Promoting digital inclusion for enhanced resident wellbeing: an examination of aged residential care facility websites

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ABSTRACT

AIM: Digital inclusion has a positive impact on health and wellbeing through fostering connectivity and access to information. In Aotearoa New Zealand, 4% of older adults live in aged residential care (ARC) facilities and are vulnerable to social isolation. This study explored whether ARC facilities provide opportunities to socially connect online and whether the COVID-19 pandemic affected the provision of these opportunities.

METHOD: Information on technology and internet provision from 558 ARC facilities was extracted from facilities' own or related websites in 2019 and 2021. ARC facilities were categorised according to whether they provided digital devices, internet access and internet-based leisure activities, or made no reference to technology.

RESULTS: In 2019, 392 (70%) of 558 ARC facilities publicised availability of internet-based technologies for residents; however, only 46 (8%) mentioned providing access to computer devices. In 2021 (during the pandemic), there was a small increase to 421 (76%) and 54 (10%) of facilities respectively. Facilities mentioning internet-based leisure activities were 63 (11%) in 2019 and 55 (10%) in 2021. Those not referring to technology had reduced from 166 (30%) in 2019 to 137 (24%) in 2021.

CONCLUSION: Few ARC facilities enabled residents to fully access the digital world, even after periods of isolation due to COVID-19. Aged care providers could be more proactive by providing internet access and digital learning opportunities.

Digital inclusion, defined as *"a world where everyone has equitable opportunities to participate using digital technologies"*,[1] is now recognised as crucial for enhancing the wellbeing and quality of life of older individuals. Research underscores its positive impact on both physical and psychological wellbeing,[2,3] as well as on cognitive function.[4] However, there is also a wealth of literature documenting how digital technologies can enrich social interactions, reduce loneliness and offer better access to information.[5]

With information and communication technologies providing avenues for social connectivity, especially when face-to-face interactions are limited, older adults are increasingly joining the online community. Accordingly, approximately 84% of those aged 65+ in Aotearoa New Zealand use the internet.[6] Despite this, older people remain at risk of being digitally excluded.

Residents of aged residential care (ARC) facilities, in particular, face challenges in maintaining social connections, often relying solely on visits from family and friends. Residents who have access to digital devices, however, can use virtual interactions to supplement personal visits.[7] Accurate statistics on digital technology use by ARC facility residents are difficult to source because surveys, including those investigating internet use by older people, frequently limit participant recruitment to those living in the wider community.[8,9] Overseas research has found that individuals aged 65–84 living in ARC facilities are less likely to use the internet compared to adults of that age group living in the community.[10] This issue is of particular concern in Aotearoa New Zealand, given our steadily aging population. In 2020, Aotearoa New Zealand had a population of approximately 790,000 older adults (65 years and older), of which approximately 4.4% lived in aged residential care.[11] However, it has been estimated that by 2028 the population will grow to reach 1 million older adults.[12] Given these projections, it becomes imperative to prioritise social connectivity and engagement for older adults to optimise health and wellbeing.

Facilitating digital connection is a relatively cost-effective method of combating social isolation while also improving the quality of life of

older adults.[13–15] In addition to providing opportunities for social interactions,[16] the internet offers users the opportunity to interact with government services and to have access to health and financial information. Online access to information can be particularly important for those with mobility issues.[17] Nevertheless, pre-COVID research found that ARC facilities frequently do not provide a technology-friendly environment for residents and that opportunities for internet-based communication are often enabled by family members.[7]

During 2020/2021, there were several periods of national or regional "lockdowns" in Aotearoa New Zealand where social activities were severely restricted to prevent the spread of COVID-19.[18] During these periods ARC facilities did not allow outside visitors, and residents, at times, were confined to their rooms. On these occasions residents' only social contact was with staff of the facility and with friends and relatives outside the facility using telecommunication technologies. Many ARC facilities sought innovative solutions to ensure at least some form of social contact could be provided. Despite this, reports of detrimental effects of social isolation in care settings were common.[19] While the pandemic accelerated technology use in various sectors, including mental health[20] and education,[21] its specific influence on technology uptake within ARC facilities remains uncertain.

In Aotearoa New Zealand, ARC facilities are required to be certified and are audited regularly; audit reports are published on the Ministry of Health's (MoH) website. However, ARCs are not required to provide access to communication technologies or promote their use. In 2019, prior to the onset of the COVID-19 pandemic and as a preliminary step towards a broader investigation into the digital inclusion of older individuals, we conducted an audit of national ARC facilities' websites and other electronic resources. Our objective was to identify any publicly available evidence demonstrating the promotion of digital inclusion within these facilities. Subsequently, in 2021 we replicated the audit to examine whether the visiting restrictions imposed due to COVID-19 had influenced the provision of digital technology for residents.

The current study aimed to address the following research questions: 1) to what extent do ARC facilities promote digital inclusion through the provision of access to digital technologies and learning opportunities, and 2) how did the initial 18 months of the COVID-19 pandemic impact the promotion of digital inclusion within these facilities? By investigating these questions, we sought to shed light on the evolving landscape of digital accessibility for older adults residing in ARC facilities.

Method

The first audit was undertaken between June and September 2019, prior to COVID-19 entering Aotearoa New Zealand in February 2020. It was then repeated between June and the beginning of August 2021, when Aotearoa New Zealand was experiencing low levels of COVID-19 transmission. This study was granted exemption from ethics approval by the Auckland University of Technology Ethics Committee on the basis that publicly available data were used.

In Aotearoa New Zealand there are four levels of ARC: rest homes and independent living facilities (care for mild to moderate dependence), hospital-level care (long-term nursing care for medical problems or disabilities), and dementia units and psycho-geriatric units (high level of specialist nursing care and monitoring). The MoH has a downloadable database of certified rest home providers in a Microsoft Excel spreadsheet format. This database was used to create the list of ARC facilities for the current study. A new Excel spreadsheet was then created, which included the name of the facility, the number of beds and the levels of care provided. Data collected on resident access to technology were added to this spreadsheet. Facilities with ≤20 beds were excluded as the focus of the audit was on larger facilities where resources to provide access to digital technologies may be more readily available. Facilities providing only dementia-level care were also excluded.

Three websites for each facility were examined in 2019 to gather evidence about access to digital communication technologies (Table 1): 1) the ARC facility's own website, 2) its entry on Eldernet (a directory of ARC facilities in Aotearoa New Zealand), and 3) the most recent audit from the MoH available online.

ARC facility websites

Many facilities have their own website advertising the levels of care provided. Websites typically have a home page, and separate pages dedicated to the types of accommodation available, the specific features of the ARC, such as amenities (e.g., physiotherapists, podiatrists, hairdressers), and the social activities offered, together with a contact details page.

Eldernet

Eldernet[22] is a privately run service that provides a directory of ARC providers. ARC facility listings are in a consistent structured format and include the levels of care available, the number of beds and the details of amenities provided.

MoH ARC facility audits

Residential care facilities must be certified as providing "*safe and reasonable levels of service for consumers*" and are regularly audited to ensure these standards are met. The MoH's database of ARC facilities provides details on the levels of care provided and the number of beds, and copies of recent audit reports.

Information available on more than one site (for example, the number of beds at a facility) was taken from the ARC facility website if one existed, and then from the Eldernet website and/or the MoH audit if further clarification was required. Where an ARC facility did not have its own website, information was gathered from Eldernet and the MoH database alone.

Data collection

The facility's own website and their entry on Eldernet were individually and systematically searched by one of the authors (CG, in both 2019 and 2021) using four search terms: "internet," "wifi", "computer" and "email." These terms were devised from preliminary searches of websites and were pilot tested to ensure they would accurately identify efforts to promote digital inclusion. The extracted information was inserted into the Excel spreadsheet devised for the current study and included in separate columns: i) provision of technology for residents to use, such as computers or other devices (yes/no), ii) internet (Wi-Fi) access for residents (yes/no), and iii) details of activities involving digital technologies (e.g., classes teaching residents on computer use or the internet). There was an additional column for each of the first two categories in which specific wording relating to the provision of these amenities was recorded. Table 2 outlines the criteria for receiving a positive response to each of these categories.

Table 1: Sources of information used for audit of internet-based communication promotion by aged residential care facilities.

Information source	Information gained from source
Aged residential care facility website	Primary source of information on the facility and amenities available to residents.
Eldernet	Additional source of information on the amenities available to residents, or used as a primary source when an aged residential care facility did not have its own website.
Ministry of Health's listing/audit report	Used to confirm information on levels of care provided and number of beds when there was a lack of clarity from the above two sources.

Table 2: Criteria for categorisation of technology availability.

Type of technology availability promoted	Criteria for receiving a "yes" response
Technology hardware	Provision of devices for residents to use; either for in-room use or available in common areas.
Internet access for residents	Access to use of the internet, either at the facility's cost or the resident's cost. Installation could be at the resident's cost.
Activities involving internet-based technologies	Group or individual activities organised for residents, e.g., classes on learning how to use devices/the internet.

Analyses

ARC facilities' promotion of internet-based technology for resident use was categorised into groups. Facilities in Group 1 were those that provided access to hardware, such as desktop computers or tablets for residents to use. Facilities that provided Wi-Fi but did not mention the availability of devices were assigned to Group 2, and those that mentioned activities, without any mention of devices or Wi-Fi availability, were placed in Group 3. Group 4 ARC facilities were those that did not mention technology at all. Facilities were assigned to one group only.

In our analysis we used a broad interpretation of what counted as promotion of technology/internet use. For example, in the few instances where multiple levels of care were provided by one facility and there was mention of technology availability in only one part of the complex, we counted that as a mention of technology use for the whole complex. Ambiguous entries were discussed by the authors until a consensus was reached regarding appropriate categorisation. The number of facilities in each group is reported as frequencies below (Table 3).

Results

Characteristics of facilities

A total of 644 ARC facilities were identified from the 2019 MoH database. Of those, 32 were excluded due to exclusively providing care for residents with dementia and 10 were no longer providing any services (see Figure 1). An additional 38 were removed as they did not meet our inclusion criteria of providing care for more than 20 residents. The screening of the remaining 564 facilities was repeated in 2021 to determine to what extent the promotion of technology use appeared to have changed in the approximately 18 months since COVID-19 arrived in Aotearoa New Zealand. Of these, six were no longer providing services in 2021, resulting in the screening of 558 facilities.

Figure 1: Aged residential care facilities included in 2019 and 2021.

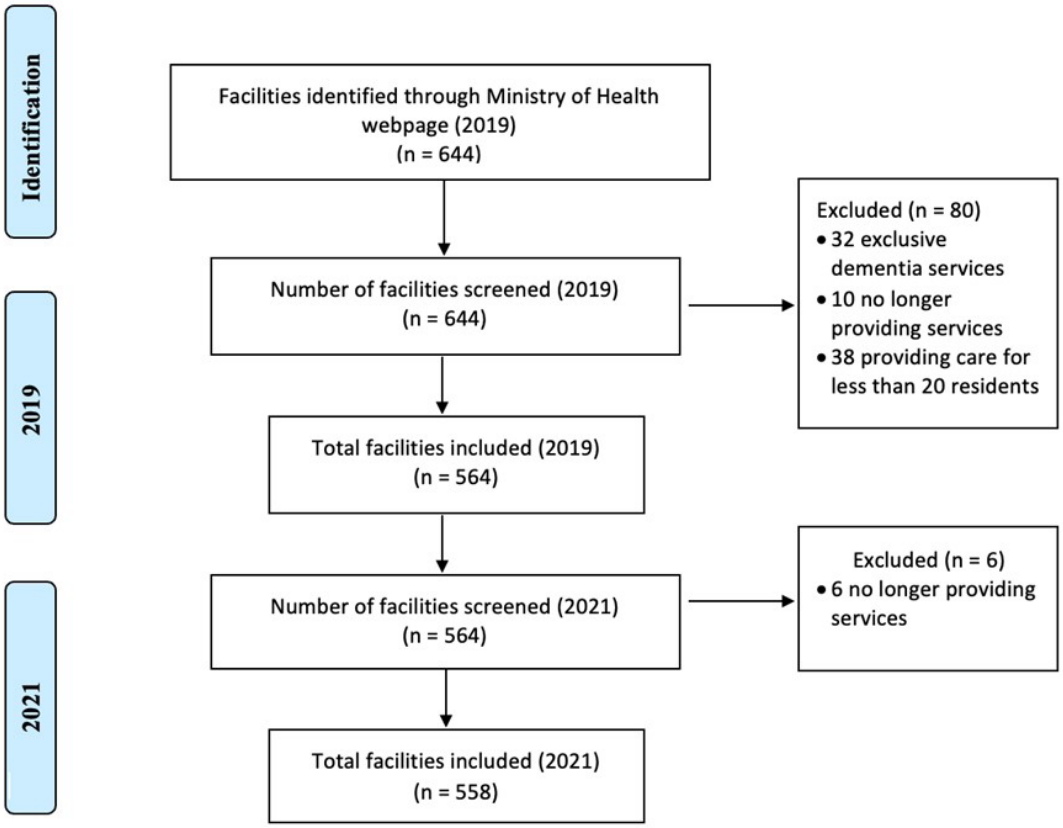

Table 3: Categorisation of facilities according to technology availability.

Category	Number of facilities=558	
	2019 N (%)	2021 N (%)
1. Devices for resident use	46 (8)	54 (10)
2. Wi-Fi access for residents	283 (51)	312 (56)
3. Activities involving internet-based technologies	63 (11)	55 (10)
4. No mention of internet-based technology use	166 (30)	137 (24)

The number of beds in each facility in 2019 ranged from 21 to 236 (21–40 beds: 144 facilities; 41–60 beds: 172 facilities; 61–100 beds: 173 facilities; and 101+ beds: 69 facilities). Most facilities offered multiple levels of care, with the vast majority (96%) offering rest home care, 65% of the total offering hospital-level care and 29% offering dementia care.

In 2019, 392 (70%) of the 558 ARC facilities included in the study made reference to the availability of internet-based technologies either on their own website or on Eldernet (Table 3). Of these, 46 (8%) mentioned access to computer devices (Group 1). Access was commonly described in the amenities section of websites with reference to a "computer room" or "internet café," although there was occasional reference to specific devices, such as: "*We have a wifi secure Ipad for resident use to keep in touch with overseas family and friends.*" Approximately half (283; 51%) of the 558 ARC facilities noted they provided Wi-Fi access (Group 2), although this was commonly offered at an additional charge and, in some cases, was only available "upon request." In a few instances, the resident or their family had to arrange the Wi-Fi connection themselves. A further 63 (11%) of the ARC facilities mentioned computer-based activities (Group 3), but without specifically referring to computer hardware or Wi-Fi availability. The wording used by this group of facilities was typically: "*Interests and activities: Email, internet*," which made it difficult to determine exactly what was being offered. However, other facilities clearly provided staff-assisted access; for example, "*Email and mail from and to family and friends is assisted and encouraged.*" Finally, 166 (30%) of ARC facilities made no mention of internet-based technologies or related activities (Group 4).

As seen in Table 3, by 2021 the availability of internet-based technologies appeared to be moving in the right direction, albeit slowly. Ten percent of facilities now promoted the availability of digital communication devices, compared to 8% in 2019. Likewise, internet connectedness was now more widely promoted (56% mentioned Wi-Fi, up from 51%). These increases appeared to come from both Groups 3 (activities involving internet-based technologies) and 4 (no mention of technology use), where there was a reduction in the number of facilities in these groups.

Discussion

Given the growing reliance on digital platforms for older adults' social connectivity and access to information, there is a need for ARC facilities to foster digital inclusion among residents. Although overseas studies have found pandemic-related increases in technology use,[23] it was disappointing that, even with the frequent lockdowns and periods of isolation due to COVID-19 in Aotearoa New Zealand, progress in promoting the availability of internet-based technologies seems extraordinarily slow. This suggests a concerning lack of recognition among many aged care operators regarding the importance of providing residents with access to digital technologies as an essential amenity. These findings echo prior research indicating that residents of ARC facilities are often marginalised from the advantages afforded by internet-based technologies.[7] While there are initiatives aimed at addressing digital exclusion in Aotearoa New Zealand,[24] many of these are directed to those living in the community, or are small regionally based programmes.[25]

With loneliness and social isolation contributing

to poor physical and psychosocial outcomes for older adults,[26–29] it seems that digital inclusion is one area where ARC operators could focus their attention. Access to digital technologies is frequently listed by ARC facilities under "special features" or "interests and activities," suggesting this is viewed as an additional, non-essential benefit. Globally, however, attention is being given to the importance of access to digital technologies in ARC facilities. In the United States, the state of California has recently enacted a bill requiring care facilities, including those for older adults, to provide at least one internet access device with video-conferencing capability for the sole use of residents.[30]

Family members are often involved in the decision as to which ARC facility to choose when a relative can no longer live independently. Understandably, the main priority is that the older person is well cared for physically.[7] While there is recognition that digital technologies can supplement face-to-face interactions, and that social interactions are important for residents' wellbeing, there can be an assumption that the older person may find it too challenging to learn how to use a device. Older people themselves may consider digital technologies to be "too difficult" to learn.[7] It is possible, therefore, that ARC facilities are simply responding to what they perceive to be a lack of demand from residents and families, resulting in the call for digital inclusion of older people going unheeded in aged care. Nevertheless, it is important that older people, regardless of their residential context, should be empowered, with appropriate opportunities and support, to engage with others online should they so choose.

Strengths and limitations

A strength of conducting a review of website information relating to ARC promotion of technology use is that we were able to conduct a review of all ARC facilities. Alternative methods, such as a survey of ARC facilities, would have only provided insights into those facilities that responded. Nevertheless, the study has limitations that should be acknowledged.

Our study used online reporting as a proxy for the actual provision of technology. As some care facilities do not have their own web page, or may not regularly update their entry on Eldernet, the data collected may not reflect the current situation for each facility. Inconsistent reporting across web pages may also limit our findings. Where aged care operators have multiple ARC facilities with one website covering all their facilities, available technology is sometimes reported under a general statement. In these cases it was not always clear whether technology use was supported by each facility managed by that operator. The focus of the current study was on larger ARC facilities, but we note that including smaller facilities with ≤20 beds is unlikely to have had a significant impact on findings as these represented only 6% of the eligible facilities in 2019. We also acknowledge that the quality and extent of digital inclusion efforts by ARC facilities were not able to be determined with the current research design. Finally, the study did not explore how access to the internet and internet-based activities varied by the size of the facility and the level of care offered. Further research in this area is needed.

Conclusions

This paper provides a snapshot of the promotion of technology use for older people living in residential care at two time points. Only minimal advances appear to have been made by ARC facilities in supporting the digital inclusion of residents during that timeframe. An investigation into to what extent formal digital inclusion policies exist in aged care is warranted.

COMPETING INTERESTS
The authors have no conflicts of interest to disclose.

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REFERENCES

1. Department of Internal Affairs Te Tari Taiwhenua. The Digital Inclusion Blueprint | Te Mahere mō te Whakaurunga Matihiko [Internet]. Department of Internal Affairs; 2019 [cited 2024 Jan 24]. Available from: https://www.digital.govt.nz/dmsdocument/113-digital-inclusion-blueprint-te-mahere-mo-te-whakaurunga-matihiko
2. Cotten SR, Ford G, Ford S, Hale TM. Internet use and depression among older adults. Comput Hum Behav. 2012;28(2):496-499. doi:10.1016/j.chb.2011.10.021.
3. Sims T, Reed AE, Carr DC. Information and Communication Technology Use is Related to Higher Well-Being Among the Oldest-Old. J Gerontol B Psychol Sci Soc Sci. 2017;72(5):761-770. doi: 10.1093/geronb/gbw130.
4. Tun PA, Lachman ME. The association between computer use and cognition across adulthood: use it so you won't lose it? Psychol Aging. 2010;25(3):560-568. doi: 10.1037/a0019543.
5. Döring N, Conde M, Brandenburg K, et al. Can Communication Technologies Reduce Loneliness and social Isolation in Older People? A Scoping Review of Reviews. Int J Environ Res Public Health. 2022;19(18):11310. doi: 10.3390/ijerph191811310.
6. Andrade AD, Hedges M, Pacheco G, Turcu A. The World Internet Project New Zealand 2021 [Internet]. Auckland, New Zealand: New Zealand Work Research Institute; 2021 [cited 2024 Feb 2]. Available from: https://tinyurl.com/4kfyvr45
7. Wrapson W, Wrapson J. Social connectedness of older people in residential aged care communities: The use of internet-based technologies [Internet]. 2018 [cited 2024 Jan 31]. Available from: https://internetnz.nz/sites/default/files/The_social_connectedness_of_older_people_in_residential_aged_care_communities.pdf
8. Hunsaker A, Hargittai E. A review of Internet use among older adults. New Media Soc. 2018;20(10):3937-3954. doi:10.1177/1461444818787348.
9. Wagner M, Kuppler M, Rietz C, Kaspar R. Non-response in surveys of very old people. Eur J Ageing. 2018;16(2):249-258. doi:10.1007/s10433-018-0488-x.
10. Seifert A, Doh M, Wahl HW. They Also Do It: Internet Use by Older Adults Living in Residential Care Facilities. Educ Gerontol. 2017;43(9):451-461. doi:10.1080/03601277.2017.1326224.
11. Dale CM, St John S. Long term in-home and residential care for our ageing population [Internet]. Economic Policy Centre; 2022 [cited 2024 Feb 7]. Available from: https://www.auckland.ac.nz/assets/business/our-research/docs/economic-policy-centre/pensions-and-intergenerational-equity/PIE%20Briefing%202022-1.pdf
12. Stats NZ | Tatauranga Aotearoa. One million people aged 65+ by 2028 [Internet]. 2022 [cited 2024 Feb 2]. Available from: https://www.stats.govt.nz/news/one-million-people-aged-65-by-2028#
13. Sen K, Prybutok G, Prybutok V. The use of digital technology for social wellbeing reduces social isolation in older adults: A systematic review. SSM Popul Health. 2022;17:101020. doi:10.1016/j.ssmph.2021.101020.
14. Cotten SR, Ford G, Ford S, Hale TM. Internet Use and Depression Among Retired Older Adults in the United States: A Longitudinal Analysis. J Gerontol B Psychol Sci Soc Sci. Sep 2014;69(5):763-71. doi:10.1093/geronb/gbu018.
15. Yang H, Chen H, Pan T, et al. Studies on the Digital Inclusion Among Older Adults and the Quality of Life-A Nanjing Example in China. Front Public Health. 2022;10:811959. doi:10.3389/fpubh.2022.811959.
16. Cotten SR, Anderson WA, McCullough BM. Impact of internet use on loneliness and contact with others among older adults: cross-sectional analysis. J Med Internet Res. 2013;15(2):e39. doi:10.2196/jmir.2306.
17. Hargittai E, Dobransky K. Old Dogs, New Clicks: Digital Inequality in Skills and Uses Among Older Adults. Can J Commun. 2017;42(2):195-212. doi:10.22230/cjc.2017v42n2a3176.
18. Kvalsvig A, Wilson N, Chan L, et al. Mass masking: an alternative to a second lockdown in Aotearoa. N Z

Med J. 2020;133(1517):8-13.
19. Healy J, Richtel M, Baker M. Nursing Homes Becoming Islands of Isolation Amid 'Shocking' Mortality Rate [Internet]. The New York Times; 2020 Mar 10 [cited 2023 Dec 14]. Available from: https://www.nytimes.com/2020/03/10/us/coronavirus-nursing-homes-washington-seattle.html
20. Mahoney AEJ, Elders A, Li I, et al. A tale of two countries: Increased uptake of digital mental health services during the COVID-19 pandemic in Australia and New Zealand. Internet Interv. 2021;25:100439. doi:10.1016/j.invent.2021.100439.
21. Joseph D, Trinick R. 'Staying apart yet keeping together': Challenges and Opportunities of Teaching During COVID-19 Across the Tasman. N Z J Educ Stud. 2021;56(2):209-226. doi:10.1007/s40841-021-00211-6.
22. Eldernet [Internet]. [cited 2024 Jan 31]. Available from: https://www.eldernet.co.nz
23. Schwaninger I, Carros F, Weiss A, et al. Video connecting families and social robots: from ideas to practices putting technology to work. Univers Access Inf Soc. 2022:1-13. doi: 10.1007/s10209-022-00901-y.
24. Citizens Advice Bureaux New Zealand. Face to Face with Digital Exclusion: A CAB Spotlight Report into the Impacts of Digital Public Services on Inclusion and Wellbeing [Internet]. 2020 [cited 2023 Dec 14]. Available from: https://www.cab.org.nz/assets/Documents/Face-to-Face-with-Digital-Exclusion-/9c5f26012e/Face-to-face-with-Digital-Exclusion.pdf
25. Digital Inclusion Alliance Aotearoa. Programmes [Internet]. [cited 2024 Feb 2]. Available from: https://digitalinclusionalliance.nz/programmes
26. Kojima G, Taniguchi Y, Aoyama R, Tanabe M. Associations between loneliness and physical frailty in community-dwelling older adults: A systematic review and meta-analysis. Ageing Res Rev. 2022;81:101705. doi: 10.1016/j.arr.2022.101705.
27. Wright-St Clair VA, Neville S, Forsyth V, et al. Integrative review of older adult loneliness and social isolation in Aotearoa/New Zealand. Australas J Ageing. 2017;36(2):114-123. doi: 10.1111/ajag.12379.
28. Zhang Y, Hu W, Feng Z. Social isolation and health outcomes among older people in China. BMC Geriatr. 2021;21(1):721. doi: 10.1186/s12877-021-02681-1.
29. Barnes TL, Ahuja M, MacLeod S, et al. Loneliness, Social Isolation, and All-Cause Mortality in a Large Sample of Older Adults. J Aging Health. 2022;34(6-8):883-892. doi: 10.1177/08982643221074857.
30. *Assembly Bill No 665 2021* (California) AB-665 Care facilities: internet access, Chapter 469.