Older people, the digital divide and use of telehealth during the COVID-19 pandemic

Sally Hall Dykgraaf, Jane Desborough, Elizabeth Sturgiss, Anne Parkinson, Garang M Dut, Michael Kidd

Background
Telehealth and other digital modes of care have been widely introduced in response to the COVID-19 pandemic and have enabled access to healthcare while reducing community transmission and keeping patients and practitioners safe. However, the benefits of telehealth are not evenly distributed, and may perpetuate some forms of disadvantage.

Objective
While the 'digital divide' is often understood in socioeconomic terms or geographic terms, the reasons for digital exclusion among older people may vary. The aim of this article is to explore what is known about this issue.

Discussion
Emerging insights from the pandemic suggest that there may be multiple reasons why older people are not able to effectively access or engage with health technologies despite their availability. These barriers should inform ongoing efforts to develop telehealth services that meet population needs and sustain their use beyond the pandemic.

DIGITAL MODALITIES for the delivery of healthcare were rapidly and widely implemented during the COVID-19 pandemic. In general practice settings, the aim was to maintain universal access to clinical care while simultaneously protecting the workforce and patients, especially those most vulnerable to poor COVID-19 outcomes, such as the elderly and people with high-risk conditions.[1] In Australia, where funding for telehealth was introduced early and rapidly scaled up,[2] over 85 million telehealth services have been provided to over 16 million individuals.[3] The majority (97%) of the 63.2 million remote consultations in general practice to the end of September 2021 (24.5% of all Medicare Benefits Schedule services) have been conducted by telephone rather than video.[4] Consistently low rates of video use challenged assumptions about the superiority of video as a substitute for face-to-face care and raised questions about digital access and unintended consequences for health equity.[5,6] They also highlight the impact of the 'digital divide' – the gap between those who can benefit from access to information and communication technologies and those who do not.[7] Most affected by the digital divide are people with disability; people with low levels of income, education and employment; older people; Aboriginal and Torres Strait Islander Australians; and people in rural areas.[4] Emerging evidence suggests that just as the COVID-19 pandemic has exacerbated existing health inequalities, telehealth may disproportionately benefit those who already have better access to healthcare.[8]

Older Australians and the digital divide

The digital divide is commonly discussed in the context of resource limitations imposed by financial constraints or socioeconomic disadvantage and their impact on vulnerable groups such as people who are culturally and linguistically diverse (CALD) or those with chronic illness or disability. While digital technologies can support care delivery in ways that overcome structural barriers, poverty and other forms of socioeconomic disadvantage may contribute to limitations in access to and engagement with digital technologies and poor digital health literacy, compounding inequity.[5,9,10] Recent COVID-19-related experience also suggests that mechanisms underpinning the digital divide for elderly people may not be primarily financial and may operate differently to other population groups. In Australia, those aged 65–74 years have the highest average wealth of any age group, although those aged >65 years are the least 'digitally included' of all age groups.[7] Studies in multiple countries have

found that older people are lower users of digital modalities relative to other age groups, and this is often independent of socioeconomic factors.[11–15]

This article explores current evidence regarding use of virtual care by the elderly and examines what is known about issues that affect their uptake of digital health technologies. From January 2022, general practice telehealth items became ongoing as part of efforts to modernise Australia's healthcare system and seek ongoing healthcare reform.[3] The rapid transition to telehealth during the COVID-19 pandemic has illuminated many of the challenges; these emerging insights are likely to be important in ensuring that telehealth services evolve to meet the needs of elderly Australians.

Digital literacy and trust in technology

Evidence examining older people's use of digital health refers less to issues of socioeconomic disadvantage and more to practical issues of capacity, comfort and ease of use. In older people, the digital divide may be more a matter of digital literacy than deprivation or disadvantage,[16] although the two may intersect. Older adults, even those with reasonable socioeconomic means, may not prioritise the acquisition of technology – meaning they have limited access to the necessary devices and connectivity.[16] When elderly people do have access to the required technology, they may not necessarily desire, or know how, to use it effectively to access video consultations or other telehealth modalities.[17,18]

A 2021 qualitative study of 25 Australian primary care nurses found that elderly people often do not employ the full functionality of electronic devices. For example, while they may have a smartphone or computer and be proficient in use of email or SMS, they may not know how to use the software tools that enable video consultations, preferring the familiarity and ease of telephone interactions.[18] Nurses in this study suggested that the extent to which patients engaged with telehealth services depended on their 'perceptions of vulnerability and safety during the pandemic', reporting that many older people chose not to use digital platforms because of their preference for in-person consultations that ensure social interaction and offer a means to manage loneliness.[18]

A US study of 40 veterans aged ≥65 years and their care partners, randomised to a 12-week video or telephone care management intervention, found that those who had experience with the relevant technology enjoyed the experience more than those who were not familiar with it, for whom it was frustrating.[19] In this study, approximately one-third of veterans were familiar with the required technology, and approximately half of internet users were comfortable using the internet. While greater engagement and interaction was reported in the video arm of this study, only 35% of participants in this arm expressed a desire to use it in the future. Those who did not cited discomfort with technology and a preference for in-person visits. The effects of potential confounders such as age, education and language barriers were not reported.[19]

Younger age was independently associated with greater satisfaction with telemedicine visits in a study of 368 US patients during the early months of the COVID-19 pandemic, although this study found that satisfaction with telemedicine was generally high and more likely to be shaped by the degree of trust in physicians and visit-related factors than patient factors.[20] Older people may have lower motivation and greater hesitation about engaging and problem solving with digital technologies, with a distrust of digital service quality and fear of making mistakes.[21]

Physical and cognitive hurdles

While older people are at increased risk from COVID-19 and may have much to gain from telehealth modalities, the digital capabilities of those aged >75 years are generally lower than for other Australians, and older women have more limited skills than older men.[22] Older people's ability to manage technical difficulties that might arise (eg poor connectivity or troubleshooting) can be constrained. These difficulties may be further compounded by age-related issues of physical and cognitive decline, sensory impairment and reduced manual dexterity.[23] For some older adults, changes to visual acuity and focus, light perception and glare sensitivity, as well as difficulties discriminating low-level and background noise, may affect use of digital technologies.[24] Other studies suggest that some elderly people may have trouble even comprehending the concept of digital or virtual consultations;[16] a 'coherence' problem that inhibits awareness, understanding and expectations.[11]

Older people may have health conditions that create physical challenges; arthritis and other musculoskeletal conditions that impede fine motor skills and strength can complicate handling of electronic devices.[25] Poorer vision, hearing and cognition can also hinder virtual communications that are already challenging,[26] and many older people may require assistance to communicate electronically.[23] For those with cognitive impairment, especially dementia, individualised support to engage with digital healthcare delivery may be especially important.[27] A study of homebound US adults (mean age 82.7, 46.6% with dementia) found that 82% required assistance from a carer to complete telehealth interactions, and that healthcare providers were commonly unaware of internet connectivity and device access issues. Misunderstandings about electronic consultation processes or technological requirements may affect patient responsiveness, disrupt interactions and demand additional time, support or resources. Supplementary or modified workflows such as pre-consultation 'technology orientations,[28] while costly and time-consuming, may prove beneficial.[29]

Digital inequity and differential use of telehealth modalities

A recent systematic review of inequalities in remote general practice consultations found that telephone consultations were used preferentially by people aged

>85 years, younger people of working age and non-immigrants, while internet consultations were used by younger, affluent and educated groups.[30] A study of US primary care clinics during the COVID-19 pandemic saw a greater than 4000% increase in virtual service use; however, comparisons with pre-pandemic data showed significant decreases among people who were elderly, non-English speaking and on low incomes.[31] Older and sicker people were more likely to see known providers when using virtual visits, while socioeconomically disadvantaged groups were less likely to do so.[32] A qualitative study of challenges encountered by vulnerable groups accessing digital healthcare during the COVID-19 pandemic, conducted in Finland, suggests that older people are the largest single group affected.[21] Concerns specific to older people included less experience and skill with digital technologies, less awareness of the availability of digital services and their potential value, and inadequate availability of the necessary supports to facilitate equitable use.[21]

Despite emphasis on video and other digital platforms, telephone consultations have been significant enablers of access to general practice and other specialist care during the COVID-19 pandemic and may be better suited to the circumstances of those with low levels of digital literacy and other forms of digital inequity.[33] Some studies have noted the importance of suitable spaces in which to conduct virtual consults.[16] Telephone consultations may provide more flexibility for finding a quiet private space than consultations that use video interfaces, which may require additional technological infrastructure and be more prone to being overheard by others in the vicinity. Clinicians are responsible for ensuring the privacy and security of electronic consultations and should be conscious of the risks of establishing a virtual consultation window into a space that may not be private or safe – an issue more likely for those who live in congregate or densely populated home environments, or who may be exposed to family violence or elder abuse.

Telehealth is not a one-size-fits-all solution, underscoring the importance of co-design in digital service development. Preferences differ for individuals and groups, requiring consultation with patients and carers to determine the most appropriate modalities to meet clinical needs.[34] Many patients have expressed a desire for telehealth to continue into the future but for integration with other delivery modes, especially face-to-face care.[33] Digital health equity frameworks have been proposed as a solution, with the intent of encouraging health providers to consider and assess inequity and incorporation into health professional training.[5] Others have pointed to the importance of working with technology partners to develop industry-led innovations, emphasising the responsibility of technology companies to contribute to narrowing the digital divide as technology and healthcare become increasingly intertwined.[35]

Conclusion

During the COVID-19 pandemic, the introduction of remote consulting models minimised the risk of exposure to infection for patients and practitioners and foreshadowed a new benchmark for telehealth adoption in primary care. These changes offered opportunities to overcome other challenges to healthcare access for older people, such as decreased mobility and clinic waiting times. However, counterintuitive patterns of telehealth access and use by the elderly and other vulnerable individuals have been observed, with differences between telephone and other digital platforms. In order to fully realise the potential of telehealth and ensure equity and quality, it is essential to address barriers imposed by the digital divide. For older people, these barriers may extend beyond socioeconomic and connectivity constraints and include issues of digital literacy, trust and familiarity, as well as the impact of physical and psychological health conditions. Finding practical and achievable ways to address these unique challenges is crucial to ensure the acceptability and utility of digital solutions to healthcare challenges for older people as telehealth becomes central to continuing primary care reform initiatives in Australia.

Key points

- Telehealth has been widely implemented as a solution to many challenges raised by the COVID-19 pandemic.
- The accessibility and benefits of telehealth are not distributed equally within the community.
- For older people, some of the barriers to effective use may be different to barriers affecting other groups.
- Barriers for older people include digital literacy, trust in technology and physical and cognitive challenges.
- Future development of telehealth modalities should consider and account for the needs of older Australians.

Authors

Sally Hall Dykgraaf RN, Grad Cert ClinMan, PhD, Action Research Fellow, COVID-19 Primary Care Response Group (seconded), Primary Care Division, Australian Government Department of Health, Canberra, ACT; Research Manager, Rural Clinical School, Australian National University, Canberra, ACT

Jane Desborough RN, RM, MPH, PhD, Action Research Fellow, COVID-19 Primary Care Response Group (seconded), Primary Care Division, Australian Government Department of Health, Canberra, ACT; Senior Research Fellow, Research School of Population Health, Australian National University, Canberra, ACT

Elizabeth Sturgiss FRACGP, PhD, BMed, MPH, MForensMed, FHEA, Action Research Fellow, COVID-19 Primary Care Response Group (seconded), Primary Care Division, Australian Government Department of Health, Canberra, ACT; Senior Research Fellow, School of Primary and Allied Health Care, Monash University, Frankston, Vic

Anne Parkinson BA, PhD, AFHEA, Action Research Fellow, COVID-19 Primary Care Response Group (seconded), Primary Care Division, Australian Government Department of Health, Canberra, ACT; Postdoctoral Fellow, Research School of Population Health, Australian National University, Canberra, ACT

Garang M Dut MD, MPH, MBA, Action Research Fellow, COVID-19 Primary Care Response Group (seconded), Primary Care Division, Australian Government Department of Health, Canberra, ACT; Fellow in Health Systems, College of Health & Medicine, Australian National University, Canberra, ACT

Michael Kidd AM MD, FAHMS, Deputy Chief Medical Officer, Australian Government Department of Health, Canberra, ACT; Professor of Primary Care Reform, Australian National University, Canberra, ACT

Competing interests: None.

Funding: This work received in kind support from the Australian Government Department of Health, and the Australian National University where the authors are employed.

Provenance and peer review: Not commissioned, externally peer reviewed.

Correspondence to:
sally.hall@anu.edu.au

References

1. Desborough J, Hall Dykgraaf S, de Toca L, et al. Australia's national COVID-19 primary care response. Med J Aust 2020;213(3):104–06.e1. doi: 10.5694/mja2.50693.
2. Hall Dykgraaf S, Desborough J, de Toca L, et al. 'A decade's worth of work in a matter of days': The journey to telehealth for the whole population in Australia. Int J Med Inform 2021;151:104483. doi: 10.1016/j.ijmedinf.2021.104483.
3. Department of Health. Ongoing telehealth – Strengthening primary care. Canberra, ACT: DoH, [date unknown]. Available at www.health.gov.au/sites/default/files/documents/2021/12/ongoing-telehealth-strengthening-primary-care.pdf [Accessed 25 February 2022].
4. Australian Institute of Health and Welfare. Impacts of COVID-19 on Medicare Benefits Scheme and Pharmaceutical Benefits Scheme: Quarterly data. Canberra, ACT: AIHW, 2022. Available at www.aihw.gov.au/reports/health-care-quality-performance/impacts-of-covid19-mbs-pbs-quarterly-data/contents/impact-on-mbs-service-utilisation [Accessed 25 February 2022].
5. Crawford A, Serhal E. Digital health equity and COVID-19: The innovation curve cannot reinforce the social gradient of health. J Med Internet Res 2020;22(6):e19361. doi: 10.2196/19361.
6. Desborough J, Hall Dykgraaf S, Sturgiss E, Parkinson A, Dut G, Kidd M. What has the COVID-19 pandemic taught us about the use of virtual consultations in primary care? Aust J Gen Pract 2022;51(3):179–83. doi: 10.31128/AJGP-09-21-6184.
7. Thomas J, Barraket J, Wilson CK, Rennie E, Ewing S, MacDonald T. Measuring Australia's digital divide: The Australian digital inclusion index 2020. Melbourne, Vic: RMIT University and Swinburne University of Technology for Telstra, 2020. Available at www.apo.org.au/sites/default/files/resource-files/2020-10/apo-nid308474.pdf [Accessed 25 February 2022].
8. The Lancet Rheumatology. Telemedicine: Is the new normal fit for purpose? Lancet Rheumatol 2022;4(1):e1. doi: 10.1016/S2665-9913(21)00399-4.
9. Lyles CR, Wachter RM, Sarkar U. Focusing on digital health equity. JAMA 2021;326(18):1795–96. doi: 10.1001/jama.2021.18459.
10. Samuels-Kalow M, Jaffe T, Zachrison K. Digital disparities: Designing telemedicine systems with a health equity aim. Emerg Med J 2021;38(6):474–76. doi: 10.1136/emermed-2020-210896.
11. Baines R, Tredinnick-Rowe J, Jones R, Chatterjee A. Barriers and enablers in implementing electronic consultations in primary care: Scoping review. J Med Internet Res 2020;22(11):e19375. doi: 10.2196/19375.
12. Alexander GC, Tajanlangit M, Heyward J, Mansour O, Qato DM, Stafford RS. Use and content of primary care office-based vs telemedicine care visits during the COVID-19 pandemic in the US. JAMA Netw Open 2020;3(10):e2021476. doi: 10.1001/jamanetworkopen.2020.21476.
13. Ekman B, Arvidsson E, Thulesius H, Wilkens J, Cronberg O. Impact of the Covid-19 pandemic on primary care utilization: Evidence from Sweden using national register data. BMC Res Notes 2021;14(1):424. doi: 10.1186/s13104-021-05839-7.
14. Reed ME, Huang J, Graetz I, et al. Patient characteristics associated with choosing a telemedicine visit vs office visit with the same primary care clinicians. JAMA Netw Open 2020;3(6):e205873. doi: 10.1001/jamanetworkopen.2020.5873.
15. Stamenova V, Agarwal P, Kelley L, et al. Uptake and patient and provider communication modality preferences of virtual visits in primary care: A retrospective cohort study in Canada. BMJ Open 2020;10(7):e037064. doi: 10.1136/bmjopen-2020-037064.
16. Douglas K, O'Brien K, Hall S, Barnes K. Quick COVID clinician survey summary (Australia), series 10. Series/Report no. COVID-19 collection. Ann Arbor, MI: Annals of Family Medicine, [date unknown]. Available at https://deepblue.lib.umich.edu/handle/2027.42/166589 [Accessed 28 July 2022].
17. Douglas K, O'Brien Hall S, Barnes K. Quick COVID clinician survey summary (Australia), series 1–4. Ann Arbor, MI: Annals of Family Medicine, [date unknown]. Available at https://deepblue.lib.umich.edu/handle/2027.42/166587 [Accessed 28 July 2022].
18. James S, Ashley C, Williams A, et al. Experiences of Australian primary healthcare nurses in using telehealth during COVID-19: A qualitative study. BMJ Open 2021;11(8):e049095. doi: 10.1136/bmjopen-2021-049095.
19. Hastings SN, Mahanna EP, Berkowitz TSZ, et al. Video-enhanced care management for medically complex older adults with cognitive impairment. J Am Geriatr Soc 2021;69(1):77–84. doi: 10.1111/jgs.16819.
20. Orrange S, Patel A, Mack WJ, Cassetta J. Patient satisfaction and trust in telemedicine during the COVID-19 pandemic: Retrospective observational study. JMIR Hum Factors 2021;8(2):e28589. doi: 10.2196/28589.
21. Kaihlanen AM, Virtanen L, Buchert U, et al. Towards digital health equity – A qualitative study of the challenges experienced by vulnerable groups in using digital health services in the COVID-19 era. BMC Health Serv Res 2022;22(1):188. doi: 10.1186/s12913-022-07584-4.
22. Thomas J, Barraket J, Wilson CK, Rennie E, Ewing S, MacDonald T. Measuring Australia's digital divide: The Australian digital inclusion index 2019. Melbourne, Vic: RMIT University and Swinburne University of Technology for Telstra, 2019. Available at www.apo.org.au/sites/default/files/resource-files/2019-09/apo-nid255341_3.pdf [Accessed 25 February 2022].
23. Kalicki AV, Moody KA, Franzosa E, Gliatto PM, Ornstein KA. Barriers to telehealth access among homebound older adults. J Am Geriatr Soc 2021;69(9):2404–11. doi: 10.1111/jgs.17163.
24. American Psychological Association Committee on Aging. How to provide telehealth to older adults. Washington, DC: APA, 2020. Available at www.apaservices.org/practice/clinic/telehealth-older-adults [Accessed 5 April 2022].
25. Ikram U, Gallani S, Figueroa J, Feeley T. 4 strategies to make telehealth work for elderly patients. Boston, MA: Harvard Business Review, 2020. Available at www.hbr.org/2020/11/4-strategies-to-make-telehealth-work-for-elderly-patients [Accessed 5 April 2020].
26. Douglas K, O'Brien K, Hall S, Barnes K. Quick COVID clinician survey summary (Australia), series 3. Vol. COVID-19 Collection. Ann Arbor, MI: Annals of Family Medicine, [date unknown]. Available at https://deepblue.lib.umich.edu/handle/2027.42/166587 [Accessed 28 July 2022].
27. Elbaz S, Cinalioglu K, Sekhon K, et al. A systematic review of telemedicine for older adults with dementia during COVID-19: An alternative to in-person health services? Front Neurol 2021;12:761965. doi: 10.3389/fneur.2021.761965.
28. Tan LF, Ho Wen Teng V, Seetharaman SK, Yip AW. Facilitating telehealth for older adults during the COVID-19 pandemic and beyond: Strategies from a Singapore geriatric center. Geriatr Gerontol Int 2020;20(10):993–95. doi: 10.1111/ggi.14017.
29. Goldberg EM, Lin MP, Burke LG, Jiménez FN, Davoodi NM, Merchant RC. Perspectives on telehealth for older adults during the COVID-19 pandemic using the quadruple aim: Interviews with 48 physicians. BMC Geriatr 2022;22(1):188. doi: 10.1186/s12877-022-02860-8.
30. Parker RF, Figures EL, Paddison CA, Matheson JI, Blane DN, Ford JA. Inequalities in general practice remote consultations: A systematic review. BJGP Open 2021;5(3):BJGPO.2021.0040. doi: 10.3399/BJGPO.2021.0040.
31. Ghosh T, Gupta K, Branagan L, Freese N, Parekh A. Defining quality in telehealth: An urgent pandemic priority. North Olmsted, OH: Managed Healthcare Executive, 2020. Available at www.managedhealthcareexecutive.com/view/defining-quality-in-telehealth-an-urgent-pandemic-priority [Accessed 11 March 2022].
32. McGrail KM, Ahuja MA, Leaver CA. Virtual visits and patient-centered care: Results of a patient survey and observational study. J Med Internet Res 2017;19(5):e177. doi: 10.2196/jmir.7374.
33. Javanparast S, Roeger L, Kwok Y, Reed RL. The experience of Australian general practice patients at high risk of poor health outcomes with telehealth during the COVID-19 pandemic: A qualitative study. BMC Fam Pract 2021;22(1):69. doi: 10.1186/s12875-021-01408-w.
34. Institute for Healthcare Improvement. The importance of co-design in telemedicine. Boston, MA: IHI, 2022. Available at www.ihi.org/communities/blogs/the-importance-of-co-design-in-telemedicine [Accessed 25 February 2022].
35. Durocher K, Boparai N, Jankowicz D, Strudwick G. Identifying technology industry-led initiatives to address digital health equity. Digit Health 2021;7:20552076211056156. doi: 10.1177/20552076211056156.

correspondence **ajgp@racgp.org.au**