AUSTRALIAN RESIDENTIAL AGED CARE FACILITIES MANAGERS' AND NURSES' EXPERIENCES IN IMPLEMENTING TELEHEALTH AND SOCIAL CONNECTION DURING COVID-19

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ABSTRACT

INTRODUCTION

Residential aged care facility (RACF) residents are highly vulnerable to severe infection and death from COVID-19. During the pandemic, telehealth (telephone and video) provided a mechanism to deliver for health care and social support. We examined logistical factors associated with telehealth, reasons for its use and barriers associated with the choice of telehealth.

METHODS

A mixed method exploratory study. Quantitative data were analysed using descriptive statistics. Qualitative data were analysed using a hybrid framework approach; deductive analysis followed by inductive analysis for sub-themes.

RESULTS

Participants (n=19) reported an increase in telehealth use during COVID-19. Organisations bought new equipment, predominately tablets; half had internet connectivity difficulties; nurses used personal devices to overcome connectivity issues or inadequate devices and 74% used three or more platforms/software. Few residents had personal digital devices or could connect with family and friends alone.

Five key sub-themes emerged from qualitative data. 1. Needing and persisting with telehealth. RACFs had limited video telehealth use before COVID-19. 2. Being dependent on health providers offering telehealth services. Telehealth was used for a broad range of services. However, many health providers did not offer telehealth consultations. 3 Residents living with dementia. Telehealth was suitable for residents with dementia, depending on the disease stage and clinical need. 4. Challenges with implementing telehealth consultations. Most challenges pertained to workflows. 5. Suitability of videoconferencing for social connection. Staff supported residents with video calls which were highly valued.

CONCLUSION

To capitalise on and sustain telehealth activity in RACFs, further guidance and support to overcome operational barriers are required.

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INTRODUCTION

The 2019 Coronavirus (COVID-19) pandemic has led to additional challenges for the aged care sector, particularly for residential aged care facilities (RACFs), where the threat and severity of COVID-19 are extremely high. Aged care residents, particularly those over 85 years of age, are a highly vulnerable group at risk of serious infection and death from the disease, so the risk of transmission needs to be mitigated where possible [1, 2].

In Australia, social distancing health policies and visitor restrictions have been implemented at varying times across facilities to reduce the risk of transmission. In addition to the issues caused by COVID-19, these strategies to prevent or mitigate transmission have also resulted in several unintended non-COVID consequences that are relevant to older people. These include but are not limited to, delaying the presentation, management and treatment of other acute medical issues, postponement of elective surgeries, poorer physical and mental health, social isolation, depression, and anxiety [3].

Without doubt, COVID-19 and cross-infection rates within RACFs during the pandemic have highlighted systemic and pre-existing issues within the broader aged care sector [4]. A new industry code for visiting RACFs [5] and the Royal Commission's Aged Care Quality and Safety report on the impact of COVID-19 and Final Report: Care, Dignity and Respect [6, 7] recommend the use of telehealth, defined as healthcare services provided at a distance using information and communications technology [8], to mitigate both the risk of transmission, access to services, and the effects of social isolation on RACF residents.

The COVID-19 pandemic and changes to funding via Medicare rebates have resulted in an increase in the uptake of telehealth services in general, the extent to which these have been adopted within RACFs in Australia during the pandemic is unclear [9]. Telehealth (telephone, video or remote monitoring) can have multiple purposes, including healthcare appointments, staff training and support, triage (hospital avoidance), and social support [10]. Various strategies have been used to help encourage the use of telehealth, including funding incentives, infrastructure grants, and training. As part of the pandemic response, we delivered a telehealth training program by videoconference to support health professionals working in selected RACFs. This study included a post-training investigation to understand logistical factors associated with telehealth (technology options and clinician perception of suitability); reasons for using telehealth (clinical, educational, social); and any specific barriers associated with the choice to use telehealth within these RACFs.

METHODS

DESIGN AND SETTING

We used a mixed-method exploratory study design. At the start of the pandemic during April and May 2020, 84 senior managers at RACFs within Queensland Health's Metro South Hospital and Health Service were invited to participate in voluntary training through a hospital-based telehealth centre. Training was provided by video, using Zoom [11] to senior managers or nominated staff at 53 RACFs. The 20-minute training session included how to connect the Queensland Health Telehealth Portal to access health services during COVID-19 lockdown restrictions.

PARTICIPANTS

All facilities that took part in the 20-minute training session formed the basis of our convenience sample. The sample included eight organisations with multiple facilities (n=25). A list of key contacts from the facilities who were senior staff or who took part in the training was compiled.

ETHICS

Individual participants were provided with participant information sheets, and informed consent was obtained in accordance with the ethical approval by The University of Queensland Human Research Ethics Committee (Approval No. 2020002172).

DATA COLLECTION

In September 2020, key contacts (n=39) who had received training were invited to participate in the study. Study information and consent were emailed with researchers

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following up by telephone or organising semi-structured interviews by email or telephone. To ensure a variety of organisations were represented within the sample, one facility of each organisation that had undertaken training was approached. The Telehealth Program Pathway [12] was used to guide the development of interview questions.

Telehealth Program Pathway Framework	
Telehealth Component	Description
Service Design	Residential aged care facility and residents' characteristics and external health care providers
Technology	Resources required to deliver telehealth activity including hardware, platforms/software, connectivity,
Operations, Adoption and Engagement	Actions required for telehealth uptake (organisational readiness, personnel, referral process, patient flow, speciality use, ease and willingness of use, barriers/challenges, facilitators/enablers, workflow integration)
Outcomes and impact on organisations, staff and residents	Perception of telehealth activity on intermediate outcomes and overall impact on staff, residents and the organisation (capacity to engage, satisfaction, workload, changes in role)

Research questions included demographic and organisation information, types of technology used before and during the pandemic, operational aspects of telehealth e.g. workflows, barriers and facilitators, perceptions of outcomes on staff and residents and training required to sustain telehealth use.

Interviews were conducted by experienced telehealth and aged care researchers AB, MT and NR and recorded using Zoom, and Otter.ai [13] generated automated transcriptions. Researchers compared notes on the appropriateness of interview questions after initial interviews and minor amendments were made. Interviews averaged 45 minutes and continued until data saturation, when no new themes were identified. Transcriptions were read through and checked for accuracy against recordings, de-identified and stored according to ethics requirements. Quantitative data on staff and residents' characteristics and the types of devices and telehealth platforms used before and during the pandemic were captured using Qualtrics [14] online survey software by the researchers.

QUANTITATIVE DATA ANALYSIS

Descriptive statistics were conducted to investigate primary variables of interest in the quantitative data including demographics of RACFs, telehealth hardware and software, and participant perceptions of residents' ability to use technology.

QUALITATIVE DATA ANALYSIS

We used a hybrid approach of qualitative thematic analysis methods [15] using Nvivo [16]. Firstly, transcripts were read through, and a deductive approach was used, where data were extracted according to the framework components (technology, operations, adoption and engagement by AB. Second, inductive coding (AB, MT) thematically identified sub-themes within each component of the Telehealth Program Pathway Framework. These sub-themes were shared regularly with team members for peer discussion, refinement, and agreement. This study reports on the technology used, how telehealth was operationalised within RACFs, the adoption process and participants' perception of staff's engagement with telehealth.

RESULTS

PARTICIPANTS

In total, 21 participants from RACFs took part in the study. However, two automated transcriptions were not of sufficient quality to be included in the analysis. Seventeen of the 19 participants with viable information had senior nursing roles (Table 2). For those who were approached but did not take part, most participants reported they were "too busy".

TABLE 2: PARTICIPANT CHARACTERISTICS

Position Title	N (%)
Head of Care/Director of Care/Nursing	3 (16)
Clinical Care Consultant/Coordinator	4 (21)
Care/Facility/Clinical Manager	10 (53)
Clinical Nurse/Registered Nurse	2 (10)
Total	**19**

Of the 19 facilities with available information, 11 were not-for-profit and eight were private for-profit. On average there were 87 beds per facility (range 42-140). Respite care was provided by 95% (n=18), 72% (n=8) provided low-care beds and 21% (n=4) provided short-term care. All facilities were located in the city of Brisbane. Prior to COVID-19, residents had in-person access to a range of primary and secondary care practitioners.

TECHNOLOGY

Technology use

All participants reported increased use of digital communication devices since the onset of COVID-19. Before COVID-19 restrictions, the telephone (42%) was the most used device. Due to the pandemic, organisations purchased new equipment for residents to access health services provided by an external health provider. Residents would have accessed these health services in person before the pandemic. (Figure 1).

Facilities had increased their telehealth use despite experiencing problems accessing appropriate telehealth equipment or reliable internet connectivity. Participants reported that nurses occasionally used their own devices to overcome the lack of appropriate devices or network connectivity (Wi-Fi) difficulties within the RACF. This included using personal phones to send images to wound specialists for treatment advice.

Half of all participants reported difficulty with internet connectivity. Old buildings with poor wi-fi access, increased internet traffic, and firewalls significantly contributed to the problem. One participant reported installing boosters throughout the facility to overcome connection issues and known blind spots.

Participants were asked which platform or software they had used since the beginning of the pandemic for videoconferencing purposes (Figure 2). In total, 74% of participants reported using three or more platforms to connect with care providers.

The external health care provider liaised with RACF staff by telephone to organise a telehealth consultation with the resident. Following this, external health providers sent the telehealth consultation link to the RACF, thereby determining which software applications (herewith referred to as software) were used. Consequently, RACFs were forced to adapt and use a range of systems. When difficulties occurred, participants reported trying different devices and software until they found one that worked in their environment. The rapid uptake of telehealth required staff to troubleshoot multiple systems.

Broader use of telehealth, such as remote monitoring, was reported by only one participant. The majority of participants (73%) perceived a third or more residents could participate in a telehealth consultation (Figure 3)
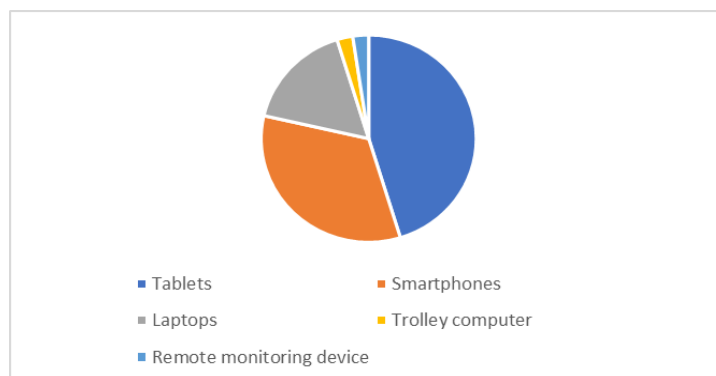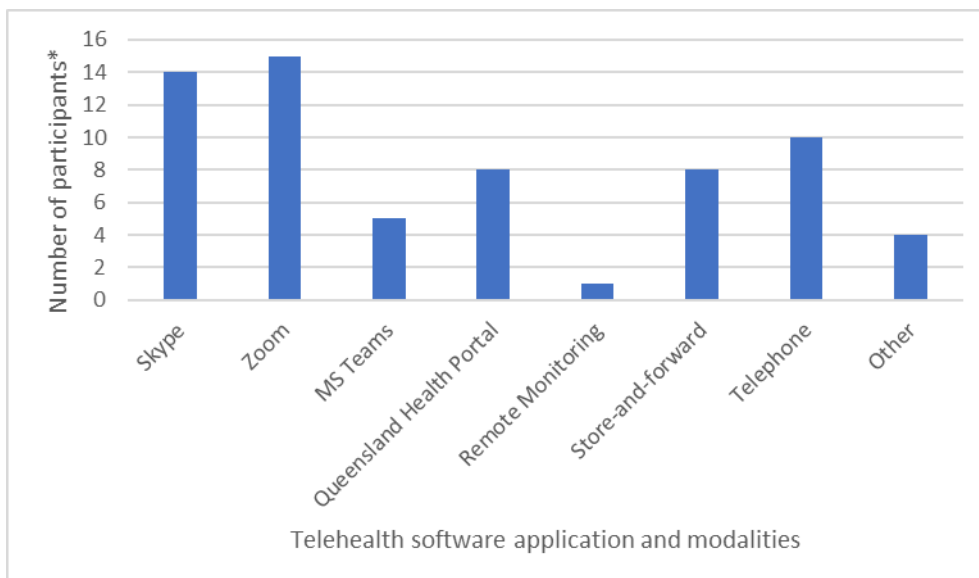
FIGURE 1: DIGITAL DEVICE USE IN RACFS (N=19)

Tablets · Smartphones · Laptops · Trolley computer · Remote monitoring device

FIGURE 2: TELEHEALTH SOFTWARE APPLICATIONS AND MODALITIES USED DURING COVID-19 (N=19)

Other: Health direct Videocall, FaceTime, Google Meets

FIGURE 3: PARTICIPANT'S PERCEPTIONS OF THE PERCENTAGE OF RESIDENTS WHO COULD TAKE PART IN A VIDEO TELEHEALTH CONSULTATION (N=19)
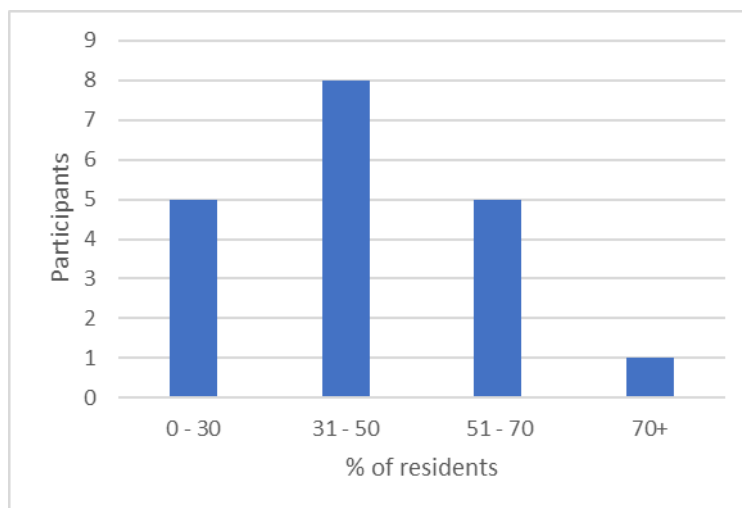
In total 68% (n=13) perceived less than 10% of residents had access to a personal digital device or were able to connect with family and friends by themselves.

OPERATIONS, ADOPTION, AND ENGAGEMENT

Five themes emerged that illustrated the operational, adoption and engagement experiences of RACF staff when using telehealth during lockdown restrictions: need and persistence; dependence on healthcare providers offering telehealth; residents with dementia; challenges with telehealth consultations; and digital device use for social support.

Needing and persisting with telehealth

COVID-19 resulted in the rapid uptake of telehealth in most RACFs, mainly due to necessity. Of those interviewed, 63%

(n=12) had very limited or no use of video telehealth prior to COVID-19. Visiting restrictions, lockdowns, absence of in-person clinician visits, and external healthcare providers offering telehealth appointments for the first time, influenced its adoption. In general, participants reported telehealth to be useful.

Initial telehealth appointments were only sometimes successful. However, the restrictions meant staff persisted and developed solutions even when problems occurred.

Being dependent on health providers offering telehealth services

It was reported most general practitioners (GPs) continued to provide in-person consultations during restrictions. Only

one facility reported a GP using video, others used the telephone.

Telehealth was most often used for wound care, palliative care, and specialist consultations. Wound care support, by either sharing images of wounds (store and forward) or during a telehealth consultation, was the most reported telehealth activity prior to and during COVID-19 restrictions. Participants reported sharing images by email.

Palliative care telehealth services offered by the local Palliative Care Service catalysed many RACFs to try telehealth for the first time. Telehealth specialist consultations included geriatrics, neurology, orthopaedics, dermatology, oncology, cardiology, pathology, dementia behaviour management, lymphedema, diabetes and urology. In addition, outpatient appointments and a case conference that included family members were also reported. Despite a range of specialist appointments taking place by telehealth, the vast majority of specialists were not participating in or offering such a service.

Residents living with dementia

There were conflicting views on using telehealth for residents living with dementia. Some felt that telehealth was unsuitable for a consultation with people in the moderate to advanced stages of dementia. However, telehealth was considered suitable for residents in the early stages of dementia, who can join in conversations. For those living with advanced dementia, telehealth was considered appropriate to assess cognitive function, make clinical observations and examine wounds.

Participants reported telehealth can be used for residents living with dementia to avoid transfers to hospitals, which can be upsetting and cause agitation. Participants expressed concern regarding residents who attended hospital appointments without family members and RACF nursing staff familiar with their condition, making it difficult or impossible to obtain a comprehensive medical history. In a telehealth consultation, RACF nurses were available to provide detailed and more accurate clinical information, which they reported, could lead to better health outcomes for the residents.

Challenges with implementing telehealth consultations

Participants reported few difficulties during telehealth consultations once connectivity was established and maintained. However, there were practical challenges including residents not being able to hear the health care provider and positioning residents as directed during the consultation.

The most reported difficulty with telehealth appointments was scheduling issues. Nurses attending a telehealth appointment was sometimes viewed as 'taking people off the floor' and additional work compared to when a doctor visited in person. This was exacerbated if consultations did not run on time, either starting late or lasting significant amounts of time. Staff telephoned external health care providers for an appointment, who sent a link for the telehealth consultation. Issues with multiple consultations simultaneously, and scheduling staff to attend and engage with external healthcare providers all required new workflows. One facility that had successfully modified workflows reported telehealth as being more time-efficient when compared to in-person visits.

Documentation processes with GPs were cumbersome, with neither organisation having efficient sharing methods nor storing relevant documentation from different service providers. RACF nurses collected and reported vital sign readings to GPs via the telephone. Faxes and emails were commonly used for documentation transfer between practitioners and the RACFs.

Organisations that had developed successful workflows with an e-record system reported healthcare providers sending documentation via email, which was then uploaded to residents' files. Some organisations documented telehealth consultations for their records. Those new to telehealth reported that telehealth documentation required additional nurse time compared to an in-person consultation, as GPs usually completed paperwork themselves. In addition, one participant said medication or care plan changes required an original doctor's signature, rather than a digital signature, leading to faxing paperwork back and forth between GPs and the RACF.

For in-person specialist and hospital outpatient appointments, follow-up documentation from hospital healthcare providers was consistently not received in a timely manner, and often required prompts from RACF staff to obtain the information. Some participants reported that they received even less documentation from telehealth appointments compared to in-person appointments, indicating issues with information management and access to records.

Suitability of videoconferencing for social connection

All RACFs provided access to a facility-owned digital device for residents to connect with family members. Video calls by mobile telephones and tablets used a variety of software which were commonly the same as those used for a clinical consultation e.g. Zoom, Skype, FaceTime. Different software used only for social calls included WhatsApp and Care App.

Using video calls for social connection before the pandemic was uncommon. Participants reported family members had requested assistance from RACF staff to help their loved one participate in a video call. Video calls enabled families to see their loved ones and ease their concerns about their safety during the pandemic. In some cases, video calls were new for family members and in one facility staff had to provide technical support for family members to connect with a resident.

Staff reported that although visiting restrictions have been lifted, video calls with families were still occurring routinely.

Similar to clinical consultations, many facilities developed a booking system to schedule appointments between residents and family members. Diversional therapists or lifestyle support workers, if facilities employed them, coordinated calls and liaised with families. They reported that most residents required help in starting a video call but depending on the resident's capabilities, some could be left to participate by themselves. Others with cognitive decline needed a member of staff to stay with them. In addition, participants reported that some residents, particularly those with advanced dementia, were not able to make sense of who was on the screen and video calls could cause difficulties.

Overall, RACFs were happy to support residents using video calls to connect with family members even though it required staff time to facilitate. Some participants felt volunteers could support this role when RACFs did not have visitor restrictions.

TABLE 3 – PARTICIPANT QUOTES

Technology used
"So the biggest block for us prior [to COVID-19] was the technology, we just didn't even have the tablets. So [organisation name] were able to provide us with tablets early on when the COVID crisis came into play. So prior to that, we actually we only had a limited number of tablets. So it wasn't easy to access that kind of communication." - P7
"We have smartphones, but many are not working smartphones... so they [nurses] use their own phone as we don't have enough smartphones for photos." - P6
"…it kept dropping out, it was useless. This is a very old building, the connectivity is not that flash. We started with Skype but it kept dropping out, so we used FaceTime". - P 4
"The internet connection would be an initial barrier but we did boosters in the whole facility, so our IT has sort of solved that one, especially the blind spots in the rooms." - P14
Need and persistence
"It was limited before COVID. We just did phone calls rather than telehealth. There has been a huge change because of COVID and the restrictions of our lockdown. It certainly opened our eyes to see how good it was and what a time saver it can be." – P7
"The palliative care team could not come in. So they offered to use telehealth… it was great…First attempt did not go well. But the following worked every time." – P1
Dependent on health providers offering telehealth
"Some specialist providers weren't interested and would just prefer a voice call. But others who were willing to use telehealth didn't have any problems." - P7
"We've never actually been offered the telehealth option for a specialist appointment" - P12
Residents living with dementia

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"I think we provide more information than sending someone to a hospital who's got low level of dementia and may not remember they fell three months ago - I think we potentially could have better outcomes." - P10

"A challenge for some people with dementia is going to an inpatient, outpatient appointment or a doctor's surgery and waiting. It can be really distressing - they don't know where they are, there's lots of stimuli around them, they can struggle and become quite agitated by it. Now that we have started to access care by telehealth - I can only see that continuing post COVID." - P13

Challenges with telehealth consultations

"I think it's just that it takes someone off the floor. When you do a doctor's round, you can run around quickly and get your work done, but [with telehealth] you have to set up time if somebody else is wanting to use the device and all that sort of stuff. So it would have to be scheduled, you'd have to have someone organised to be just doing that." - P8

"We need to work out the allocation for staffing to accommodate the needs. For example, if we have five residents or 10 residents that need to do a telehealth conference on the same day, how are we able to allocate the staff to accommodate each of them? What if they are the same time, can you spread them out during the day, reschedule to a different day? This will be the duty for the registered nurse and a care coordinator." P17

"There hasn't been a huge change in staff allocation...it's not always about time, if we get enough notice we have time to organise and if their appointment is this morning and we hear about it the day before, the RN will arrange everything for the morning staff… We realised this isn't difficult and you actually save time. Previously RNs said we don't have time to wait on the phone but slowly they realised it is better than waiting for the doctor to come - you book an appointment and do it." - P16

"Sometimes we get a discharge summary [from an in-person appointment]. Sometimes we still don't if it's an outpatient appointment, but we're finding we're getting them less if it has been anything related to telehealth." - P10

"I update the vital signs and consents to the doctor on the telephone, then she talks to the resident or family member and then I send the medication chart to her clinic and she reviews it and faxes back." - P6

"By telehealth or phone, changes in medication, restraints or a diabetic management plan update – they need to be done on the computer or we have to go backwards and forwards via the fax to have a doctor's notes". - P10

Videoconferencing for social connection

"When families couldn't come in, we set up Skype sessions. This requires a staff member when the resident cannot hold the iPad. However, we've other residents who we just take the iPad to, make sure they've got a connection and leave them to it. Staff go back to disconnect - that's not so time-consuming - five minutes total." P13

"There has been a couple of family members who have really pushed us. They have gone out and brought some devices and they are continuing to do it now that we're open…When it works, it works beautifully. And if it doesn't work, it just causes chaos." P10

"…I think for some. Others, it's been more driven by us because that makes them understand we can do it now. We are finding that some have been driven by the family, but it's mostly driven by us here. P5

DISCUSSION

This study explored the experience of videoconferencing for telehealth (clinical and social connections) in RACFs during COVID-19. During this timeframe, telehealth activity increased and was used for a broad range of consultations.

Organisations purchased technology to support telehealth however, internet connectivity within the facility was often a reported limitation. Despite facing technological challenges, RACF staff persisted in using telehealth. Another reported barrier to telehealth use was the experience that not all health providers were willing to offer

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telehealth services. For residents with dementia, the choice to use telehealth also depended on clinical requirements and the stage of the disease. Other challenges associated with telehealth uptake involved necessary changes to business processes, such as revised referral processes, documentation, scheduling, and staffing processes.

VIDEO TELEHEALTH FOR CLINICAL CARE

The benefits of using telehealth to provide care for older adults are widely reported [17]. Wardlow's large-scale survey on telehealth use across clinical roles, settings and purposes with older adults concluded that perceived advantages outweighed the challenges. Our study has similar findings in an Australian context, with telehealth viewed as supporting future healthcare delivery by reducing travel, hospital transfers, improving patient histories, and ensuring better access to more timely care.

RACF staff increased their use of telehealth due to COVID-19 restrictions. Organisations invested in new technology, particularly tablets, for a broad range of clinical consultations, however many require additional equipment and or better connectivity for its continued use [18]. Of concern were reports of staff using personal devices for telehealth consultations and sending resident images via email. Devices and software that do not have end-to-end encryption, pose a serious security risk as confidential data may be accessed by external parties [19].

Telehealth imposes a burden on case preparation and hosting for RACFs. Consistent with previous literature a key concern was the additional nursing and coordination time required [20, 21] which adds to existing high levels of stress that staff in RACFs face [22]. Some organisations have successfully integrated telehealth into routine care. However, to achieve widespread adoption across the aged care sector, staff require fit-for-purpose technology, best practice guidelines and case studies showcasing examples of successfully overcoming implementation barriers and how to integrate telehealth into daily workflows [23].

Telehealth can potentially improve access to care for all residents including those living with dementia. However, developing a telehealth ecosystem where external health practitioners are willing to provide telehealth consultations is required. Our study reported that few specialists provided telehealth consultations and GPs continued to provide care in person. If GPs used telehealth, it was via the telephone. Medicare funding data indicates 95% of the telehealth payment claims by GPs were for telephone calls rather than video calls [24], confirming these findings. There is evidence that video consultations are of higher quality compared to telephone consultations [25] but it has been suggested to increase the uptake of video with GPs, further evidence is required [26].

The solution to overcome the telehealth implementation barriers extends further than just workforce and technology issues [27]. To maximise the utilisation of new skills, motivation, and knowledge gained during the pandemic, it is essential to address regulatory, training and financial barriers. A lack of evidence on the return on investment that can be achieved by implementing telehealth within the aged care sector hinders aged care providers' willingness to invest in technology [9]. Recent government funding to support telehealth in RACFs [28] is welcomed, but whether this on-off funding can maintain fit-for-purpose telehealth infrastructure and motivate staff and external providers to embed telehealth into care practice remains to be seen. To sustain telehealth's use within Australian aged care facilities, current funding models need revising to include payment for health professionals' time to support telehealth and training to facilitate high-quality consultations.

VIDEOCONFERENCING FOR SOCIAL CONNECTION

Similar to other international studies, videoconferencing for social connectivity between residents and family members was highly valued [27, 29]. RACFs reported continuing to facilitate videoconferencing calls after restrictions had finished. However, most residents and some family members need support in using digital devices which adds to the existing time pressures on staff. To address this, some had developed a booking system for device use and scheduling calls administered by non-clinical staff and volunteers. Phang et al's recent review of digital intergenerational programs to reduce loneliness and social isolation among older adults included several studies using videoconferencing with families [30]. The review highlighted the importance of developing targeted programs specifically for RACF residents to ensure successful outcomes. There is significant potential in using digital devices for innovative social connection models in RACFs, such as connecting residents with students [30]. However, RACFs must have a sustainable model to support resident and potentially family member use of digital devices. Examples of good best practice guidelines on

using digital devices for social connection in aged care would be advantageous.

STRENGTHS AND LIMITATIONS

A limitation of this study is its inclusion of RACFs who received telehealth training; therefore, the findings may not be generalisable. Another limitation of this study is that RACFs were in a metropolitan area. Experiences of RACFs in rural and remote areas may differ. A strength of our study was the inclusion of a mix of private and public facilities of different sizes and numbers of beds. In addition, participants ranged from those with hands-on telehealth, managers, and clinical and administrative directors.

CONCLUSION

This study investigated the telehealth experience of RACF staff during the pandemic. Whilst there were many positive examples of how residents were able to access telehealth consultations with health providers and engage (by video) with family members, it's clear that challenges still exist for the routine use of telehealth. As technical infrastructure within RACFs improves, it is important that practical training is provided to support staff involved in the delivery of telehealth, and the broader organisational requirements (such as business processes, policy reform and funding) are fit for purpose.

CONFLICT OF INTEREST STATEMENT:
The authors have no conflicts of interest to declare.

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