Telemedicine for Older Adults During COVID-19: A Literature Review

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ABSTRACT

When intended for the older adult population, telehealth has the potential to be beneficial, especially during a crisis like the COVID-19 pandemic, when older people were the most vulnerable group. This paper provides an overview of the growing use of telehealth among people of 65 years and older during the COVID-19 pandemic by reviewing relevant studies published from the beginning of the pandemic (December 2019) until the time of starting the data extraction process. This review found that telemedicine use in general has been beneficial for healthcare providers, caregivers and patients as it is in the management of the epidemic.

Most telemedicine interventions or services were available for the management and control of chronic diseases. Telemedicine has provided the possibility of immediate assessment and counseling of patients infected with COVID-19, multimedia treatment remotely, patient education and training, facilitating real-time data exchange, leading the collection, processing, and storage of medical information for patients, advising on strategic planning and drug use for patients with COVID-19, dealing with the worries of patients. Digital assessment tools helped in implementing social distancing, reduced reliance on public transportation and minimized the virus infection risk that may happen because of in-person contacts. Its use in the management of mental health crises associated and non-associated with COVID-19 is promising.

The paper also reviews the possible limitations that can hinder better use of telemedicine by older adults, such as the limited ability to perform a physical examination, concern about the quality, not getting personally connected to the medical provider, hearing or visual problems and privacy concerns.

KEYWORDS

COVID-19, coronavirus, telemedicine, telehealth, elderly, older adults, geriatric care

1. Introduction

The relationship of the older population with technology, and the intellectual, physical, and psychological difficulties that hinder their adoption of it has always been a topic of research. On the other hand, the ongoing digital transformation of many health, social and financial services that requires the concerned authorities to work more on facilitating the adoption of technology by this age group. Health-related technologies are important tools for the older population since they are the most health-vulnerable age group, and any means to improve their access to health should not be overlooked. It has become clear that older people are among the groups most at immediate risk of acute illness and death caused by COVID-19. According to one study, adults over the age of 65 had a 100-fold higher death risk than younger people,[1] furthermore accounting for 80 percent of deaths in the United States.[2] In addition to that, the indirect effects of COVID-19 and how the world responded to it also pose serious challenges to older people and affect their well-being, dignity, and their rights. The spread of the COVID-19 virus led to a decrease in the accessibility of older adults to the health system when hospitals and clinics have begun to postpone elective appointments and operations.[3] The COVID-19 crisis was a wake-up call, reminding us of the need to pay urgent attention to promote technology literacy among the older population, supporting care and health providers to use technological innovations as a support tool to provide healthcare services.

Hence the need and the importance of using telemedicine technology as a useful complementary option has increased to reconnect the disconnecting points between older adults and the health system, which occurred as a result of the social distancing regulations and pressures on the health system imposed by the virus.

2. Methods

This literature review has been conducted by giving clear research goals and research methods, where relevant research articles were identified and possible ones were accepted, the data were extracted and the results were summarized, discussed, and analyzed.

The research process in this study focused on the changes in health accessibility during the COVID-19 pandemic that necessitated the adoption of telemedicine use by older adults. The selection was made based on the WHO definition of telemedicine as: "Providing health care services, where the distance is a crucial factor, by health care professionals using communications and information technologies where the health information for diagnosis, treatment, and prevention of disease, research, and evaluation, and continuing education for health care providers, all of them are related to the benefit of individual health and communities".[4] Additionally, it discusses the gaps that limited the adoption of this technology. A comprehensive search was performed in the following electronic databases: Google Scholar, academia.edu, PubMed and the homepage of the World Health Organization to identify relevant and published papers whether they are original studies or reviews.

The titles and abstracts were screened during the search. Studies were included if they properly delineated any type of telemedicine services or applications focused toward the older population (age 65 and up) during the COVID-19 period from December 2019 until the date of the data extraction (April 2022). The articles included were those that studied the service in general and not those presented in specific medical specialties.

In this review, all included studies reflected any type of telemedicine services used in all components and at all levels of healthcare (primary, secondary, or tertiary), focused on providing consultation services, diagnosis, triage of patients, or symptom assessment, whether it is related to COVID-19 symptoms or not, provided that use has been tried and studied on the older population during this time period.

No restrictions on publication status were made, any study written in English regardless of the country

was included and a wide range of search terms was used alternately during the search process to obtain the largest possible results.

Only open access publications with full-text studies were included. From 113 results, 24 papers were relevant, valuable and included. 80 % of research results were excluded because they were available as closed access studies, letters to the editor, opinion articles, duplicate publications, were not written in English, and studies with incomplete information or not relevant.

3. Results

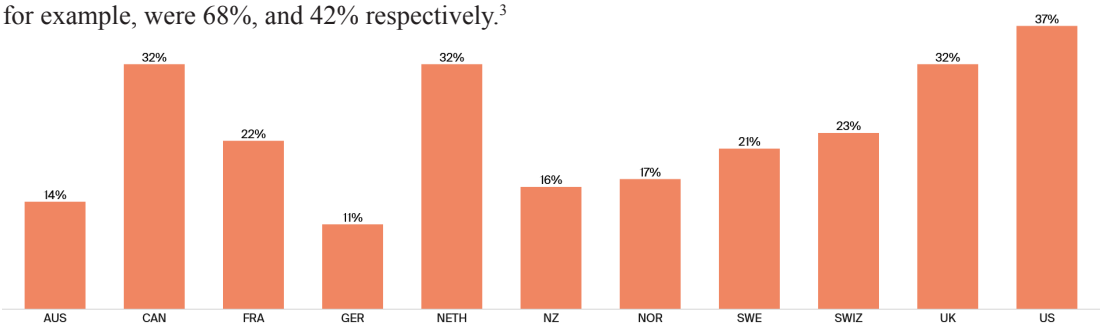
Necessitated Adoption of Telemedicine by Older Adults During COVID-19

Older adults are vulnerable to COVID-19 due to multiple factors, including social, biological, demographic, healthcare access, and behavioral factors. COVID-19 impacts on older people extend beyond high morbidity and mortality rates resulting from direct infection. Regulations designed to limit the virus's spread have also indirectly impacted this population, leading to deteriorating health.[5]

Indirect impacts of COVID-19 on older adults include social distancing instructions that have made accessing healthcare services difficult, resulting in psychological effects such as loneliness, depression, lack of assistance, physical activity, and outdoor activities, ageism, discrimination, and stigma. The digital divide has also increased inequality and isolation for those without access to technology.[5]

Although several studies show that people with limited healthcare access have greater death rates than those with regular follow-up visits. COVID-19 laws and instructions have further affected access to healthcare services. Movement and transportation restrictions, restrictions on health centers and clinics, and social distancing regulations have limited monitoring and follow-up care, reducing social life by limiting meetings with acquaintances and social activities.[5,6]

Adults over the age of 65 account for 15.6 % of the US population but 27 % of yearly medical office visits, with 45 % of these visits to a physician of primary care (PCP).[5] In a study conducted to investigate the health accessibility of older adults during the COVID-19 pandemic in different countries, one of the measurements that has been studied was the percentage of older adults aged 65+ with 2 or more chronic diseases who reported that their appointment with a doctor or other health care provider was canceled or postponed because of issues related to the pandemic and the percentages were 37 in the US, 32 in Canada and the Netherlands.[3] Correspondingly, it was reported in this study that the percentage of older adults who have two or more chronic conditions and the older adults who have three or more, in the US, for example, were 68%, and 42% respectively.[3]



Source: Reginald D. Williams II et al., The Impact of COVID-19 on Older Adults: Findings from the 2021 International Health Policy Survey of Older Adults (Commonwealth Fund, Sept. 2021). https://doi.org/10.26099/mqsp-1695

Figure 1: Percentage of people aged 65+ with two or more chronic conditions who reported they had an appointment with a health care practitioner postponed or cancelled because of the COVID-19 pandemic.

The Aged Group Most at Risk of Infection and Death because of COVID-19

Older adults are the most vulnerable group to COVID-19, accounting for 80% of all COVID-19-related deaths, in other terms individuals over 65 and those with pre-existing medical illnesses, such as hypertension, diabetes, or heart disease are at greater risk of developing severe COVID-19 symptoms. Approximately 66% of adults aged 70 and older have at least one underlying disease, making them more susceptible to severe COVID-19 effects.[6]

3. Impacts of COVID-19 on the Mental Health of the Older Population

Social distance and loneliness

The COVID-19 pandemic has significantly impacted the mental health of older adults, particularly due to the implementation of social distancing and quarantine measures. These measures were initially implemented to protect older adults from physical harm, but little attention was given to their psychological well-being,[6] for instance, quarantine has been found to be associated with several emotional disorders, such as depression, stress, sleep disturbances, low mood, irritability, and long-term post-traumatic stress.[7]

Studies conducted during the COVID-19 pandemic have shown a rise in levels of depression, anxiety, and loneliness among older adults. One of them was a study conducted in China, which showed that 53.8% of respondents rated the epidemic's psychological impact as moderate or severe, with 16.5% experiencing moderate to severe depression symptoms, 28.8% expressing moderate to severe anxiety symptoms, and 8.1% reporting moderate to severe stress.[7] Social distancing, loneliness, and a lack of social activities due to regulations imposed after the outbreak have increased feelings of loneliness among older people.[6] The National Academies of Sciences, Engineering, and Medicine (NASEM) conducted a survey that found that over 30% of people aged 45 and older experience loneliness, with nearly 25% of people aged 65 and older being socially isolated.[8]

Anxiety, panic attacks, and depression

Anxiety, panic attacks, and depression are other psychological effects of the COVID-19 pandemic on older adults. Older adults' fear of getting infected with the virus, experiencing symptoms, or dying has led to anxiety, panic disorders, and depression among them. Moreover, worrying about family members can predict mental distress. The conflicting information that was circulating and the negative information that was often reported in the media contributed to feelings of anxiety and fear.[9] Discrimination and ageism by people who consider older adults as a risk or weakness factor during the pandemic have also contributed to their distress.[6] The financial pressures resulting from the economic situation and the inability to access healthcare were also stressors associated with the pandemic.[10]

In conclusion, the COVID-19 pandemic has significantly impacted the mental health of older adults. Social distancing, loneliness, and a lack of social activities have led to feelings of depression, anxiety, and loneliness. Moreover, anxiety, panic attacks, and depression have also increased among older people during the pandemic. It is crucial to address these psychological effects and take measures to support the mental well-being of the elderly population.

Telemedicine Uptake During COVID-19

As a result of COVID-19, healthcare organizations have been urged to reduce in-person office visits for older adults, as appointments in hospitals and clinics may raise the risk of infection and exposure. Telemedicine has evolved as a critical care-delivery method in an effort to follow these principles while continuing to offer important care to people in need. Patients were able to communicate with healthcare providers in real-time for guidance on their health concerns, especially when they are in quarantine.[11,12]

From January to March 2020, the use of telehealth increased significantly in the United States. Sixty-one percent of hospitals used telemedicine, which increased to 43% of total consultations during a partial lockdown. According to a national sample of 16.7 million people, 30 % of all outpatient consultations

during the pandemic were conducted using telemedicine, which was a 32-fold increase compared to the pre-pandemic period. Additionally, 53% of depression visits were provided using telehealth. Similarly, in a survey of 2,350 older adults conducted between 2020 and 2021, 24% reported using telemedicine after the pandemic, compared to 5.4% before the pandemic. However, during the pandemic's first peak, the majority of older people did not use video visits. It showed also that 64.2 % of telehealth visits were conducted to consult about COVID-19 infection, and 35.8% of the calls were related to other concerns. [11,13–15]

Policies regarding the use of telemedicine have also changed in response to the pandemic. For example, the US Department of Health and Human Services encouraged virtual visits during COVID-19, and the Centers for Medicare and Medicaid Services expanded telemedicine coverage.[16]

Studies investigated the unreadiness to use telemedicine among the older population and found that older people who are not married, do not have a spouse or partner, men, Hispanic or Black, who lived in a rural location, had lower income, less education, and worse self-reported health were less willing to use telemedicine. Overall, 72 % of those aged 85 or older matched the criteria for unreadiness.[17,18] It was found that age is the most important factor influencing the access to remote care.[19] Another study about older adults revealed that Medicare-receiving clients who have previous experience accessing the Internet and making video or voice calls, clients with co-morbidities, moderate and high-income more likely to access telemedicine services.[20]

However, having a family member who can help with preparation, such as utilizing home medical equipment, communication difficulties, or setting up technology, as well as attendance during virtual visits to give support with any technological hurdles was beneficial.[21]

The COVID-19 pandemic has increased pressure on healthcare centers, leading to a shift towards telehealth as a means of reducing crowding and physical contact to prevent disease transmission.[22] Telehealth can minimize secondary and tertiary infections by reducing movement to and from medical centers and wait times.[14] In a pilot study, telehealth was found to be highly satisfactory for preoperative geriatric assessment, with participants recommending it to others due to its ease of use, suitability, and time-saving benefits.[23]

Numerous governments and medical institutions have adopted telehealth to confront COVID-19, with some institutions in the US using online triaging to minimize emergency room visits. Telehealth has previously proven effective in epidemic emergencies, utilizing live video consultations, virtual patient monitoring, and mobile applications for symptoms assessment. Telemedicine can be used for emergency medicine triage, reducing in-person contacts and the risk of infection transmission, and minimizing departures without treatment and follow-up.[24]

Telehealth is also useful for early symptom diagnosis and triaging to mitigate possible healthcare access delays, as seen in Wuhan, China, during the initial COVID-19 epidemic.[25] Integrating screening and symptom triaging capabilities into current EHR platforms can identify patients with symptoms early, reducing the physical strain on medical systems. Telephone calls and EHRs can be utilized to screen and treat patients without in-person contact, improving decision-making among health providers.[24]

China and Iran have also adopted telehealth strategies to confront the COVID-19 pandemic, with China's National Health Commission issuing online guidelines and free electronic books, while officials developed a virtual consulting network for safe consultations. The Iranian Society of Radiology developed a social media messenger for teleradiology and teleconsultation options for COVID-19 infection assessment.[26]

In conclusion, telemedicine offers immediate patient assessment and counseling, remote multimedia treatment, patient education and training, real-time data exchange, medical information collection,processing, and storage, strategic planning and drug advice, digital assessment tools,

implementation of social distancing, reduced reliance on public transportation, and reduced infection risks due to in-person contact.[27]

4. The Use of Telemedicine in Geriatric Clinics

Benefits from a Healthcare Provider's Perspective

Through reviewing the studies, it was found that most telemedicine interventions or services were available for the management and control of chronic diseases such as psychiatric-mental care, diabetes, cognitive impairment, Parkinson's disease, chronic affective disorder, lymphovenous disease, dementia and arrhythmias.[28–30] Thus, it provides a wide range of advantages for health care providers like the following:

- Timely client care: Providers may have more freedom in arranging appointments using telemedicine. They can use "virtual walk-in visits" to extend care beyond a clinic's typical working hours and four walls. Clinics with more flexibility may be able to better manage client no-shows and withdrawals.[31]

- Ability to evaluate a patient's living environment: Rather than relying on a client's account of their home and living conditions, telemedicine allows physicians to go inside a patient's house with necessary authorization, meet family support systems, evaluate if a visit to the patient's house is required, estimate safety risks related to falls and provide personalized suggestions for home modifications.[22]

- Decrease the burnout among providers: Provider burnout is a widespread problem in the healthcare field, caused by a variety of variables such as fast-paced settings, time pressure, family commitments, and time-consuming documentation. By fostering more reasonable scheduling, greater flexibility, and shorter commute times, telemedicine may reduce provider stress, for example, self-health assessments can be easily done online and after that, the results can be forwarded to clinicians.[21]

- Ability to exchange data for educational and evaluation purposes: Screen sharing allows the therapist to effortlessly present videos, slideshows, and other images to the client during education or the didactic transfer of information to the client concerning therapeutic intervention or diagnosis. This method may also be used for mental health and drug abuse examinations, allowing the doctor to monitor the client's answers in actual time.[32]

- By enhancing flexibility for both physicians and patients, lowering exposure to COVID- 19 and other infectious diseases, and minimizing transportation issues for patients, the adherence rate to treatment can be improved and achieve more timely visits.[21]

- Telehealth can improve the follow-up and show rate:[33] In a study conducted by Gomez, it was found that telemedicine sessions tended to take less time than in-person visits.[34] In contrast, another study conducted by Aliberti on the use of telemedicine from the point of view of doctors, did not get the same result.[21] However, primary care clinicians in both studies noted that telehealth increases the show rates and was efficient, especially for chronic disease follow-up like diabetes, hypertension, and/or depression.[21,22,34]

- Telephone follow-up as well as remote monitoring, in a number of cancer settings (prostate, endometrial, colorectal, and lung cancer), made getting hospital treatment options or data easier.[35]

- In a survey of 163 primary care doctors in the United States who use telemedicine for older adults' medical visits, some PCPs saw that telehealth improved the physician-patient connection, improved the patient experience, and obedience to treatment. Many primary care clinicians believed that telemedicine was useful for some acute situations, managing less complicated chronic conditions, triage, and counseling sessions for mental health disorders, especially when using video.[21]

Geriatric Training for Medical Trainers

During the COVID-19 quarantine, Brazil's Ministry of Education connected medical trainees to long-term care nursing homes through telemedicine to provide medical care, monitor residents, follow up COVID-19 cases, and inform the Municipal Health Secretariat about the most vulnerable ones. This method also allowed trainees to complete their training while maintaining social distancing laws. Students used this opportunity to determine which long-term elderly care facilities needed additional inquiry and monitoring, but faced difficulties communicating with certain facilities, experienced missing or wrong information from personnel, and delays in identifying suspected incidents.[36]

A study conducted in California found that telehealth was effective in delivering the teaching curriculum to students of geriatrics and nursing during the pandemic. The participants did not feel that their access to the curriculum through telehealth reduced the efficiency of their education or their confidence in the ability to manage geriatric syndromes. In fact, it contributed to improving students' knowledge of geriatrics as much as face-to-face delivery.[37]

Benefits from the Patient's Perspective

A systematic review of elderly with dementia using telemedicine during COVID-19 showed that talking with specialists via video calls was appreciated, and having accessibility to telemedicine-based television services resulted in higher use of memory exercise games.[29] In general, the advantages that telemedicine can offer to older adults can be concluded by overcoming or facilitating several barriers that may impede access to health care including:

- Geographic barriers: Telemedicine makes it easier for those who live in distant areas to get the treatment they need and to reach the provider they want, regardless of the distance.[22]

- More experienced doctors and high-quality treatment are available: patients can reach experienced clinicians who are geographically far from their residences via telemedicine. Patients may contact doctors with expertise in their specific diseases and care planning through telemedicine modalities, and they can receive care that is individualized to their sexual orientation, culture, lived experience, race, and gender.[30]

- Team-based and coordinated care: Geographic distances between providers and patients, on the other hand, might impede communication. Telemedicine improves team-based treatment by remotely linking numerous physicians with a client, boosting provider cooperation and the sharing of health information across geographic boundaries. Similarly, telemedicine makes group-based therapy more accessible, which has similar therapeutic outcomes as in-person groups.[12,38] For example, at the University of Rochester, specialized in the care and research of geriatric oncology, a multidisciplinary team provides comprehensive care for older adults with cancer using telemedicine. The team includes a geriatric oncologist, resident trainees, advanced practice providers, fellows, a nurse navigator (NN), physical therapist, dietician, pharmacist, social worker, nurse, occupational therapist, and clinic coordinator. An initial assessment phone call is made before the visit, and then the visit is conducted using telemedicine in the presence of a multidisciplinary team and the patient with the possibility of a family member present. [12]

- Psychological barriers: Clients who are afraid of leaving their homes to get therapy, for example, those with (panic disorder or agoraphobia or some dementia patients) can get care in their safe place. Transferring individuals with dementia out of residential care might be disruptive. Telemedicine provides comprehensive, personalized health care (for conditions such as dementia) to older people in remote locations and others within their own comfort environment.[1]

- Physical barriers: Telemedicine enables people with physical disabilities that prevent them from moving or, when movement is considered dangerous to their lives, to receive medical care without the need to go to the clinic. It reduces the dangers that older people may face when moving and leaving the house, such as falls and/or stressful movements.[22] For instance in winter, when there is

snow and ice, many older adults canceled their medical appointment for fear of falling.[19]

- Access and continuity of care have improved: Telemedicine enables clients to have access to high-quality treatment while reducing travel expenditures, increasing the possibility that they will see their physician on a regular basis and keep planned visits.[33,38]

Benefits from Caregiver's Perspective

Telemedicine relieves the pressure imposed on caregivers in terms of the possibility of remote monitoring, reducing the burden of leaving daily work or work to accompany the patient for medical visits besides reducing stress and enhancing the quality of life.[1] In a study conducted to investigate the satisfaction of patients using telemedicine, one participant was a husband of a 93-year-old patient, who assisted with his wife's video visit, stated that "We even enjoyed it more than sitting right there, it was more convenient to stay at home".[19]

Telemedicine Services in Mental Healthcare

Telehealth can provide high-quality psychiatric treatment for older persons, as demonstrated by a pre-pandemic evaluation of geriatric telepsychiatry.[39] Videoconferencing-based neuropsychology has been proven to be a legitimate and effective replacement for in-person examinations. The cognitive screening instruments adapted for use in telemedicine settings are widely available, such as the Mini-Mental State Examination (MMSE), common mental health questionnaires including the Geriatric Depression Scale (GDS), and the Montreal Cognitive Assessment (MoCA), showing high diagnostic efficacy.[28] While evaluations can be carried out with expertise and equality in the vast majority of cases, the Department of Health and Social Care and the Court of Protection acknowledge the need to ensure confidentiality, even in emergency situations.[40]

Telemedicine has been used for the evaluation of cognitive function, mental state, physical examination components, and capacity assessments for involuntary detention in old age psychiatry.[40] Cognitive behavioral therapy, health literacy education, and mindfulness-based therapy were the most frequently used treatment methods, particularly for those with chronic medical illnesses and caregivers of dementia patients.[41,42] Despite its limitations, a systematic evaluation found that group treatment using video conferences has effective outcomes equivalent to traditional treatment, with high participant satisfaction.[38]

In response to the urgent need for personalized health treatments for older adults during the COVID-19 pandemic, the Telemedicine Care Support Group for Socially Isolated Seniors was developed as an evidence-based group intervention that can be delivered over the phone or via video call.[10] The guide, available on the official website GeroCentral.org, includes a collection of key psychiatric services for seniors planned for group management by telephone or televideo to alleviate arising healthcare di parities. It also includes a regularly updated list of additional mental health resources for older adults related to COVID-19. The handbook draws on three widely used proof treatments for older adults: Problem-Solving Therapy (PST) methods to help with social connectedness, Acceptance and Commitment Therapy (ACT) methods to help with anxiety management, and Cognitive Behavioral Therapy (CBT).[10]

Telemedicine has also helped reduce stigma associated with serious mental illness and substance use disorders, as clients can disclose their conditions from the comfort of their own homes, maintaining privacy and anonymity while receiving care.[7]

5. Limitations and Challenges of Using Telemedicine among the Older Population

A study in Singapore found that telemedicine consultations declined rapidly after having peaked at 43% during the partial lockdown.[14]

Limitations Related to the Service

Limited physical examination: There are several limitations to consider when conducting remote visits. Vital signs monitoring, such as through basic monitoring devices, can be useful in some cases, but may not be sufficient for proper diagnosis, monitoring, or treatment in others.[14] Providers assessing patient understanding: Cognitive testing is another important aspect of geriatric visits, but it can be challenging during remote visits due to the absence of eye contact and nonverbal cues. Remote visits also pose challenges for movement and objective physical function evaluations, which typically require visual examination.[12] In a study conducted to investigate the opinions of clinicians in geriatric clinics who used telemedicine, one of the doctors reported that it was simpler for his patients to deceive, he was drawing while looking at the clock, but his doctor could not see what he was looking at; thankfully, his child was conscious that he was copying a clock.[43]

In the context of the COVID-19 pandemic, many unspecified platforms have been used for remote medical visits, which can lead to inconsistency in service and a limitation of data on optimal telehealth use. Privacy is also a critical issue, as uninvolved people may overhear conversations during telephone or video examinations of older adults living at home, outside the context of a healthcare facility where privacy can be monitored.[40]

Limitations Related to the Healthcare Provider or Health System

Some medical providers have concerns about clinical quality, technical quality, safety, privacy, and responsibility when using telemedicine.40 In addition to the fact that not all medical providers are familiar with outdated telemedicine sessions and platforms.[44] When using telemedicine, the clinician relies on the medical history and record, therefore, digitalizing the medical record and history of patients is necessary. However, this information may not always be available.[40]

Patients' requests for confidentiality, or requests that sensitive information collected by the health-care professional who uses telemedicine not be shared with the patient's primary healthcare practitioner can be particularly difficult in cases where there is no mediator between the remote practitioner and the patient 's primary healthcare practitioner.[40] Policies governing telemedicine services vary between countries and provinces. There are still many aspects of telemedicine that have not been included in the policies of many countries, such as payment and reimbursement mechanisms, accreditation, and insurance, making implementation difficult.[45]

Limitations Related to the Older Population

A survey by the University of Michigan in July 2020 revealed concerns among the older population about the limited ability to perform physical exams (75%), quality (67%), personal connection to the medical provider (45%), hearing/visual problems (25%), and privacy (24%).[46] Recent research found that 38% of Medicare recipients were unprepared for home telemedicine, with concerns reported by older people and their families.[30] Some individuals believe that telemedicine consultations are insufficient without a physical examination and are less satisfying.[21]

Physical disabilities, such as hearing, vision, or cognitive problems, can make telemedicine challenging, and support from a capable caretaker may be required.[40,47] A study found that 52% of older participants reported difficulty discussing sensitive issues using telehealth.[43] Lack of technology experience and concerns about efficacy and satisfaction were found among older individuals in China, with 93% having access to the Internet and digital devices but none having utilized telehealth.[48] Even if they understand

understand how to use the technology, dealing with telemedicine platform video connection difficulties can be challenging for older individuals.[40]

The use of telemedicine for advanced services requires additional expenditures and efforts for equipment maintenance and sterilization.[33] In 2018, approximately 13 million (38%) of older adults in the United States were not prepared for video visits, mainly due to a lack of experience with technology. If social supports could assist in setting up video visits, the number of unprepared older adults would decrease to 10.8 million (32%). However, even telephone visits may not be accessible for everyone, with an estimated 20% of older patients facing issues such as hearing difficulties, communication challenges, or dementia.[17]

Limitation of Reviewed Research

Most telemedicine research is conducted in high-income countries, with the US accounting for the large majority, followed by China. There is a lack of research in low and middle-income countries. Few studies examine telemedicine use in geriatric clinics, Doraiswamy conducted a scoping assessment on the usage of telemedicine during the COVID-19 pandemic and he revealed that only 4.2% of the articles focused on the use of telemedicine in the geriatric clinic.[14] Only a tiny percentage of the publications found in our review were empirical research, thus highlighting the need for more research on safety, usefulness, demand, cost-effectiveness, and scalability. Furthermore, standardizing terms and studying all parties involved is crucial.

Difficulties communicating with the older population or caregivers due to the risk of infection or transmission of COVID-19 should be considered as a limitation of studies evaluating the use of telemedicine during the COVID-19 pandemic. Studies are carried out more frequently in urban areas rather than rural areas, although the service is more important for rural people.

Future research should focus on practitioners' and older adults' opinions and experiences, as well as the evolution of telehealth since the pandemic. Overall, while telehealth can be a valuable option for providing medical care to older adults, it is important to consider its limitations and take steps to address them to ensure the best possible care.

6. Discussion and Recommendations

Governmental and institutional interventions are crucial to promote telemedicine use. Governments can provide financial facilities and subsidies for healthcare providers to use telemedicine, cancel co-payments for virtual visits, cover communication devices as a medical need, and provide subsidies to older people in order to help them obtain digital tools needed for telehealth consultations. Standardizing telehealth legislation and guidelines on norms of practice is also necessary to ensure the quality of telehealth services, gain consent, protect patient confidentiality and data security, validate both the patient's and the healthcare professional's identities, and avoid fragmented patient care.

Technological interventions must take into account the digital divide experienced by older adults, therefore developers must involve older people in the development and pre-testing of telemedicine tools. They must develop easy-to-navigate interfaces, clear basic instructions, large fonts or graphics, and tools that can satisfy the demands of older people with cognitive or physical problems. Practical and rapid backup operations to solve problems arising from equipment failure or connection should be available. Steps to reduce the danger of hacking by ensuring that secure software is used must be taken.

Medical practitioners play a crucial role in encouraging the use of telemedicine among the older population, and they must meet certain licensing requirements. They must also have triaging protocols to determine when telehealth is acceptable for triage only or when it is counterproductive and a face-to-face consultation is necessary. They should suggest and encourage the use of the service by the patients

as a result of the trust built between them.

Educational and practical interventions are essential to promote the use of telemedicine among older people. Public education should be conducted to dispel patients' misunderstandings and expectations about technology. It is critical to emphasize that the use of telehealth does not imply that patients should fall behind in their follow-up. The education process should not be limited to provide theoretical instructions and information about the service but should be accompanied by practical interventions, where older people can experience this technology to overcome their fears.

Defining one party responsible for driving the telemedicine intervention development and connecting all parties together to achieve goals that comply with other parties' goals is also crucial.

7. Conclusion

In conclusion, promoting the use of telemedicine among older people requires a multi-faceted approach involving governmental and institutional interventions, technological interventions, medical practitioner interventions, and educational and practical interventions. By implementing these recommendations, the older population can benefit from telemedicine and improve their healthcare access.

Conflicts of interest statement

The author declares that there is no conflict of interest regarding the publication of this paper.

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