

Feasibility of telemedicine use in older adults: caregivers' perspective

Roni Chaim Mukamal^{1,2}, Viviane Gontijo Augusto³, Laiane Moraes Dias⁴, Thiago Dias Sarti², Elisa Reisen Vasconcelos², Guilhermina Rego¹

1. Universidade do Porto, Porto, Portugal. 2. Universidade Federal do Espírito Santo, Vitória/ES, Brasil. 3. Universidade do Estado de Minas Gerais, Belo Horizonte/MG, Brasil. 4. Universidade Federal do Pará, Belém/PA, Brasil.

Abstract

Telemedicine has become an important strategy to expand access to healthcare for older adults. This qualitative study analyzed caregivers' perceptions of the use of telemedicine in the care of older adults with complex needs. The research was conducted with caregivers of patients with multimorbidity, frailty, and functional dependence assisted by a Geriatrics and Gerontology Service. The interviews, conducted via videoconference, followed a semi-structured script validated by experts. Data were analyzed using thematic analysis. Caregivers consider telemedicine an effective, safe, and accessible strategy, especially given older adults' mobility limitations. Information security was considered satisfactory. It is concluded that telemedicine is perceived as a viable and complementary alternative to in-person care.

Keywords: Telemedicine. Aged. Caregivers. Palliative care.

Resumo

Viabilidade do uso da telemedicina em idosos: visão dos cuidadores

A telemedicina tem se consolidado como estratégia relevante para ampliar o acesso à saúde de pessoas idosas. Este estudo qualitativo analisou a percepção de cuidadores sobre o uso da telemedicina na assistência a idosos com necessidades complexas. A pesquisa foi realizada com cuidadores de pacientes com multimorbidades, fragilidade e dependência funcional atendidos no Serviço de Geriatria e Gerontologia. As entrevistas, por videoconferência, seguiram roteiro semiestruturado validado por especialistas. Os dados foram analisados por meio de análise temática. Os cuidadores consideram a telemedicina uma estratégia eficaz, segura e acessível, especialmente diante das limitações de locomoção dos idosos. A segurança das informações foi considerada satisfatória. Conclui-se que a telemedicina é percebida como alternativa viável e complementar à assistência presencial.

Palavras-chave: Telemedicina. Idoso. Cuidadores. Cuidados paliativos.

Resumen

Viabilidad del uso de la telemedicina en personas mayores: perspectiva de los cuidadores

La telemedicina se ha consolidado como una estrategia relevante para ampliar el acceso a la atención de la salud de las personas mayores. Este estudio cualitativo analizó la percepción de los cuidadores sobre el uso de la telemedicina en la atención de personas mayores con necesidades complejas. La investigación se realizó con cuidadores de pacientes con multimorbidades, fragilidad y dependencia funcional atendidos en el Servicio de Geriatria y Gerontología. Las entrevistas, realizadas por videoconferencia, siguieron un guion semiestructurado validado por especialistas. Los datos fueron analizados mediante análisis temático. Los cuidadores consideran la telemedicina una estrategia eficaz, segura y accesible, especialmente ante las limitaciones de movilidad de las personas mayores. La seguridad de la información fue considerada satisfactoria. Se concluye que la telemedicina es percibida como una alternativa viable y complementaria a la atención presencial.

Palabras clave: Telemedicina. Anciano. Cuidadores. Cuidados paliativos.

Telemedicine, as defined by the World Health Organization (WHO)¹, is the provision of medical care through information and communication technologies in contexts where distance is a critical factor. This practice enables the exchange of information relevant to diagnosis, treatment, disease prevention, professional continuing education, and the promotion of individual and collective health.

In recent years, telemedicine has been increasingly incorporated into the care of older people, with promising results in maintaining their autonomy and ability to remain at home². However, the experience with this type of care is strongly influenced by patients' expectations and prior experiences with the health system. The pursuit of improving the user experience, reducing per capita costs, and improving population health constitutes one of the pillars of the sustainability of healthcare systems³.

Technological advancement has profoundly impacted the relationships among healthcare professionals, users, and the system, promoting significant transformations in the ways of caring. Telemedicine has the potential to expand access and promote greater equity in health services, especially by overcoming geographical and logistical barriers, such as travel and waiting time, aspects that are particularly relevant for older populations and those with reduced mobility⁴.

However, its implementation faces structural, socioeconomic, cultural, and ethical challenges that may limit its benefits and, in some contexts, even accentuate existing inequalities, especially among older people⁵. Among the main structural challenges are unequal access to quality internet and adequate technological devices, as well as the need for technical support to enable older people to use telemedicine⁴. The presence of a caregiver or family support is recognized as a facilitating factor for the effective use of telemedicine by this population⁶.

The increasing longevity and changes in demographic and epidemiological profiles necessitate the reorganization of care networks, especially for older people with chronic conditions and complex health needs. In this scenario, there is an urgent need to formulate policies and

practices that ensure comprehensive, continuous, and person-centered care for older people, while respecting their unique characteristics and social context^{7,8}.

During the COVID-19 pandemic, telemedicine was widely adopted as an alternative to ensure continuity of care. However, there is still little evidence about the experience of older adults and their caregivers with this new form of care. This gap raises relevant bioethical debates about justice in access, information security, user autonomy, and the quality of the therapeutic bond, and it is necessary to investigate the feasibility of incorporating this method of remote medical care⁴.

The concept of feasibility, when applied to qualitative studies, involves a preliminary analysis of the acceptance, usefulness, and applicability of a given intervention in specific contexts. These studies contribute to identifying barriers and potential, serving as a basis for developing broader and more effective strategies. Their conclusions can guide decisions about whether to subject a given intervention to efficacy testing. In the context of telemedicine, understanding caregivers' perceptions, central figures in the daily care of older people, is essential to validate strategies and improve care practices⁹.

This study aimed to analyze caregivers' perceptions of older people with complex care needs regarding the feasibility of using telemedicine for follow-up in a specialized outpatient clinic at a Brazilian public university hospital.

Method

This is a descriptive field study with a qualitative approach, carried out with caregivers of older people with complex care needs, including the presence of multimorbidities, geriatric syndromes, and functional dependence, residing in the state of Espírito Santo and attended at the Geriatrics and Gerontology Service (SGG) of the Cassiano Antônio de Moraes University Hospital of the Federal University of Espírito Santo (HUCAM/UFES). The qualitative approach stands out as a valuable tool in this context, as it enables active listening

among caregivers and helps them understand their experiences, barriers, and challenges with telemedicine.

The SGG/HUCAM provides outpatient care to older patients with complex care needs, referred by other hospital clinical specialties or for post-hospital discharge follow-up. The team comprises specialists in geriatrics, gerontology, and palliative care. During the COVID-19 pandemic, telemedicine services were offered through the hospital's Telehealth Service. With the end of the health emergency, a hybrid model was adopted, alternating in-person and telemedicine consultations for these patients.

Telemedicine consultations are offered exclusively to patients who have already received in-person care, with the indication determined by mutual agreement between the physician and the patient, taking into account the modality's suitability for continuity of care. The study sample was selected through convenience sampling and consisted of caregivers of older people who had previously been seen at the outpatient clinic. Caregivers of both sexes who accompany older people service users and have experienced at least one telemedicine consultation in the last 3 months were included. All caregivers received all relevant information about the research and formally consented to their participation by signing the informed consent form.

The participants' identities were preserved, referred to only as "caregiver" followed by a sequential number. The initial data analysis was descriptive, encompassing caregivers' sociodemographic variables and clinical and functional data of older people they assisted. This information enabled the profiling of the patients served by the service.

The sample size was determined using the information-saturation criterion. After acceptance, participants were interviewed via videoconference using the Teams platform, the same one used in teleconsultations. The interviews were conducted by students from the Geriatrics and Gerontology League of the School of Medicine, following training and guidance about the study. All interviews were

recorded, transcribed, and securely stored in the investigator's institutional email cloud.

The interview script addressed five main dimensions: 1) relationship with the healthcare professional; 2) perception of the effectiveness of teleconsultation; 3) usability of the technology; 4) secrecy and confidentiality of information; and 5) attitude towards the continued use of telemedicine. The interviews were recorded and transcribed in full, preserving the integrity of the accounts. For data analysis, the thematic analysis technique was chosen, as proposed by Braun and Clarke¹⁰. This approach aims to identify, organize, and describe in detail the themes present in the data, thereby enabling interpretation of key aspects of the study. The analysis was carried out manually, without software support, and in accordance with the principles of reflexivity and immersion in the empirical material, central characteristics of qualitative research.

Results and discussion

The study included 16 caregivers responsible for 16 older adults who were regularly followed up at the university hospital's specialized geriatrics and gerontology outpatient service. Of these caregivers, only 5 (31.1%) were formal caregivers, while the remainder (68.9%) were family members who assumed the role of caregiver for older people. The average age of older people was 80.0 years with a standard deviation of 7.8 years, and the majority (62.5%) were 80 years or older.

All older individuals presented with multimorbidity, defined as the concomitant presence of two or more chronic diseases, thereby increasing clinical complexity and the risk of adverse outcomes. In addition, 93.7% used five or more medications, which constitutes a case of polypharmacy, a condition frequently associated with drug interactions, adverse events, and greater clinical vulnerability.

Most individuals had some geriatric syndrome, 87.5% were considered frail based on the FRAIL scale criteria (an instrument developed by the

International Association of Nutrition and Aging that allows for rapid identification of frailty)¹¹.

Regarding cognitive status, 68.8% of older people evaluated had a diagnosis of dementia, according to the criteria for major neurocognitive disorder established by the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association¹². In addition, 81.3% presented postural instability, characterized by recurrent falls and slow gait, a condition associated with frailty and a high risk of functional decline among older people¹³. Regarding

functionality, 87.5% demonstrated dependence in basic and instrumental activities of daily living, assessed using the Katz and Lawton scales, respectively, as recommended by population studies on aging in Brazil¹⁴.

The descriptive data collectively characterize a more complex clinical profile, with multiple care needs and significant functional limitations, reinforcing the importance of adapted care strategies, such as telemedicine. Table 1 presents these data, along with the participants' sociodemographic and clinical characteristics.

Table 1. Sociodemographic and clinical characteristics of older individuals attended via telemedicine (n=16)

Variable	Category	n	%
Sex	Female	10	62.5%
	Male	6	37.5%
Municipality of residence	Vitória/ES	2	12.5%
	Cariacica/ES	4	25.0%
	Guarapari/ES	1	6.3%
	Serra/ES	3	18.8%
	Venda Nova do Imigrante/ES	1	6.3%
	Viana/ES	2	12.5%
	Vila Velha/ES	2	12.5%
	Itaguaçu/ES	1	6.3%
Education level	Illiterate	4	25.0%
	Elementary school	10	62.5%
	High school	1	6.3%
	Higher education	1	6.3%
Formal caregiver	Yes	5	31.3%
	No	11	68.8%
Multimorbidity	Yes	16	100.0%
	No	0	0.0%
Polypharmacy	Yes	15	93.8%
	No	1	6.3%
Visual impairment	Yes	6	37.5%
	No	10	62.5%
Mobility difficulties	Yes	11	68.8%
	No	5	31.3%
Cognitive deficit	Yes	11	68.8%
	No	6	37.5%
Urinary incontinence	Yes	10	62.5%
	No	6	37.5%

continues...

Table 1. Continuation

Variable	Category	n	%
Functional dependence	Yes	14	87.5%
	No	2	12.5%
Postural instability	Yes	13	81.3%
	No	3	18.8%
Frailty	Yes	14	87.5%
	No	2	12.5%

From the thematic analysis of the interviews and their five dimensions, themes emerged along two central axes related to the viability of telemedicine from the caregivers' perspective: effectiveness, safety, and accessibility; and telemedicine as a complementary form of care for older people.

Effectiveness, safety, and accessibility

Characteristics inherent to the aging process, such as decreased mobility and physical readiness to seek health services, along with socioeconomic factors and limited health literacy, are widely recognized as barriers to accessing health services for older people. This reality was also perceived by the interviewed caregivers, who pointed to teleconsultation as an alternative that facilitates access to a physician.

This perception takes on special relevance given the fragility and difficulty of mobility that characterize part of the older population, as illustrated by the following accounts:

"Look, I thought it was really cool because it avoids my mother having to travel, as she is the one with compromised health, dealing with traffic, and saving time. Since she is an older person suffering from some illnesses, and the hospital environment, you know, is not a pleasant place. It's an extremely contaminated place. A very practical too." (Caregiver 13)

"I liked it because my father has difficulty walking; he has to be taken in a wheelchair. It's very tiring for him. He is 90 years old. So I thought it was cool because usually we go there more for the

medication, right? And, well, his health is good." (Caregiver 4)

The difficulties in accessing healthcare experienced by older people with mobility restrictions, frailty, and multiple comorbidities are well recognized¹⁴. However, other barriers are also highlighted, including the absence of caregivers, lack of financial resources, low levels of education, and perceived low service effectiveness. While medical consultation promotes health and prevents illness, excessive use may indicate low effectiveness of the care provided¹⁵.

These limitations primarily affect users of the Unified Health System (SUS). Although health plan coverage among older people has grown in recent years, reaching 7.6 million beneficiaries aged 60 or older in 2024, representing approximately 14.8% of all supplementary health users in the country, this access remains concentrated in urban areas, especially in the Southeast and South regions, and among individuals with higher socioeconomic status^{16,17}.

Regarding platform usability, low levels of education were identified as a limiting factor. The average years of schooling for the Brazilian older population is 4.1 years, and 25.7% are illiterate¹⁸. Regarding digital inclusion, the OECD points out that only 62.8% of people aged 55 to 74 access the internet, compared with 96.5% of young people aged 16 to 24¹⁹. Thus, low levels of education and digital illiteracy can pose significant challenges to the implementation of telemedicine.

In the present study, all caregivers interviewed reported that they had easy access

to the teleconsultation platform; However, they highlighted that consultations could not be carried out without their presence, since older people demonstrate little familiarity with technology, as we can observe in the statement of caregiver ²⁰:

"My grandmother can't access it alone. But I didn't have any problem accessing it! It was easy. I feel safe. Before, my grandmother had to go to the physician's office. Then my grandmother had to go to Vitória, stay for a period to be able to have the consultations, and then return. But online like this, we really like the interaction, you know? The physicians are very good. Attentive. They attended to us, smiling and talking. It's still the same thing, the same service they used to give, the same attention." (Caregiver 10)

Digital exclusion, manifested in difficulties with access, handling, and technological skills, represents one of the greatest challenges to the consolidation of telemedicine. These obstacles can exacerbate social inequalities in health, especially among poorer populations and those living in rural areas ²⁰.

While telemedicine was already expanding due to advances in mobile technologies, the COVID-19 pandemic accelerated its adoption, particularly amid social isolation and the need to protect the most vulnerable populations ²¹. This may have increased contact between family members and caregivers with digital platforms, promoting greater familiarity with the resource. Also, according to Caregiver 10, physical travel imposed not only logistical effort but also costs.

In this context, authors such as Scheidt and collaborators ²² highlight that telemedicine can facilitate care by allowing contact with the physician at lower costs, even reaching older people with total dependence, such as bedridden individuals.

Regarding safety, almost all respondents considered teleconsultation safe. Only two respondents (Caregiver 3 and Caregiver 13) said they did not feel safe about passing on the older person's information to the professional via the platform:

"The first time I accessed it, I felt safe. Now, this time, due to the many scams out there, and because I almost fell for the scams they run, I didn't feel safe." (Caregiver 3)

"The internet environment will never be safe. So, in other words, we trust it, but because we don't have much of a choice. The internet environment is not safe." (Caregiver 13)

The full implementation of telemedicine in Brazil faces structural and regulatory challenges, including the absence of national guidelines, a lack of technological training, a scarcity of trained human resources personnel, and difficulties accessing the internet in some regions ²³. The existence of clear regulations is essential to guarantee the security and confidentiality of information.

Resolution 2,314/2022 of the Federal Council of Medicine (CFM) ²⁴ regulated the practice of telemedicine in the country. Among other guidelines, it ensures that patient data is preserved in accordance with legal standards and the principles of medical confidentiality, as established in Articles 73 and 85 of the Medical Code of Ethics. Some caregivers understood this perception:

"I believe so, right? We pass on information about what she's been feeling, and the physician always puts it in the medical record correctly, so when the next appointment comes, she can tell us everything we discussed in the previous appointment." (Caregiver 10)

"I understand so. It's safe. At least the form you send in the teleconsultation regarding confidentiality. I believe so. I'm not sure, but I believe so." (Caregiver 14)

Despite public and private initiatives, there is still a vast amount of ground to cover for the effective implementation of telemedicine due to legal, cultural, and educational obstacles, which, however, have proven to be a means of democratizing access to basic and quality healthcare ²⁵.

Regarding the effectiveness of teleconsultation, caregivers showed that they and older people were satisfied with the care provided and that

the demands were met, as can be seen in the following statement:

"During the pandemic, teleconsultation was always done, and it was always beneficial. Our expectation at the beginning was that it wouldn't be as good as an on-site consultation. But, in general, it was very good. It left nothing to be desired. And the relationship with the professionals was always very good." (Caregiver 9)

Experimentation with shifting from in-person to virtual contact during the pandemic may have highlighted the need to change the traditional view of medical practice and expectations about health services, for both users and professionals²¹. However, its usefulness is greater in specific contexts, such as assisting older people who have shown interest in continuing, as reported below:

"Yes, satisfactory because when the teleconsultation started, his condition was already improving. During the teleconsultation, we only adjusted a few things, such as medication doses and types. Both telemedicine and, if needed, in-person. There are no restrictions. We are interested in continuing." (Caregiver 2)

Telemedicine as a complementary form of care for older people

During the COVID-19 pandemic, access to the healthcare system for the Brazilian population was visibly affected. Immediate changes in service routines occurred at all levels of care, especially due to the restrictive circulation measures adopted to contain the contagion. It was in this context that the use of telemedicine expanded in the country, which, even without organization, became an opportunity to understand its use in clinical practice²⁶.

This study found that caregivers recognize the importance of telemedicine and consider it a valid complement to face-to-face consultations. They even reported that they would maintain the remote care modality if necessary. This is evident in statements like this:

"So, I have nothing negative to say about the online consultation because they were there, they answered questions, explained everything, and it was all

right. It was all very good. I just prefer face-to-face precisely because of a physical examination of him, you know, of my father. But, as it was necessary at the time, it left nothing to be desired because we had all the information we needed." (Caregiver 3)

Adoption of digital technologies in care for older people, especially in health care, depends on multiple factors beyond mere technological availability. Elements such as the trust built between the professional and the patient, the bond established throughout clinical follow-up, and the quality of communication are crucial to the acceptance and effectiveness of telemedicine²⁷.

In this sense, many caregivers perceive face-to-face consultation as irreplaceable for maintaining the therapeutic relationship and sensitive listening, attributes that they recognize as more tangible in the physical encounter. The caregiver's appreciation of direct contact and presence does not negate the perceived benefits of telemedicine. However, it reveals that it is understood as a complementary modality, more suitable in certain circumstances. This understanding is evidenced in the following account:

"In-person is always better because you are face-to-face. But all consultations were carried out. We didn't have any difficulties. We have to see if her daughter will want to continue; she probably will, because sometimes she has a lot of difficulty getting around, even more so when she's unwell. So she probably will." (Caregiver 8)

Regarding patients with special care needs, such as those requiring palliative care, the literature emphasizes the importance of a patient-centered approach. Many of these individuals express a desire to live meaningfully, as normally as possible, and to remain at home for as long as possible. The adoption of telemedicine in home care can make this desire feasible by enabling professionals to monitor patients remotely, reducing the need for travel for both professionals and users. This implies lower costs and greater efficiency in the use of care time^{28,29}.

Furthermore, the data from this study indicate that caregivers agree that telemedicine should be complementary to, not a substitute for, in-person consultations. This hybrid approach, integrating

remote care with traditional care, is particularly appropriate for people with chronic and complex conditions. This understanding is reinforced by CFM Resolution 2,314/2022²⁴, which mandates in-person consultations with the patient's attending physician at intervals of no more than 180 days for chronic diseases or those requiring long-term care. The same resolution also stipulates that the CFM may issue specific regulations to govern the practice of telemedicine in contexts, procedures, and specialties that require their own regulation.

Final considerations

Telemedicine has proven to be a valuable complementary form of care for older people, especially in contexts where mobility and access

to healthcare services are limited. Through virtual consultations, healthcare professionals can provide ongoing follow-up, chronic condition monitoring, and medical guidance without requiring patients to travel to healthcare facilities.

In the perception of caregivers of older people with special care needs, this modality not only expands access to medical services but also helps reduce risks associated with travel and exposure in communal settings, factors that are particularly relevant for a more vulnerable population.

Furthermore, telemedicine was understood as a complementary, not a substitute, alternative to in-person consultations, reinforcing the importance of hybrid care models and emerging as a promising ally in promoting health, preventing illness, and improving the quality of life of the older population.

References

1. World Health Organization. WHO guideline: recommendations on digital interventions for health system strengthening [Internet]. Geneva: WHO; 2019. Disponível: <https://bit.ly/4davyxX>
2. Bujnowska-Fedak M, Grata-Borkowska U. Use of telemedicine-based care for the aging and elderly: promises and pitfalls. *Smart Homecare Technol Telehealth* [Internet]. 2015 [acesso 20 jan 2025];3:91-105. DOI: 10.2147/SHTT.S59498
3. Orozco-Beltrán D, Cinza-Sanjurjo S, Escribano-Serrano J, López-Simarro F, Fernández G, Gómez-García A *et al.* Experience of patients with diabetes and other cardiovascular risk factors with health professionals and healthcare in Spain. *J Clin Med* [Internet]. 2021 [acesso 20 jan 2025];10(13):2831. DOI: 10.3390/jcm10132831
4. Cunha AS, Pedro AR, Cordeiro JV. Facilitators of and barriers to accessing hospital medical specialty telemedicine consultations during the covid-19 pandemic: systematic review. *J Med Internet Res* [Internet]. 2023 [acesso 20 jan 2025];25:e44188. DOI: 10.2196/44188
5. Maldonado JMSV, Marques AB, Cruz A. Telemedicina: desafios à sua difusão no Brasil. *Cad Saúde Pública* [Internet]. 2016 [acesso 20 jan 2025];32(14). DOI: 10.1590/0102-311X00155615
6. Chuen VL, Dholakia S, Kalra S, Watt J, Wong C, Ho MWJ. Geriatric care physicians' perspectives on providing virtual care: a reflexive thematic synthesis of their online survey responses from Ontario, Canada. *Age Ageing* [Internet]. 2024 [acesso 20 jan 2025];53(1). DOI: 10.1093/ageing/afad231
7. Butler LC. The impact of telemedicine on teamwork and communication, workload, and clinical performance: a randomized controlled trial [tese] [Internet]. New Haven: Yale University; 2017 [acesso 20 jan 2025]. Disponível: <https://bit.ly/4tKfsSy>
8. Cruz PKR, Vieira MA, Carneiro JA, Fhon JRS, Costa FM, Caldeira AP. Dificuldades do acesso aos serviços de saúde entre idosos não institucionalizados: prevalência e fatores associados. *Rev Bras Geriatr Gerontol* [Internet]. 2020 [acesso 20 jan 2025];23(6). DOI: 10.1590/1981-22562020023.190113
9. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ* [Internet]. 2008 [acesso 20 jan 2025];337. DOI: 10.1136/bmj.a1655

10. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* [Internet]. 2006 [acesso 20 jan 2025];3(2):77-101. DOI: 10.1191/1478088706qp063oa
11. Morley JE, Malmstrom TK, Miller DK. A simple frailty questionnaire (FRAIL) predicts outcomes in middle aged African Americans. *J Nutr Health Aging* [Internet]. 2012 [acesso 20 jan 2025];16(7):601-8. DOI: 10.1007/s12603-012-0084-2
12. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5ª ed. Arlington: American Psychiatric Publishing; 2013.
13. Lenardt MH, Leta PRG, Cechinel C, Rodrigues JAM, Betiolli SE, Binotto MA. Effects of isolation and social distancing on the fragility of older people and the physical activities they perform. *Aquichan* [Internet]. 2024 [acesso 20 jan 2025];24(1). DOI: 10.5294/aqui.2024.24.1.7
14. Duarte YAO, Nunes DP, Andrade CL, Lebrão ML. Fatores associados à incapacidade funcional de idosos residentes em áreas urbanas no Brasil: estudo SABE. *Cad Saúde Pública* [Internet]. 2020 [acesso 20 jan 2025];36(4). DOI: 10.590/1809-2950/13223421042014
15. Silva AMM, Mambrini JVDM, Peixoto SV, Malta DC, Lima-Costa MF. Use of health services by Brazilian older adults with and without functional limitation. *Rev Saúde Pública* [Internet]. 2017 [acesso 20 jan 2025];51(supl 1). DOI: 10.1590/S1518-8787.2017051000243
16. Agência Nacional de Saúde Suplementar. Boletim panorama: saúde suplementar. v. 5. n. 6, 2º trimestre de 2024 [Internet]. Rio de Janeiro: ANS; 2024 [acesso 21 maio 2025]. Disponível: <https://bit.ly/4te1NC4>
17. Souza Júnior PRB, Medina LDB, Stopa SR, Macário EM, Oliveira MM, Sardinha LMV. Cobertura de plano de saúde no Brasil: análise dos dados da Pesquisa Nacional de Saúde 2013 e 2019. *Ciênc Saúde Colet* [Internet]. 2021 [acesso 20 jan 2025];26(supl 1):2529-41. DOI: 10.1590/1413-81232021266.1.43532020
18. Bello L, Britto V. PNAD Contínua: brasileiros têm média de 9,9 anos de estudo em 2023. Agência de Notícias IBGE [Internet]. 22 mar 2024 [acesso 21 maio 2025]. Disponível: <https://bit.ly/3P2A612>
19. Organisation for Economic Cooperation and Development. OECD Digital Economy Outlook 2017. Paris: OECD; 2017 [acesso 23 jan 2025]. Disponível: <https://bit.ly/3OIa3ML>
20. Dos Santos Neto JM, Lima JBA, Souza RC, Santos CV. Telemedicina na assistência à saúde do idoso e perspectivas para a coordenação do cuidado digital no Brasil. *Rev Iberoam Humanid Ciênc Educ* [Internet]. 2024 [acesso 20 jan 2025];10(1):1074-84. DOI: 10.51891/rease.v10i1.12969
21. Lima IS, Almeida CV, Lima MDM, Lima DDP, Costa TBL, Diniz RVB. Avanço da telemedicina no Brasil no período de pandemia da COVID-19: uma revisão sistemática da literatura. *Braz J Health Rev* [Internet]. 2022 [acesso 20 jan 2025];5(3):10505-25. DOI: 10.34119/bjhrv5n3-214
22. Scheidt KI, Siqueira ALF, Ferreira FVC, Pereira LN, D'Ávila V, Corte AF et al. Missões de teledermatologia em Palmares do Sul. *Braz J Health Rev* [Internet]. 2020 [acesso 20 jan 2025];3(5):12989-98. DOI: 10.34119/bjhrv3n5-130
23. Catapan SC, Calvo MCM. Contexto macro-institucional brasileiro para implantação da teleconsulta médica. *Braz J Health Rev* [Internet]. 2022 [acesso 20 jan 2025];5(1):27-46. DOI: 10.34119/bjhrv5n1-003
24. Conselho Federal de Medicina. Resolução nº 2.314, de 20 de abril de 2022. Define e regulamenta a prática da telemedicina no Brasil. *Diário Oficial da União* [Internet]. Brasília, p. 227, 5 maio 2022 [acesso 20 jan 2025]. Seção 1. Disponível: <https://bit.ly/4uqcZwt>
25. Corrêa JCB, Zaganelli MV, Gonçalves BDS. Telemedicina no Brasil: desafios ético-jurídicos em tempos de pandemia da covid-19. *Humanid Tecnol* [Internet]. 2020 [acesso 20 jan 2025];25(1):200-18. Disponível: <https://bit.ly/4n8IxBp>
26. Freire MP, Silva LG, Meira ALP, Louvison MCP. Telemedicine in healthcare access during the covid-19 pandemic: a scoping review. *Rev Saúde Pública* [Internet]. 2023 [acesso 20 jan 2025];57:1-10. DOI: 10.11606/s1518-8787.2023057004748
27. Gonçalves RF, Giovanini AF, Nascimento GB, Isolan GR, Sigwalt MF, Malafaia MT, Polanski JF. A telemedicina pode ser tão confiável quanto a medicina convencional quando usada no sistema único de saúde – SUS? *BioSCIENCE* [Internet]. 2024 [acesso 20 jan 2025];82:e00003. DOI: 10.55684/2024.82.e00003

28. Steindal SA, Nes AA, Godskesen TE, Dihle A, Lind S, Winger A, Klarare A. Patients' experiences of telehealth in palliative home care: scoping review. *J Med Internet Res* [Internet]. 2020 [acesso 20 jan 2025];22(5). DOI: 10.2196/16218
29. Steindal SA, Nes AAG, Godskesen TE, Holmen H, Winger A, Österlind J *et al.* Advantages and challenges of using telehealth for home-based palliative care: systematic mixed studies review. *J Med Internet Res* [Internet]. 2023 [acesso 20 jan 2025];2023. DOI: 10.2196/43684

Roni Chaim Mukamal – Master – ronimukamal@yahoo.com.br

 0000-0002-5860-0741

Viviane Gontijo Augusto – PhD – vivianeaugusto2013@gmail.com

 0000-0001-8906-0875

Laiane Moraes Dias – PhD – laianemdias@gmail.com

 0000-0002-6714-1970

Thiago Dias Sarti – PhD – tdsarti@gmail.com

 0000-0002-1545-6276

Elisa Reisen Vasconcelos – Graduate (specialist) – elisa_reisen@hotmail.com

 0009-0002-1481-7479

Guilhermina Rego – PhD – guilherminarego@med.up.pt

 0000-0002-8590-9832

Correspondence

Roni Chaim Mukamal – Av. Marechal Campos, 1468, Maruípe, CEP 29040-090. Vitória/ES, Brasil.

Contribution of the authors

Roni Chaim Mukamal: conceptualization; methodology; data curation; formal analysis; writing – original draft; writing – revision and editing; project administration. Thiago Dias Sarti: conceptualization; methodology; writing – revision and editing. Elisa Reisen Vasconcelos: research; writing – revision and editing. Laiane Moraes Dias: formal analysis; writing – revision and editing. Viviane Gontijo Augusto: formal analysis; writing – original draft; writing – revision and editing. Guilhermina Rego: supervision; writing – revision and editing.

Data availability: All data used or generated in this study are described and presented in full in the body of the article.

Editor in charge: Dilza Teresinha Ambrós Ribeiro

Received: 5.29.2025

Revised: 7.10.2025

Approved: 1.19.2026

Appendix 1

Caregiver Assessment Questionnaire

Interview Script

General Questions

1. Tell me more about the continuity of medical care for you or your family member during the COVID-19 pandemic.
2. What was your experience with telemedicine like?
3. Had you or your family member had any experience with telehealth before COVID-19?

Relationship with the Professional

4. What was your perception of the professional who attended to you in the teleconsultation?
5. And your interaction with them, compared to an in-person consultation?

Effectiveness

6. Do you believe that the telemedicine modality was satisfactory in continuing your or your family member's health care??
7. Was it possible to assess your complaints and needs within this new reality?

Usability

8. Was it necessary to make adaptations to your environment/home to conduct the virtual consultation?
9. Did someone help you access the platform and start the telehealth session??
10. Was it possible to conduct the telehealth session, or did you encounter any difficulties?

Secrecy and Confidentiality

11. Did you feel safe sharing your information and/or that of your family member with the professional?
12. Did you feel that the information would be stored properly and securely?
13. Did you perceive any risk to your safety with the telemedicine method?

Attitude

14. Would you continue to have consultations via telehealth?
15. Were you motivated to follow medical advice and maintain your or your family member's health care through teleconsultation?