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Telehealth Utilization Among The Older Adults During Covid-19 Pandemic: A Scoping Review

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Abstract

The COVID-19 pandemic has global impact, especially to vulnerable populations such as older adults. This population may be affected with health issues in which telehealth appears to be a potential platform to improve their quality of life. The study aimed to review current literature on the benefits of telehealth among older adults during COVID-19 pandemic. The review emulates the five-phase framework of scoping reviews by Arksey and O'Malley, using three databases: MEDLINE, Scopus, and EBSCOhost. The MeSH term used were (("older adults" OR "elderly" OR "geriatric" OR "aged people") AND ("COVID-19" OR "COVID-19 pandemic)) AND ("telehealth " OR "telemedicine" OR "virtual consultation" OR " teleconsultation" OR "telecare"). A total of 390 articles were screened, of which 21 full-text articles were included. The papers were of systematic or scoping reviews (n=4), cross-sectional studies (n=6), longitudinal cohort studies (n=3), case reports (n=1), randomized control trials (n=1), qualitative studies (n=5) and 1 mixed method study. This review enlightened the role and benefits of telehealth services among the older adults in personal, psychosocial and environmental aspects. The barriers include their physical, cognitive and technical issues which limit telehealth utilization. Thus, recommendations were structured to enhance the efficiency in terms of technologically enabled aspects, patient-related factors, and provider-related factors. A rapid scale-up of telehealth services is significant for the provision of healthcare services among older adults. The accessibility of telehealth must be prioritized for older patients, their caregivers and health care provider to improve the quality of healthcare during the COVID-19 pandemic and beyond.

Keywords: Telehealth, Older adults, COVID-19

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Introduction

The COVID-19 pandemic declared by WHO in March 2020 has shifted into an endemic phase (Biancolella et al., 2022; Cucinotta & Vanelli, 2020). This transition is contributed by vaccinations which provide protection and herd immunity to the community. The older adults was among the vulnerable populations who are likely to experience the biggest consequences (Martins Van Jaarsveld, 2020). WHO defines the older adults population as people aged 60 years and above (WHO, 2022). This population is more prone to get infections as their immune response is weakened. They usually have more comorbidities and hospitalizations which increases their chances of contracting the COVID-19 (Banerjee, 2020b). This COVID-19 not only altered the routines of older people but, exacerbates their physical, psychological, and cognitive health (Colucci et al., 2022). The government policies such as lockdowns and social gathering restrictions which are important to reduce the transmission of COVID-19 to the ageing population, has negatively impacted their psychological status causing distress such as anxiety, depression, and loneliness (Sepúlveda-Loyola et al., 2020). It also increases their lack of access to information and health care services (Lebrasseur et al., n.d.). In particular, older adults people shield away from seeking medical attention out of fear of infection. Thus, remote medical services like telehealth were thereafter acknowledged as a crucial adjustment system to preserve the continuity of healthcare provision.

Telehealth has developed as a significant tool to manage the communicable and non-communicable diseases among older adults prior to the pandemic. The concept is to minimize person-to-person contact and provide a remote assessment and healthcare provision (Smith et al., 2020). Telehealth technologies include video conferencing, store-and-forward imaging, streaming media, and wireless connectivity (Buis, 2020; Infinit-O, 2018). While telemedicine and telecare are subsets of telehealth which involves the use of electronic telecommunications technology or sensors and wearable devices. These interventions are also a form of healthcare services provided to people who are physically less capable for an in-person visit (Infinit-O, 2018). During the pandemic, telehealth has enabled physicians to deliver consulting services that address the home health care needs of older adults patients, as well as effective pre-hospital screening for early COVID-19 symptoms and signs (Buis, 2020; Smith et al., 2020). The proportion of older persons who participated in telehealth visit increased dramatically from 4% in May 2019 to 30% in June 2020 (Buis, 2020). However, adopting telehealth services among the older adults is accompanied by great challenges. The most prominent concerns expressed by the older adults about telehealth services are the lack of quality of services provided compared to in-person care, lack of personal connection to the health care provider and privacy issues (Buis, 2020; Martins Van Jaarsveld, 2020). Most countries are also lacking in regulating, integrating, and compensating for the telehealth regulatory framework during outbreaks (Smith et al., 2020). In the absence of a structured telehealth strategy, it is critical to have telehealth guidelines available to aid the telehealth service coordination and delivery during an emergency occurrence.

Several systematic or scoping review reports only highlighted the telehealth impacts among the general population (Doraiswamy et al., 2020; Garfan et al., 2021; Monaghesh & Hajizadeh, 2020). There is only one scoping review conducted among geriatricians regarding the telehealth services during COVID-19 (Doraiswamy et al., 2021). However, it does not explain the impact and benefits of telehealth services, the barriers and challenges among the older adults during COVID-19. Besides, little is known regarding the potential interventions and recommendations to improve the telehealth services among older adults during the pandemic. Thus, this study aimed to collect and synthesize the relevant evidence which provide

structured key points to comprehend the importance and challenges of telehealth, and to maximize the utilization of this digital platform among this older population effectively. This information will provide appropriate insight for stakeholders, including patients, clinicians, healthcare providers, and funders for the improvement of telehealth services during emergency events such as this pandemic and in the future.

Methods

The scoping review was conducted in accordance with the study protocol and framework outlined by Arksey and O'Malley (Hilary Arksey & Lisa O'Malley (2005). The reporting items using Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) were also referred to summarize the existing literature on telehealth among older adults during COVID-19.

The keywords utilized include (("older adults" OR "older adult" OR "geriatric" OR "aged people") AND ("COVID-19" OR "COVID-19 pandemic" OR "SARS-COV-2" OR "2019-nCov" OR "Coronavirus Disease 2019" OR "Severe Acute Respiratory Syndrome Coronavirus 2")) AND ("teleconsultation" OR "telemedicine" OR "virtual consultation" OR "telehealth" OR "telecare"). These terms were inserted in the three databases: MEDLINE, Scopus, and EBSCOhost which includes studies from January 1st, 2020 to May 31st, 2022. This scoping review aims to capture evidence about telehealth among the older adults during the COVID-19 pandemic. The inclusion criteria were reports published in English, addressing the outcomes such as the roles/benefits, barriers and recommendations for telehealth/ teleconsultation/telemedicine (any equivalent term) used among the older adults during the COVID-19 pandemic and papers that focused on general population older adults aged >60 years old during the COVID-19 pandemic. Papers were excluded if telehealth provided focused on specialized services (e.g., psychiatry), among the older adults of a specific group or clinicians addressing older adults. Only original studies published in full manuscripts were included. Full-text articles were obtained for those that fulfilled the inclusion criteria. Duplicates were excluded. All the articles were read carefully, and relevant information was extracted for analysis. Systematic or scoping reviews, cross-sectional studies, longitudinal cohort studies, case reports, randomized control trials and qualitative research were among the papers included. The selected studies were then analyzed using an adaptive thematic analysis, and relevant ideas were classified into descriptive themes. For each theme, a narrative description of the evidence was written; benefits, barriers and recommendations for telehealth among the older adults during the COVID-19 pandemic.

Results

Based on the keywords in the databases, 390 papers were identified. A total of 84 papers were duplicates; thus, they were removed. Out of 306 selected papers, only 21 papers (6.9%) were included in the final analysis after three separate phases of screening for eligibility: title, abstract, and full text. Figure 1 depicts the flow diagram for the scoping review search strategy for telehealth among the older adults during the COVID-19 pandemic. The literature was grouped thematically after reading the full text and synthesizing significant evidence.

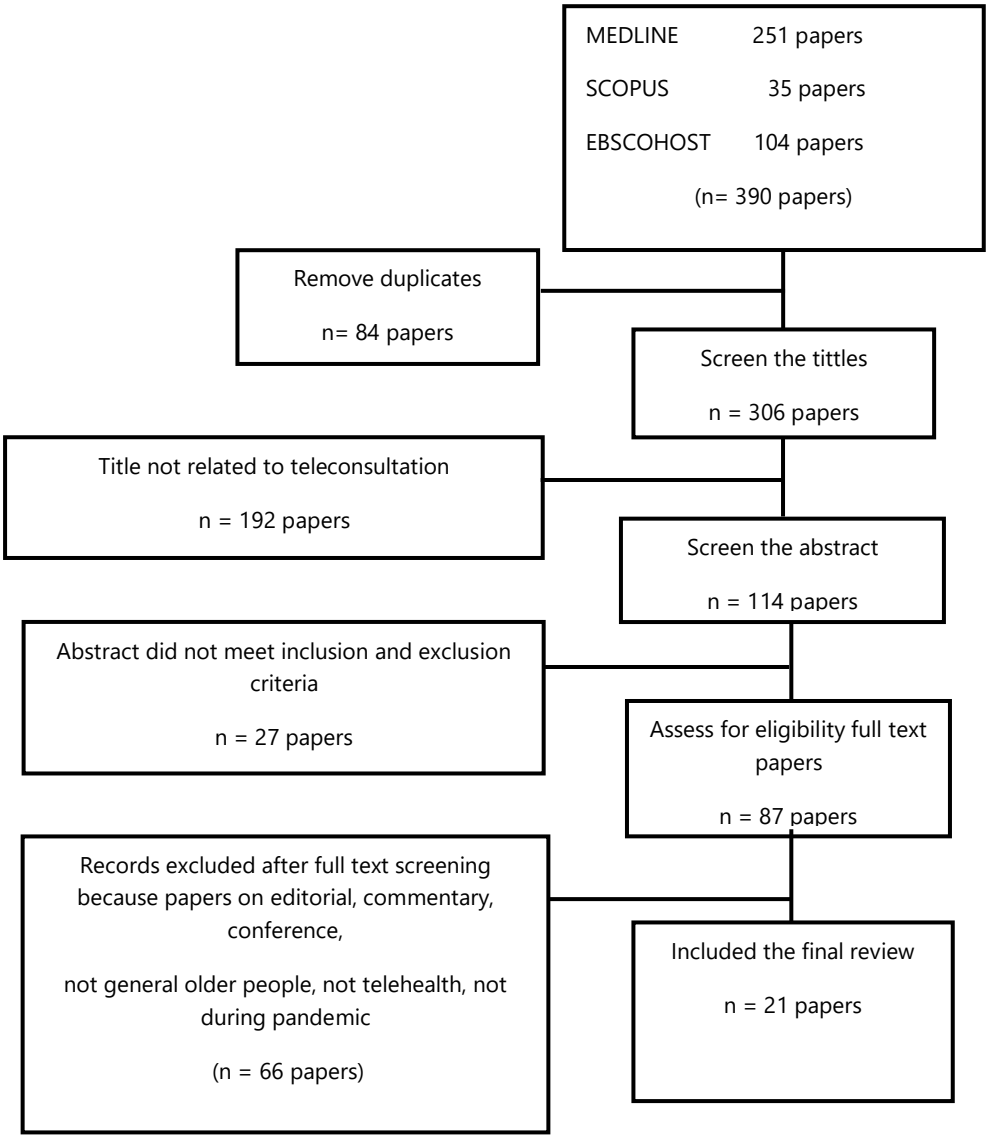

Figure 1: Flow diagram of search strategy for literature selection

Data Extraction and Synthesis

A total of 21 reports were included in this review (Table 1). The reports originate from 8 countries which are the United States (n=9), Canada (n=4), Korea (n=2), Ireland (n=2), the United Kingdom (n=1), Qatar (n=1), Singapore (n=1), and Israel (n=1). The papers include systematic or scoping reviews (n=4), cross-sectional studies (n=6), longitudinal cohort studies (n=3), case reports (n=1), randomized control trials (n=1), qualitative studies (n=5) and 1 mixed method study. Following the data analysis, three themes were identified: benefits, barriers and recommendations for the telehealth among older adults during the COVID-19 pandemic.

Table 1: Full Text Paper included

No	Author, year	Country	Research design	Study population, n	Objective	Result
1.	(Bartlett & Keir, 2019)	UK	Prospective cohort study	Geriatric patients at clinic	To study the effect of virtual consultation and PPE on the carbon footprint of a Geriatric Medicine clinic, in order to inform design of a service that addresses both the health of our patients and our environment.	**Environmental effect:** - Pre pandemic: The carbon footprint of a face-to-face clinic consultation is 4.82 kgCO2e, most of which is patient travel, followed by staff travel and use of PPE. - During pandemic: The footprint of a virtual consultation is 0.99kg CO2e, most of which is staff travel, followed by data use. - Using our hybrid model for a single session clinic reduced our annual carbon footprint by an estimated 200kg CO2e
2.	(Briones-Claudett et al., 2021)	Ecuador, South America	Case Report	72 y/o male, 82 y/o female and 58 y/o male patient who had confirmed COVID-19	To report the original results of the first three patients who were treated by the team using a telehealth home-based care approach during the COVID-19 pandemic in Guayas	**Social:** - Telehealth and home-based treatment serve great outcomes of the care of these severely ill patients living in a low-resource setting - collapsed health care system by preventing and identifying progressive deterioration in a timely manner in deprived settings.
3.	(Choi et al., 2022)	Texas, United States	Retrospective Longitudinal study	3961 participants aged 70+	To examine the association of telehealth participation during the COVID-19 outbreak with sociodemographic and health related characteristics, ICT device ownership, prior online experience, and technology instruction among older adults aged 70+	During COVID-19 outbreak, in person visits decreased by 31% (p<.001) and the telehealth used during outbreak increased to 21.1% (p<.001) The telehealth users are higher in patient with chronic medical conditions (p<.001), Instrumental activities of Daily Living (IADL) received help (p<.002), and mental health problem (p<.009) **Recommendation:** - Provide the technology-enabling factors (ICT devices ownership, online use experience, and learned to use the new technology program (Zoom or Facetime) to go online), moved in with someone or had others move in with them (AOR= 1.36, 95% CI= 1.04-1.76) can increase the efficiency of telehealth use among older adults during COVID-19
5.	(Senderovich & Wignarajah, 2022)	Ireland	Qualitative study	Geriatric patients	To explore the benefits and challenges to implement virtual care in day-to-day care for the geriatric patient during COVID-19 pandemic.	**Benefits:** - Reducing transmission - Better access to care for people lives in remote or suburban areas (specialist who may not be available in person) – prevent unnecessary transfer - Therapeutic alliance – communication (no need face mask), decrease level of stress

						Barriers: - Consent – risk unauthorized disclosure - Learning curves - - Cognitive Impairment - Technical challenges – inadequate internet connection, volunteers - Access to examination and diagnostic testing
6.	(Ng et al., 2022)	USA	Cross-sectional	Community-dwelling Medicare beneficiaries aged ≥ 65 years old and above	To examined factors associated with accessibility and utilization of tele-health among older adults during the COVID- 19 pandemic.	- Having more comorbidities was associated with a higher likelihood of using telehealth when offered [e.g., those with 2– 3 chronic conditions were 7.3% (CI = 2.5% to 12.1%) more likely to use telehealth than those with 0– 1 chronic condition] **Barriers:** - Those who reported having no access to the internet and no prior participation in video/voice calls/conferencing were 8.2% (CI = −12.8% to −3.7%) and 6.6% (CI = −9.2% to −4.1%) less likely to be offered telehealth services during COVID- 19
7.	(Murphy et al., 2020)	Ireland	Rapid systematic review	Nine studies with 975 patients met the inclusion criteria.	To describe the satisfaction, clinic productivity, clinical benefit, and costs associated with the virtual geriatric clinic model of care	**Seven of the nine studies reported on clinical benefit outcomes:** - cost effectiveness, - transport saving, - shortened waiting time - reduce acute hospitalization event, increased awareness and education about medication side effects, successfully used to implement a falls prevention programme) **Barriers:** - Technical difficulties - issues with confidentiality (perceiving that patients or caregiver were unable to speak openly), - communication issues (mainly hearing impairment)
8.	(Ho & Merchant, 2022)	Singapore	Cross sectional	42 Patients aged ≥60 years	To investigate perception and acceptability of digital technology among Asian older adults	- Most of the participants (n=38, 91%) agreed that technology is good - 79% (n=33) agreed that technology would allow them to be independent for longer. - Through digital HAPPY (Healthy Ageing Promotion Program for You), 45% (n=19) of participants reported feeling stronger, 48% (n=20) had improved spirits, and 40% (n=17) and 38% (n=16) had improved mood and memory, respectively
9.	(Haimi & Gesser-	Israel	Systematic Review	older adults population	To explore the availability, application, and	11 studies were finally included after reviewing the full text - for control and triage during the outbreak of the COVID-19 pandemic,

	Edelsburg, 2022)			(age 65 years and more)	implementation of telehealth services during the Covid-19 era, designed for the aged population (age 65 and more).	- for distance monitoring and treatment, - for follow-up online visits for patients residing in health centers - for the treatment and surveillance of chronic conditions
10.	(Doraiswamy et al., 2021)	Qatar	Scoping Review	older people over 65 years of age	to summarize learning from evidence synthesis for telehealth use in geriatric care	**Benefits:** - preventative, curative, and rehabilitative services but with a greater focus on curative services **Barriers:** - physical and cognitive limitations - inequity and the lack of standardization in the provision of age-friendly telehealth services. **Recommendations:** - Older People and Caregivers (training) - Physicians and Other Health Care Provider (get trained, provide resources) - Technology (accommodate IT) - Governance/Health Systems (educational outreach)
11.	(Schifeling et al., 2020)	United States	Cross sectional	190 Geriatric patients aged 75 years or older	To describe the rapid transition to telehealth (i.e., telephone and video visits) to meet the needs of geriatric primary care patients during the COVID-19 pandemic.	**Barriers:** - lack of equipment (54/100, 54%) - patient preference (32%, 32/100) - cognitive problems (23%, 23/100).
12.	(Mao et al., 2022)	United states	Cross Sectional	249 participants aged 60 years old and above	To better understand the barriers to telehealth in community-dwelling older adults to improve the access to and experience of virtual visits	**Barriers:** - hearing difficulties (n=89, 35.7%), - not being familiar with how to use technology or the internet (n=75,30.1%) - not knowing how to get connected to the telehealth platform (n=74, 29.7%) - language barriers (n=66, 26.5%) - not interested seeing provider outside of the clinic (n=24) - not having stable internet connection (n=16) - impairment attention and memory (n=13) - no smart device (n=13) - difficulty seeing (n=8)
13.	(Liu et al., 2021)	Canada	Cross-sectional	330 patients in geriatric clinic aged more	to identify patient-specific factors associated with accessing videoconference assessments, as opposed to	**Barriers:** Reduced utilization of videoconference compared with telephone assessment in;

				than 70 years old	telephone-based assessments, in a diverse population of older adults.	- Patients with frailty (adjusted OR 0.62, 0.45 to 0.85; adjusted RD -0.08, −0.09 to−0.06) - Patients who did not have a caregiver present at their virtual assessment (adjusted OR 0.12, 0.06 to 0.24; adjusted RD -0.35, −0.43 to−0.26)
14.	(Hawley et al., 2020)	USA	exploratory sequential mixed-methods	veterans who attended a geriatrics-renal clinic	To identify and address patient-perceived barriers to integrating home telehealth visits	**Barriers:** - Access to care - Access to technology (6 (12%) did not have access to either internet and compatible device) - Confidence (less than half (21 (42%)) of individuals were confident that they could participate in a home telehealth visit.) **Implementation Strategies to Address Patient-Perceived Barriers:** - Assessing for readiness and identifying barriers and facilitators (four phenotypes based on their interest and capability to complete a home telehealth visit: interested and capable, interested and incapable, uninterested and capable, and uninterested and incapable)
15.	(Beauchet et al., 2020)	Canada	Qualitative study	Montreal's housebound community-dwelling older adults	To evaluate the housebound older adults' health and social condition by ESOGER as a clinical tool and to improve the care provided to these older adults through additional research that incorporates data collected during the COVID-19 pandemic	- Short assessment known as "Evaluation SOcio-GERiatrique" (ESOGER) was designed, in late March 2020, for simple risk classification and intervention for older community dwellers. Recommendations involving two categories of interventions: - Free phone call interventions are offered to older adults at high risk levels in the psychological stress, social isolation and caregiver burden subdomains, by the health or social care providers - Contacting the family physician and/or a professional at the support program for senior autonomy (SAPA), which provides health and social home services
16.	(Chu et al., 2022)	California, United State	Prospective Longitudinal study	1427 patients aged >65 years old	To describe the Video Visits for Older adults Projects (VVEP), to help the older adults access video visits at an academic primary practice	- 312 (30.4%) were already video enabled, 192 (18.7%) accepted assistance to video-enable their electronic devices. - Notably, most of those successfully video-enabled with the help of VVEP staff as well as those already video-enabled did complete their visits via video (76%)
17.	(Dikaios et al., 2020)	Montreal, Canada	Cross-sectional	200 Older adults aged >60 years old	To assess the efficacy of Telehealth Intervention Program for Older Adult (TIP-OA during COVID-19 pandemic.	- Telephone based care by trained volunteer is likely able to serve the largest population of older adults - weekly friendly calls to older adults which to assess: - Perceived Stress Scale (PSS) - COVID Fear Scale - Patient Health Questionnaire-9 (PHQ-9) - Generalized anxiety disorder (GAD-&) - Technology in Geriatric scale

18.	(Weiss et al., 2021)	New York, United State	Qualitative study	85 older adults patients	To demonstrate a unique approach to reach vulnerable population using telehealth program, Coordinated Care at Risk/Remote Older adults Program (CCARRE)	**The CCARRE telehealth visits include:** - Start on the phone and move to video (increase compliance of patients and caregiver) - Use video visits to conduct a 'real time' safety evaluation (allow evaluation of navigational obstacle, medication review and possible elder neglect, home assessment and urgent follow up if needed) - Address advance care planning and goals of care during COVID-19 - Address patient/caregiver stress & their needs including providing (patients centered leisure activities, psychological support therapy and behavioral management techniques) - Link with local community-based organization to provide caregiver support service virtually
19.	(Hoffman et al., 2020)	USA	Qualitative study	Geriatric patient	We present a conceptual discussion of disability, environmental, and social risk factors that are exacerbated during a pandemic, then introduce a framework for addressing these risks	**Expanding virtual support by framework:** - Bridging the digital divide - Bridging age divide – intergenerational support - Building aging friendly physical and social infrastructure (trusted organization)
20.	(Khanassov et al., 2022)	Canada	Systematic review	Older adults patient aged 65 years old and above	To identify the themes on the attitude towards TM use, facilitators, and barriers to optimal use of TM by the older adults and clinicians during COVID-19.	**Consolidated Framework for Implementation Research (CFIR):** - Patient related (Older adult with a simple medical condition) - Primary care facility related (Availability of a coordinator – to navigate the patient) - Technology related (Adaptability User- friendly platform with simple access to TM visit)
21.	(Ha et al., 2021)	Korea	Qualitative study	Older adults	To investigate smartphone applications that may be helpful in managing the health of the older adults during COVID-19.	**Twelve applications were finalized based on 6 domains:** - Social and emotional health promotion and maintenance (Wysa & MindDoc) - Symptom and condition management (Ada & Diseases Dictionary) - Communication with the health care system (Telehealth &Blood Pressure Diary) - Medication management (Medisafe & MyTherapy) - Physical activity (FitOn &Samsung Health) - Nutritional management (Lifesum & Health and Nutrition Guide)

Synthesis of Results

Benefits/Role of Telehealth Among Older adults During COVID-19 Pandemic

Among the reports reviewed, a total of 9 papers discussed the role of telehealth among the older adults, which can be categorized into personal, psychosocial, and environmental aspects. Two papers described the utilization of telehealth services among the older adults during the COVID-19 pandemic which was influenced by pre-existing co-morbidities either medical conditions or mental health problems (Choi et al., 2022; Ng et al., 2022). For personal aspects, telehealth services improved the access to healthcare among older adults people living in remote or suburban areas (Haimi & Gesser-Edelsburg, 2022; Murphy et al., 2020; Senderovich & Wignarajah, 2022). Senderovich et. al. reported that virtual care for geriatric patients improved therapeutic alliance and treatment adherence as well as decreased the no-show rates among the older adults during this pandemic (Senderovich & Wignarajah, 2022). This result was supported by a systematic review which showed telehealth is cost-effective, transport saving and can shorten the waiting time compared to in-person face-to-face related care (Murphy et al., 2020).

In the psychosocial aspect, Ho et. al. revealed that digital technology improved the psychological well-being of the older adults population which showed 45% (n=19) of participants reported feeling stronger, 48% had improved spirits, and 40% and 38% had improved mood and memory, respectively through digital HAPPY (Healthy Ageing Promotion Program for You) program (Ho & Merchant, 2022). In addition, a case report from Briones et. al. revealed that telehealth can improve the healthcare outcomes of severely ill older adults patients living in a low-resources healthcare system (Briones-Claudett et al., 2021). The result was consistent with other studies which demonstrated that telehealth reduced the progressive deterioration of older adults patients conditions (Doraiswamy et al., 2021; Haimi & Gesser-Edelsburg, 2022). Besides, this tool may also act as a preventive measure for the rapid COVID-19 transmission among the older adults (Senderovich & Wignarajah, 2022).

Apart from that, Bartlett et. al. reported that the carbon footprints following the hybrid model of geriatric clinic sessions were reduced significantly from 4.82 kgCO2e pre-pandemic to 0.99 kgCO2e during the period of the COVID-19 pandemic. This reduction in carbon footprint is mostly contributed by the lesser staff travel and lesser usage of PPE which positively impact the environment (Bartlett & Keir, 2022).

Barriers to Telehealth Among Older adults During COVID-19 Pandemic

Most of the studies discussed the challenges of telehealth services faced by the older adults during the COVID-19 pandemic. The common barriers noted are subcategorized into 3 components which are physical, cognitive and technical issues.

Eight papers discussed the technical issues which hinder the effective utilization of telehealth services among the older adults during the pandemic. Schifeling et. al. reported that the main barriers to telehealth usage among the older adults in the United States are due to the lack of equipment (54%) (Schifeling et al., 2020). This result is consistent with other studies that revealed lack of access to compatible devices, internet connection and lack of standardization in the aged-friendly telehealth services. Various designs and interfaces increase challenges for the older adults to utilize telehealth effectively (Doraiswamy et al., 2021; Hawley et al., 2020; Mao et al., 2022; Ng et al., 2022; Senderovich & Wignarajah, 2022). Besides,

Murphy et. al. in the systematic review described the issues of confidentiality and privacy concerns among older adults patients and healthcare providers. This issues result in reduced trust of the older adults to speak and communicate openly (Murphy et al., 2020).

Recommendation to Improve the Telehealth Among Older adults During COVID-19 Pandemic and Beyond

The majority of the papers (n=11) described the potential interventions to improve telehealth services among the older adults during the COVID-19 pandemic. The recommendations can be structured into 3 parts which are technology-enabled factors, patient-related factors and provider-related factors.

- **Technology enabling factors**: Choi et. al. suggested the participation of telehealth among the older adults can be enhanced by technology enabling factors such as providing ICT devices ownership and skills to use the new technology program (Choi et al., 2022). A few studies also suggested similar recommendations in which video-enabled by adaptability friendly user platform (Khanassov et al., 2022) as well as providing assistance of healthcare staff (Beauchet et al., 2020; Chu et al., 2022; Dikaios et al., 2020; Doraiswamy et al., 2021) increased the success rate to complete their virtual visits. In addition, recent work from Korea reported that smartphone applications may help manage and monitor the older adults's health during COVID-19 (Ha et al., 2021).
- **Provider-related factors:** Many studies revealed that provider-related factors are significantly associated with the improvement of telehealth utilization among the older adults. A study from Canada suggested a framework to improve the optimal use of telehealth which includes increasing the availability of the coordinator to navigate older adults patients (Khanassov et al., 2022). Similar findings were recorded in other studies. Engagement with trusted organization in providing training to the healthcare staff and the patient's caregiver will help the older adults during virtual visits session (Beauchet et al., 2020; Doraiswamy et al., 2021; Hoffman et al., 2020; Weiss et al., 2021). The results were emphasized by Choi et. al. which reported that telehealth efficiency is enhanced when the older adults had an assistance/caregiver (AOR=1.36, 95% CI=1.04-1.76).
- **Patient-related factors:** Apart from that, few studies reported that patient-related factors can influence telehealth utilization. Hawley et. al. revealed the implementation strategies to address patients-perceived barriers including assessment for readiness, barriers and facilitators among the older adults before offering telehealth services to them (Hawley et al., 2020).

Another systematic review revealed a framework to implement effective telehealth among the older adults by tailoring the service based on patients' underlying medical conditions (Khanassov et al., 2022).

Discussion

Benefits/Role of Telehealth Among Older adults During COVID-19 Pandemic

According to the literature, the telehealth service during COVID-19 impacts the personal, psychosocial and environmental aspects of the older adults. The telehealth improves feasibility and convenience for the older adults to seek treatment during the pandemic crisis. By using live video conferencing or a phone call, telehealth enables medical professionals to gather necessary data, prioritize and determine whether a patient is allowed to self-monitor symptoms at home or needs hospitalization (Zhai et al., 2020). This could decrease the face-to-face contact of medical services to minimize the risk of COVID-19 transmission. Hence, telehealth was shown to be a practical, feasible, and effective medium to improve healthcare outcomes (Hong et al., 2020).

Furthermore, telehealth also acts as a tool to reduce psychological distress amongst the older adults. A study showed that senior citizens expressed mild-to-moderate and severe peritraumatic discomfort concerning the COVID-19 pandemic (Fadila et al., 2021). The vulnerability of older people is exacerbated by the pandemic's uncertainty as well as the experience of fear of dying or losing their loved ones (Banerjee, 2020a). Hence, telehealth may provide a remote service which can respond to mental health needs while upholding the standard of care particularly at times of public health crises, national and international emergencies (Whaibeh et al., 2020).

Apart from that, telehealth promotes a healthy environment and reduces the greenhouse effects. A study revealed that telehealth services result in higher emissions savings in rural communities (Ravindrane & Patel, 2022). This net environmental advantage is dependent on both reduced travel distance and energy consumption by transportation (Ravindrane & Patel, 2022).

Barriers to Telehealth Among Older adults During COVID-19 Pandemic

The barriers to optimal telehealth utilization among the older adults during the COVID-19 pandemic are mostly associated with technical, cognitive and physical issues. This review demonstrated that higher levels of digital literacy increased the likelihood of remote medical care participation (Bhaskar et al., 2020). This is consistent with findings that revealed inadequate access to Internet or Wi-Fi facilities is the primary impediment to telehealth implementation (Smolić et al., 2022). A study by Hirko showed that older people living in rural areas has lacking access to the internet which hindered them to utilize telehealth services (Hirko et al., 2020). Hence, age-related digital devices issues and poor socioeconomic status may continue to place a strain on healthcare outcomes, impeding telehealth capabilities.

In addition, cognitive impairment, such as Alzheimer's disease, hinders the older adults from using telehealth services. A study by Lam et. al. demonstrated telehealth unreadiness is higher in dementia patients (Lam et al., 2020). This can be explained by difficulties to care accompanied by a lack of resources, and medical complications which reduced the effectiveness of telehealth (Weiss et al., 2021). As a result, engagement in remote care by the older adults with declined cognitive was significantly reduced (Kim et al., 2017).

Other than that, telehealth utilization was hindered in older adults with physical impairment such as hearing or visual difficulties. According to a report by Nieman et. al, hearing

loss is practically common in older adults, with about two-thirds of persons aged 70 years or older having clinically substantial hearing loss (Nieman & Oh, 2020). Furthermore, as telehealth takes place virtually, the possibility of noise, distractions, and missing visual cues increases, thereby limiting both patient and provider comprehensibility (Overcoming Telehealth Barriers and Engaging Older Adults in Virtual Care | MedPro Group, n.d.). This hearing and vision impairment are natural ageing processes, but they can make interaction via digital tools challenging.

Recommendations for Improvement of Telehealth Among Older Adults During COVID-19 Pandemic and Beyond

Among the recommendations discussed in this review are the need to improve on the technology, providers and patients related factors. As technical challenges were the most frequent issues encountered, offering technological components such as age-friendly interface devices, Wi-Fi, and cellular connection are crucial to the successful implementation of telehealth (Zhang et al., 2021).

Telecommunications equipment ought to be covered as a medical necessity, especially to reduce the gap between poverty and telehealth readiness. (Lam et al., 2020). Besides, several smartphone applications should be available to assist older adults in navigating isolation during the COVID-19 epidemic. For instant, applications of Doctor on Demand, Teladoc, and K Health give users access to licensed doctors for non-emergency medical issues and comply with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (Arizona Telemedicine program, 2015; Banskota et al., 2020). During emergency closures and periods of high demand for medical services, these platforms can connect patients with remote physicians (Banskota et al., 2020).

Factors such as caregivers or volunteer assistance are significant to gain optimal utilization of telehealth among the older adults. A study revealed the importance of caregivers' participation in addressing questions and concerns, as well as facilitating their older adults to access telehealth care (Raj et al., 2022). This telehealth makes it easier for family caregivers to care for their loved ones by providing them with direct access to healthcare specialists.

Conclusion

In conclusion, this scoping review added to the knowledge that telehealth services significantly benefit the vulnerable older adults population during the COVID-19 pandemic. Telehealth improves the feasibility, therapeutic alliance and psychological well-being of the older adults, besides preventing the transmission of illness to others. The utilization of telehealth among the older adults is hindered by various factors/barriers which are related to technical, physical and cognitive issues. Thus, a variety of recommendations were put into practice to address the shortcomings of telehealth, including broadening access to technology and enhancing provider and patient-related factors. With the rapid evolution of COVID-19, this review suggests that stakeholders such as healthcare workers, caregivers and patients collaborate for the optimal telehealth utilization experience. Telehealth will continue to play a vital role in enhancing healthcare accessibility and quality of life beyond the COVID-19 pandemic. As a key tool for delivering care in future emergencies, it will ensure the safety of both patients and healthcare professionals while driving innovation in remote healthcare solutions.

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Conflicts of Interest

The authors of this study declare that there is no conflict of interest.

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