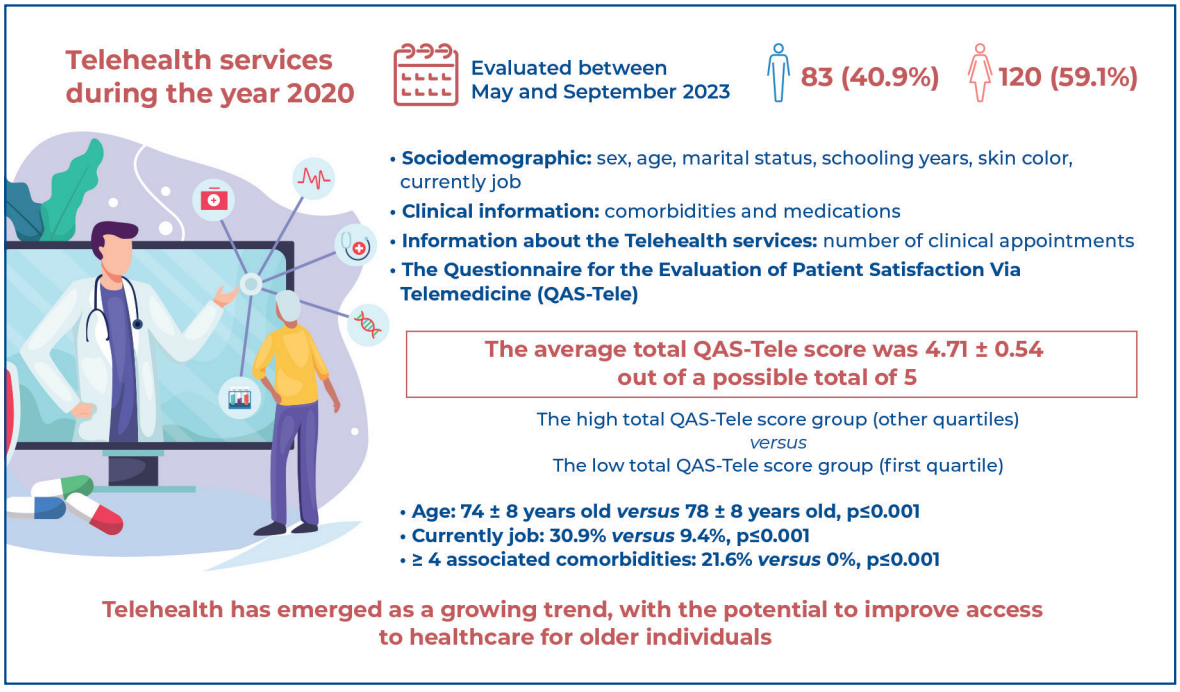

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In Brief

Patients in the present study reported high satisfaction with the telehealth service. Higher satisfaction with the telehealth service was reported by older adults in a younger age range, by individuals currently working, and by individuals with a higher number of comorbidities.

Highlights

- The average total QAS-Tele score was 4.71±0.54 out of 5.
- Higher satisfaction was reported by older adults in the younger age range.
- Higher satisfaction was reported by individuals currently working.
- Higher satisfaction was reported by individuals with a higher number of comorbidities.

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Satisfaction with a telehealth service among older adults

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ABSTRACT

Objective: This retrospective observational study analyzed satisfaction with a telehealth service in older individuals living in a metropolitan city in Brazil. **Methods:** Sociodemographic, clinical, and telehealth service details (number of clinical appointments for each patient during a year) were collected. Satisfaction with the telehealth service was evaluated using the Questionnaire for the Evaluation of Patient Satisfaction Via Telemedicine (QAS-Tele) in 203 older individuals (59.1% women; 75.6±7.9 years old). A subanalysis was performed with patients divided into two groups: low score on QAS-Tele (first quartile) and high score on QAS-Tele (other quartiles). **Results:** The questionnaire items and average total QAS-Tele score suggested high patient satisfaction (average total score of 4.71±0.54 out of 5). The patients with high QAS-Tele scores had a lower average age (74.4±7.8 *versus* 78.3±7.5 years, $p \leq 0.001$) and a higher proportion of individuals currently working (30.9% *versus* 9.4%, $p \leq 0.001$) and of individuals with four or more associated comorbidities (21.6% *versus* 0%, $p \leq 0.001$) than patients with the low QAS-Tele scores. **Conclusion:** Patients in the present study reported high satisfaction with the telehealth service. Higher satisfaction with the telehealth service was reported by older adults in a younger age range, by individuals currently working, and by individuals who had a higher number of comorbidities. These findings suggest the importance of considering these factors in the planning of telehealth services in older individuals.

Keywords: Telehealth patient monitoring; Telemedicine; Patient satisfaction; Aged; Surveys and questionnaires

INTRODUCTION

The number of people over 60 years of age has increased substantially in recent decades. According to the World Health Organization, this age group comprised 1 billion people worldwide in 2019 and is expected to increase to 1.4 billion people by 2030 and 2.1 billion people by 2050.[1] Thus, population aging has challenged health authorities to develop strategies to optimize care for this population.

Telehealth (remote general health services through the use of information and telecommunication technologies) and Telemedicine (specific area of Telehealth that involves technology-mediated medical practice) services have emerged as options to facilitate remote care for older individuals.[2-4] Telehealth gained prominence during the coronavirus 2019 (COVID-19) pandemic, resulting in its improvement and in increasing awareness of its importance in the general care of individuals.[5-8] It enhances the availability and accessibility of diagnostic and treatment services for older individuals, as many have mobility difficulties or depend on companions to attend

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appointments. Furthermore, this service overcomes geographical barriers, reducing demand arising from a lack of health professionals in different regions and allowing care for patients who may be many kilometers away. Telehealth also allows for agility in the delivery of test results and scheduling appointments, saving time and money.[2-4] Despite these benefits, difficulties in performing physical examinations and the lack of more diagnostic tools still persist in telehealth services. In addition, not all health professionals receive adequate training for this service and some patients, such as older adults, can have difficulty using technology, which may compromise adherence to this type of service.[4,9,10]

Previous studies conducted in different countries, including individuals with different characteristics, such as studies comprising only older individuals, patients with hip and knee arthroplasty, or patients with neurological diseases, observed high satisfaction with telehealth services.[11-14] Similar results have also been observed in studies conducted in Brazil among children and adolescents, patients who underwent strabismus surgery, and those aged between 30 and 59 years.[15-17] However, in Brazil, only few studies have focused on older individuals, who may have difficulties with this type of service. Analyzing satisfaction with telehealth services in this population is important due to all the previously mentioned factors.

The study hypothesis was that older individuals would report high satisfaction with the telehealth service.

OBJECTIVE

The current study aimed to analyze satisfaction with the telehealth service in older individuals.

METHODS

Study design and participants

This retrospective observational study followed the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) checklist.[18] It included patients recruited from the Einstein Program in the Jewish Community of the Hospital Israelita Albert Einstein in São Paulo, Brazil. The study was approved by the *Hospital Israelita Albert Einstein'* Ethics Committee (CAAE: 60176222.5.3001.0071; 5.973.088) and the *Faculdade de Odontologia* of the *Universidade de São* Paulo Ethics Committee (CAAE: 60176222.5.0000.0075; #5.854.438). Before data collection, patients were informed about the procedures for participation in the study and signed a written informed consent form.

The inclusion criteria were age ≥60 years and no cognitive impairments (previous diagnosis of dementia or Alzheimer's disease) that could compromise the application of the questionnaire. We excluded those who did not answer all the questions of the survey.

Data collection

Data were collected between May and September 2023. Patients who met the inclusion criteria were invited to participate in the study via telemonitoring. Sociodemographic (sex, age, marital status, schooling years, skin color, and current job) and clinical information (comorbidities and medications) were obtained using telemonitoring. Information on the telehealth services (number of clinical appointments for each patient during the year 2020) was obtained from the database.

Patient satisfaction with Telemedicine

The satisfaction of patients assisted via telehealth was obtained using the Questionnaire for the Evaluation of Patient Satisfaction Via Telemedicine (QAS-Tele), adapted by Moreira et al.,[19] through face-to-face interviews. The questionnaire contains 14 questions that address general satisfaction, patients' experience when using telehealth, convenience for patients, the doctor-patient relationship, and ability to communicate via telehealth. The answers are scored on a 5-point Likert scale as follows: 1. "No, definitely not"; 2. "Probably not"; 3. "Maybe"; 4. "Probably yes"; 5. "Yes, definitely". The scores for items 3, 9, and 10 are reversed. The final score of the instrument was calculated using the average score of all items.

Statistical analysis

Data normality was checked using the Kolmogorov-Smirnov test. Data are presented as absolute and relative frequencies for categorical variables and as mean±standard deviation for continuous variables. In a subanalysis, patients were divided into two groups: the low total QAS-Tele score group (first quartile) and the high total QAS-Tele score group (other quartiles). Student's *t*-test was used to compare continuous variables, and the χ^2 or Fisher's exact test was used for categorical variables. Statistical significance was defined as $p<0.05$. All analyses were performed using SPSS software (version 20).

RESULTS

Initially, 217 patients were invited to participate in the study, but 14 refused. Thus, all patients (n=203) who signed a written informed consent form completed the study. The characteristics of these patients are shown in table 1. The mean age was 75.6±7.9 years. The majority were women (59.1%) and self-reported their skin color as white (98.0%), and had a mean number of years of schooling of 12.6±3.8 years. Hypertension (66%), depression (32.5%), vascular diseases (31%), diabetes mellitus (27.6%), and osteoarthritis (24.6%) were the most frequent comorbidities. Furthermore, 64% of the patients used five or more medications.

In total, 1,140 telehealth services were provided during the evaluation period of one year, resulting in an average of 5.6 services per patient.

The average total QAS-Tele was 4.71±0.54. All questionnaire items showed average values greater than 4.5, with the exception of the item "I would rather travel to have my next visit in-person than use telehealth" which had an average of 2.96±1.50 (Table 2).

The patients with high scores on QAS-Tele had a lower average age, a higher prevalence of individuals currently working, isolated comorbidities, except stroke prevalence, or four or more associated comorbidities compared to patients with low QAS-Tele scores. There were no significant differences in the other parameters between the groups (Table 3).

Table 1. General characteristics of patients

Variables	
Sociodemographic	
Sex, women	120 (59.1)
Age, years	75.6±7.9
Marital status, partner	94 (46.3)
Schooling	
≤8 years	23 (11.3)
≥9 to ≤14 years	102 (50.2)
≥15 years	78 (38.4)
Skin color, white	199 (98)
Currently working, yes	49 (24.1)
Comorbidities	
Diabetes mellitus	56 (27.6)
Hypertension	134 (66)
Stroke	7 (3.4)
Coronary disease	31 (15.3)
Chronic obstructive pulmonary disease	19 (9.4)
Vascular diseases	63 (31)
Osteoarthritis	50 (24.6)
Cancer	37 (18.2)
Depression	66 (32.5)
Number of medications	
1-4	73 (36)
≥5	130 (64)

Data are presented as mean and standard deviation or absolute and relative frequency.

Table 2. Satisfaction of patients assisted with telehealth

Items	
1. Appointments by video were better than I expected	4.85±0.61
2. I am satisfied with my telehealth visit	4.97±0.31
3. I was worried about my privacy	4.91±0.53
4. The care I received by telehealth was just as good as with an in-person appointment	4.51±1.11
5. The telehealth visit saved me travel time	4.81±0.81
6. The telehealth visit saved me money	4.55±1.25
7. I was comfortable talking by video to the specialist	4.95±0.36
8. I felt that everything was well covered during my visit	4.87±0.54
9. I would rather travel to have my next visit in-person than use telehealth	2.96±1.50
10. I had difficulty hearing or seeing the doctor through the video	4.74±0.80
11. I was able to develop a friendly relationship with my doctor	4.97±0.22
12. I was able to explain my problems clearly to my doctor during the telehealth visit	4.94±0.29
13. The telehealth visit was convenient	4.90±0.54
14. I would recommend the telehealth option to other patients	4.95±0.41
Average total:	4.71±0.54

Data are presented as mean and standard deviation.

Table 3. General characteristics of patients into two groups: the Low score on QAS-Tele group and the High score on QAS-Tele group

Variables	Low QAS-Tele score n=64	High QAS-Tele score n=139	p value
Sex, women	38 (59.4)	82 (59.0)	0.959
Age, years	78.3±7.5	74.4±7.8	≤0.001*
Marital status, partner, n (%)	28 (43.8)	67 (48.2)	0.555
Schooling, n (%)			
≤8 years	7 (10.9)	16 (11.5)	0.377
≥9 to ≤14 years	28 (43.8)	74 53.2)	
≥15 years	29 (45.3)	49 (35.3)	
Comorbidities, n (%)			
Diabetes mellitus	6 (9.4)	50 (36.0)	≤0.001*
Hypertension	27 (42.2)	107 (77.0)	≤0.001*
Stroke	0 (0.0)	7 (4.8)	0.068
Coronary disease	0 (0.0)	31 (22.3)	≤ 0.001*
COPD	1 (1.6)	18 (12.9)	0.010*
Vascular diseases	6 (9.4)	57 (41.0)	≤0.001*
Osteoarthritis	4 (6.2)	46 (33.1)	≤0.001*
Cancer	2 (3.1)	35 (25.3)	≤0.001*
≥4 associated comorbidities	0 (0.0)	30 (21.6)	≤0.001*
Medications, n (%)			
≥5	46 (71.9)	84 (60.4)	0.114

* Significantly different.
COPD: chronic obstructive pulmonary disease.

Data presented as mean and standard deviation or absolute and relative frequency. QAS-Tele: Questionnaire for the Evaluation of Patient Satisfaction with telehealth.

DISCUSSION

The main findings of the current study were: a) The questionnaire items and average total QAS-Tele score suggested high patient satisfaction, with the exception of the item "I would rather travel to have my next visit in-person than use telehealth"; b) patients with high QAS-Tele scores had a lower mean age, higher prevalence of individuals currently working, and a higher number of comorbidities than patients with low QAS-Tele scores.

Patients in the current study reported high satisfaction with the telehealth service, presenting an average total QAS-Tele score of 4.71 out of 5. This result corroborates previous studies[12-14] that also observed high satisfaction with this type of service in individuals from different age groups and with different conditions, such as patients with neurological diseases, arthroplasty patients, and veterans who served in the U.S. Armed Forces. Specifically in older individuals, Ruggiero et al.[11] also observed high satisfaction with the telehealth service in older adults at a high risk of fragility fractures during the COVID-19 lockdown. These results reinforce the use of this type of service for individuals with different characteristics, including those who with more barriers (*e.g.*, difficulty moving and lack of a companion) to conventional care, such as older individuals.

In general, almost all questionnaire items showed average values greater than 4.5, suggesting that patients reported high satisfaction with the communication between professionals and patients, care provided by professionals, treatment received, equity in access to diagnoses, savings in costs and time spent, quality of the connection, and equipment/setup used during the telehealth services.[19] Many patients also reported that they would recommend the telehealth option to other patients. Satisfaction with many of these different factors associated with telehealth services has also been reported in previous studies including older adults with a high risk of fragility fractures, individuals over 18 years of age, or veterans who served in the U.S. Armed Forces.[11,12,20-22] To our knowledge, the current study is the first to evaluate and report satisfaction with the different factors involved in telehealth services in a sample comprising only older individuals residing in a metropolitan city in Brazil. Despite these positive results, patients reported moderate satisfaction for the item "I would rather travel to have my next visit in-person than use telehealth," suggesting that although patients recognize the advantages and conveniences of this type of remote care, a portion of patients still prefer face-to-face care. In fact, many older adults tend to dislike changes in their habits, given that they have spent most of their lives receiving face-to-face care. In addition, the interaction between doctors and patients in the same physical environment can allow for a greater sense of emotional connection between them. In-person care also allows for a more complete physical examination.[23] In this context, telehealth services should also develop strategies that can help minimize possible barriers.

In the current study, younger individuals reported higher satisfaction with the telehealth services. Although Abdulwahab et al.,[20] Kintzle et al.,[12] and Farias et al.,[24] did not observe an impact of age on satisfaction with telehealth services, Bovonratwet et al.[13] noted higher satisfaction with this type of service in younger individuals. The discrepancy between the results may be because Abdulwahab et al.[20] and Farias et al.[24] only evaluated a small proportion of older individuals. In this context, it is possible to speculate that impairment of vision and hearing resulting from aging may be one of several factors related to lower satisfaction among older individuals, and future studies exploring the associated factors are needed. Furthermore, higher satisfaction with the telehealth services was observed among individuals who were currently working. This result corroborates with the high score on the QAS-Tele questionnaire item "the telehealth visit saved me travel time" observed in the current study. In this scenario, these individuals did not need to miss work to attend face-to-face care sessions. We also observed higher satisfaction with telehealth services by individuals who had a higher number of comorbidities. Similarly, Ruggiero et al.[11] also observed high satisfaction with the telehealth service in older individuals with a high number of comorbidities. The greater difficulty in mobility generally observed in individuals with a greater number of comorbidities[25] may partially explain these results.

The findings of the current study have some practical relevance since telehealth services have emerged as an option to facilitate remote care for older individuals. The majority of older adults in the present study reported high satisfaction with this type of service. Furthermore, telehealth services could also include strategies to refine approaches with older individuals, in order to improve their experience with this type of service and potentially increase their satisfaction and motivation with telehealth.

The current study has some limitations that should be considered. First, the data were observational. In addition, only individuals from the Einstein Program in the Jewish Community of the *Hospital Israelita Albert Einstein* in São Paulo, Brazil were recruited; thus, the results may not be extrapolated to other populations.

CONCLUSION

Telehealth has emerged as a growing trend, with the potential to improve access to healthcare for older individuals. The patients in the present study reported high satisfaction with the telehealth service. Higher satisfaction was reported by older adults with a younger age range, by individuals currently working, and by individuals who had a higher number of comorbidities. These findings suggest the importance of considering these factors in the planning of telehealth services in older individuals.

AUTHORS' CONTRIBUTION

Weliton Nepomuceno Rodrigues: data curation, conceptualization, formal analysis, investigation, methodology, writing - original draft. Deise Garrido Silva: investigation, validation, writing - review & editing. Sheila Scaranello and Elton de Oliveira Santos: writing - review & editing. Hélcio Kanegusuku: validation, visualization, project administration, supervision, writing - review & editing. Carina Domaneschi: conceptualization, investigation, methodology, validation, visualization, project administration, supervision, writing - review & editing.

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