Access, Readiness, and Willingness to Engage in Allied Health Telerehabilitation Services for Adults: Does Cultural and Linguistic Diversity Make a Difference?

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Article

Access, Readiness, And Willingness to Engage in Allied Health Telerehabilitation Services for Adults: Does Cultural and Linguistic Diversity Make a Difference?

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Abstract: Telerehabilitation is an appealing service delivery option for optimising recovering. Internationally, the equity of telerehabilitation services for people from culturally and linguistically diverse (CALD) backgrounds has been questioned. Using a 31-item survey, our study explored the access, readiness, and willingness of 260 patients to use allied health telerehabilitation services for adults receiving interventions from a large tertiary health service located in Sydney, Australia. Overall, 72% patients reported having access to technology, 38% met our readiness criteria, and 53% reported willingness to engage in telerehabilitation. There were no difference in access, readiness and willingness to engage in telerehabilitation between patients from CALD and non-CALD backgrounds. Age was the only factor that influenced access, readiness and willingness to engage in telerehabilitation. Past experience of telerehabilitation was related to willingness, but not access or readiness. Findings highlight the importance of ensuring positive patient experiences to promote ongoing willingness to use telerehabilitation. Efforts are needed to improve patients' digital health literacy, especially patients from older age groups, to ensure equitable access to telerehabilitation services.

Keywords: telerehabilitation; allied health; culturally and linguistically diverse; access; readiness; willingness

1. Introduction

Telerehabilitation has become an increasingly appealing option for the delivery of allied health rehabilitation services to optimise recovery (Seebacher et al., 2024; Tenforde et al., 2020). This increased appeal has occurred particularly since COVID-19 irrespective of where a patient lives—whether a rural, remote, or metropolitan area (Caffery et al., 2022). Telerehabilitation is a type of telehealth focused on "the delivery of rehabilitation and habilitation services via a variety of ICT [information and communication technologies]" with the range of services encompassing "evaluation, assessment, monitoring, prevention, intervention, supervision, education, consultation and coaching" (Richmond et al., 2017). Although telerehabilitation can involve a range of technologies (e.g., wearable sensors, telepresence robots) (Addas, 2023; Proietti et al., 2024), the focus of our study is on the use of telephone and video teleconferencing for the synchronous delivery of adult outpatient allied health rehabilitation services.

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Research comparing the effectiveness of telerehabilitation suggests that telerehabilitation can be equally effective to in-person services (Aily et al., 2023; Krzyzaniak et al., 2023; Vasilopoulou et al., 2017; Wicks et al., 2023). Telerehabilitation has also been reported to promote higher rates of attendance for patients receiving programs for chronic heart failure (Hwang et al., 2017) and reduce costs for patients compared to in-person services(Lloréns et al., 2015; Saiyed et al., 2022). For instance, Saiyed et al. (2022) reported lower costs for patients receiving telerehabilitation speech treatment for dysarthria associated with Parkinson's Disease in comparison to the same in-person treatment. In patients with chronic obstructive pulmonary disease (COPD), telerehabilitation has also been reported to be better than in-person services for reducing the risk of emergency department admissions due to acute COPD exacerbation (Vasilopoulou et al., 2017). Despite the equivalence and mounting benefits of telerehabilitation, equity in the use of telerehabilitation poses a challenge. One group where the equity of telerehabilitation use has been questioned is for patients from culturally and linguistically diverse (CALD) backgrounds (Adepoju et al., 2022; Brady et al., 2023; Haynes et al., 2021). For the purpose of this paper, a patient is considered CALD if they are "born in non-English-speaking countries and/or their main language spoken at home is not English" (Pham et al., 2021). It is a term used in Australian health care settings synonymous to cultural and ethnic minorities (Pham et al., 2021).

The potential inequities in telerehabilitation for patients from CALD communities are evident in two contexts. First, patients from CALD communities have been underrepresented in telerehabilitation research. This is because they have either been explicitly excluded from participating (e.g., "People were excluded if they could not understand or communicate using spoken English", Seidman et al., 2017, p. 176), or, passively excluded because strategies to include CALD patients have not been reported. These strategies can include the inclusion of a culturally responsive research teams, translated flyers and consent forms, and interpreters. Second, when the demographic reach of telehealth services has been studied, patients from CALD backgrounds have been reported to be less likely to access telehealth services compared to patients from non-CALD backgrounds (Adepoju et al., 2022; Lyles et al., 2022; Schifeling et al., 2020). Of note, the focus of much of this research has primarily been on telehealth for acute and non-acute medical services in the USA (Adepoju et al., 2022) rather than allied health telerehabilitation services in Australia. Given that people from CALD communities in Australia have been reported to face inequitable challenges in accessing health care services more broadly (Khatri & Assefa, 2022), it could be presumed they also face challenges in accessing allied health telerehabilitation services.

Factors underlying inadequate representation in telerehabilitation research, and potential inequities in accessing allied health telerehabilitation services are complex and goes beyond the diversity of the culture or language of the patient (Gallegos-Rejas et al., 2023). Simplistically, access can be viewed as having or being able to access telephone and/or videoteleconference devices (e.g., smart phone, computer, tablet) with affordable internet and data (Sieck et al., 2021). People from CALD communities have been reported to have intersecting and cascading health, social, educational, and vocational disadvantages given their higher risk of multiple chronic conditions and poorer self-rated health (Cooper et al., 2019), poor health literacy, and inadequate job skills training and employment opportunities (Montayre et al., 2018). Given that telerehabilitation tends to presume that a person is both health-literate and tech-savvy (Pham et al., 2022), telerehabilitation has the potential to exacerbate health inequities (Haynes et al., 2021). If healthcare providers are to offer equitable allied health telerehabilitation services for patients from CALD communities in an effort to address health inequities, we need to listen to patients within CALD communities and richly understand the issues underlying the concept of access. This is because having access does not guarantee that telerehabilitation would be used, and used successfully.

Throughout the extant literature on access and use of telehealth, researchers have explored the related concept of readiness to engage in telehealth (Hossain et al., 2019; van Houwelingen et al., 2018), and willingness to use telerehabilitation (Edgar et al., 2017; Zachariah Seidman et al., 2017). Readiness is a multidimensional construct capturing both access in addition to the skills or abilities to use a computer and the internet (van Houwelingen et al., 2018). Across the research examining

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telehealth readiness, it has considered the overall broad range of patients (Lee et al., 2022), readiness for people with specific health conditions such as COPD (Zachariah Seidman et al., 2017) or caregivers of patients who have had a stroke (Ramli et al., 2024) or older patients (Hall Dykgraaf et al., 2022; Hossain et al., 2019; van Houwelingen et al., 2018), rather than a comparison specifically between patients from CALD and non-CALD backgrounds seeking outpatient allied health rehabilitation services. The repeated finding has been that older adults have lower telehealth readiness regardless of their access to relevant technologies (Dykgraaf et al., 2022) and aligns with reports they have lower digital literacy (Dykgraaf et al., 2022; Thomas et al., 2021). As a complement to readiness, willingness refers to a patient's desire to try telehealth as a model of service delivery to address their health condition (Edgar et al., 2017; Zachariah Seidman et al., 2017).

Within the literature on willingness, similar trends regarding the inequitable representation of patients from CALD backgrounds are apparent, with these patients either not explicitly referred to or excluded from research participation (Zachariah Seidman et al., 2017), and/or the patient population group is specific to a particular health condition, such as diabetes (Althubyani et al., 2024; Saddik & Al-Dulaijan, 2015) or the insights have been gathered from health professionals rather patients (Seebacher et al., 2024). From the research focused on diabetes, Saddik and colleagues (2015) reported a significant positive association between being willing to try and actually using telehealth. Although it could be speculated that patients from CALD communities may have less access, and may have poorer readiness (based on poorer digital literacy), the limited research on the willingness of patients from CALD communities to engage in allied health telerehabilitation services has revealed diverse views (Brady et al., 2023). Specifically, in a mixed-methods study Brady and colleagues (2023) explored adults' perspectives on telehealth including patients from CALD backgrounds and their health professionals. Some patients' comments during semi-structured interviews suggested that some were not willing to use telehealth while others were willing.

If we are to better understand how allied health telerehabilitation might be used to optimise rehabilitation outcomes for patients from CALD backgrounds, there is a need to better understand their self-reported access, readiness, and willingness to telerehabilitation and explore demographic factors underlying each of these three concepts. To ensure the relevant issues around access, readiness, and willingness are identified, it would be important to contextualise the issues within the context of the broader community, and compare views about access, readiness, and willingness with patients from non-CALD backgrounds. Therefore, the primary aim of our study was to describe the access for telerehabilitation among adults from CALD and non-CALD backgrounds attending allied health outpatient services, explore their readiness to engage in telerehabilitation, and determine their willingness to accept the use of telerehabilitation.

Our secondary aims were to (a) determine if there were any significant differences between CALD and non-CALD groups in terms of access, readiness, and willingness to use telerehabilitation for allied health services; and (b) investigate demographic factors influencing access, readiness, and willingness to use telerehabilitation allied health outpatient services among patients from CALD and non-CALD backgrounds.

2. Materials and Method

A cross sectional survey was conducted between January 2022 to February 2023 at a health service that provides care for people residing in the Greater Western Sydney region, home to one of the most culturally diverse community in Sydney (NSW Government, 2019). People residing in this area are also likely to be from a more socio-economic disadvantage environment as compared to the general population in Sydney (Australian Bureau of Statistics, 2016). This study received ethics approval from the local Human Research Ethics Committee.

A convenience sampling strategy was used to recruit patient who are attending outpatient allied health appointments at the health service. Participants included in the survey must be adults over the age of 18, attending outpatient allied health appointments at the health service and have sufficient cognition to participate in the survey as determined by the medical history. Participants must also be able to comprehend in languages including English, Simplified Mandarin, Traditional Mandarin,

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Vietnamese and Arabic. Patients who are unable to read and comprehend the selected languages as mentioned above were excluded. Additionally, patients who were currently participating in other research projects were excluded to avoid being over-burdened with completion of questionnaire.

Potential participants were first approached by a member of the research team in the waiting room, who was not directly involved in the patients' care. The member of the research team explained the purpose of the study. Based on the participants' preferences, they would be provided either with a QR code that was linked to the study-specific questionnaire or a hard copy of the questionnaire in their preferred-language. For participants who preferred to have someone reading the questions out to them, the member of the research team who was fluent in the selected language read the questions out for them but did not assist with the interpretation of questions. Participants also had the option of completing the questionnaire at home. In this instance, participant were provided with a pre-paid envelope to facilitate return of questionnaires.

A study-specific questionnaire consist of questions including demographic characteristics, access to technology, readiness to use telehealth and their willingness to consider the use of technology (Appendix 1). Demographic characteristics such as age, sex, country of birth, perceived cultural identity, religion, socioeconomic status, home environment and level of education was captured using questions identical to the 2021 Australian Census (Australian Bureau of Statistics, 2021). The questions in the study were largely adapted from a previous study conducted by Seidman and Colleagues (2017) who looked at the extent of willingness to use telerehabilitation among people with chronic respiratory diseases. For the purpose of this study, readiness to use telerehabilitation was defined as a combination of having access to SMART phones and computers and a self-perceived data literacy rating of good or above. The survey was first piloted with a group of clinicians working at two local hospitals in the region to ensure that the questions asked were appropriately phrased for the patients. Questions were adjusted to ensure that it has a Flesch Reading score of between 90 and 100, which is a score that is considered to be easily understandable by an average 5th grader. The backward-forward translation method was also use to translate the survey into Vietnamese, Traditional Mandarin, Simplified Mandarin and Arabic.

Descriptive statistics were used to express categorical variables as counts and percentages (Table 1). The responses to access, employment and education were grouped into categories for analysis; (1): access, (2) no/limited access; (1): employed, (2) not employed/others and (3) retired; and (1): Year 8 or below, (2) Year 10 to diploma and (3) Bachelor and above, respectively. All analyses were conducted using SPSS statistics (version 29.0, IBM). Compliance with assumptions was checked using cross-tabulations and significant interactions were reported. A significance threshold of $p < 0.05$ was adopted in all analyses. A binary regression model was used to assess if any of the demographic factors had an independent relationship in influencing the access, readiness and willingness to engage in telerehabilitation.

Table 1. Patient demographics and telehealth service information.

Variable	CALD (n=145)	No-CALD (n=110)	*Unidentified (n=5)	Overall (n= 260)
Age in years, mean (SD)	60.4 (15.9)	61.88 (18.2)	60.97 (16.9)	57.4 (19.6)
Sex, n (%)				
Female	93 (64.1)	69 (62.7)	5 (100)	167 (64.2)
Male	51 (35.1)	39 (35.4)		90 (34.6)
Prefer not to say	1 (0.6)	2 (1.8)		3 (1.1)
Highest level of education completed, n (%)				
Year 8 or below	33 (22.7)	13 (11.8)	1 (20)	47 (18)
Year 10 to Diploma	77 (53.1)	82 (74.5)	4 (80)	163 (62.6)
Bachelor and above	35 (24.1)	15 (13.6)	0	50 (19.2)

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Living with, n (%)				
Alone	16 (11)	24 (21.8)	1 (20)	41 (15.7)
Partner (husband or wife, de facto partner)	41 (28.2)	35 (31.8)	1 (20)	77 (29.6)
Family (Partner and children)	68 (46.8)	41 (37.2)	0	109 (41.9)
Children	18 (12.4)	8 (7.2)	2 (40)	28 (10.7)
Grandchildren	0	0	0	
Sibling	1 (0.6)	0	1 (20)	2 (0.7)
Friend or companion	1 (0.6)	2 (1.8)	0	3 (1.1)
Employment, n (%)				
Employed	45 (31)	32 (29)	1 (20)	78 (30)
Not employed/others	42 (28.9)	25 (22.7)	2 (40)	69 (26.5)
Retired	22 (15.1)	53 (48.1)	2 (40)	77 (29.6)
Previous telehealth experience, n(%)	72(50.7)	60(56.6)	1(20)	132 (53.2)

*Un-identified= Participants did not complete details about their cultural and linguistic backgrounds.

Considering that the health service provide services to approximately 70 000 patients annually (AIHW 2019), an estimated 196 participants were required to achieve results with a confidence level of 95% with a margin of error of 7%. Assuming a response rate of 80%, the study aimed to recruit a sample size of 245 participants (Z. Seidman et al., 2017).

3. Results

During the recruitment period from Jan 2022 to Jan 2023, 260 individuals participated in this study. Patients' demographics and telehealth service information are described in Table 1. Participants were on average 57 years old (SD=20) and identified as female (64.2%; n = 167) (Table 1). More than half of the participants (n=145) self-identified to be from a CALD background while five did not provide any self-identification about their cultural and linguistic identity. Sixty two percent of participants completed secondary school level education, with 40% living at home with their family. Only 30% of the participants were employed on either a full-time or part-time basis. Slightly over half of the participants (53.2%) had previous experience using telehealth. A chi-square test of independence was performed to evaluate if there were significant between group differences in demographic characteristics between CALD and non-CALD groups. Apart from education (χ^2 (2, N = 255) = 12.28, p = 0.002) where there was a significant difference in level of education between CALD and non-CALD groups, there were no other significant differences in demographic characteristics between the two groups

3.1. Accessibility, Readiness and Willingness to Use Telehealth

Almost three quarters of the participants had access to technology, with similar percentage of access between the CALD and non-CALD groups (Table 2). Vast majority of participants stated that they had access to smartphones. Less than half of the participants (40.7%) self-perceived to have adequate computer/internet skills, with similar percentage reported between both groups. In terms of readiness, only 38.4% of participants met the readiness criteria to use telehealth, which was to have access to technology and have a self-perceived rating score of at least a good level of computer/internet skills. Over half of the participants (53%) stated that they will be willing to receive a telehealth appointment in the future. There were no significant between group differences in the level of access (X^2 (2, N = 250) = 0.48, p = 0.79), readiness (X^2 (1, N = 250) = 0.63, p = 0.43) and willingness (X^2 (1, N = 249) = 0.54, p = 0.46) to engage in telerehabilitation.

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Table 2. Characteristic of telehealth users.

Variable	CALD (n= 145)	No- CALD (n= 110)	Unidentified (n= 5)	Overall (n= 260)
Access, n (%)				
Access	107 (73.7)	75 (68.1)	5 (100)	187 (71.9)
Limited Access	32 (22)	26 (23.6)		58 (22.3)
No Access	5 (3.4)	5 (4.5)		10 (3.8)
Missing	1 (0.6)	4 (3.6)		5 (1.9)
Device used for telehealth appointments, n (%)				
Smart phone	107 (73.8)	75 (68.1)	4 (80.0)	186 (71.5)
Regular Phone	25 (17.2)	22 (20.0)		47 (18.0)
Shared smart phone/regular phone	7 (4.8)	4 (3.6)		11 (4.2)
Missing	6 (4.1)	9 (8.1)	1 (20.0)	16 (6.1)
Computer/Internet Skill, n (%)				
Very poor	39 (26.9)	24 (21.8)	1 (20.0)	63 (24.7)
Poor	17 (11.7)	16 (14.5)	1 (20.0)	33 (12.9)
Adequate	32 (22.1)	20 (18.2)	2 (40.0)	52 (20.4)
Good	29 (20.0)	22 (20.0)	1 (20.0)	51 (20.0)
Very good	28 (19.3)	26 (23.6)		54 (21.2)
Readiness, n (%)				
Yes	54 (37.2)	45 (40.9)	1 (20.0)	99 (38.1)
No	90 (62.1)	61 (55.5)	4 (80.0)	151 (58.1)
Missing	1 (0.7)	4 (3.6)		10 (3.8)
Willingness in using Telehealth				
Yes	79 (54.4)	58 (52.7)	1 (20.0)	138 (53)
No	55 (37.9)	46 (41.8)	2 (40.0)	103 (39.6)
Missing	11 (7.5)	6 (5.4)	2 (40.0)	19 (7.3)

3.2. Regression Analysis for Access

A binary regression analysis was carried out to evaluate the relationship between access and demographic characteristics such as age, sex, self-identified cultural, employment, education and past telerehabilitation experience. Results of the analysis is provided in Table 4.

Table 4. Regression analysis between access and demographic characteristics.

Predictors (reference variable)	*B (SE)*	P value	Odds ratio	95% CI
Age	-0.07 (0.02)	*0.001	0.94	0.90 to 0.97
Sex				
Male (ref)				
Female	0.75 (0.37)	*0.04	2.11	1.03 to 4.32
Self-identified cultural				
Non-CALD (ref)				
CALD	0.31 (0.38)	0.41	1.36	0.65 to 2.85
Employment				
Employed (ref)				
Not-employed/others	-0.57 (0.64)	0.37	0.57	0.16 to 1.98
Retired	-0.92 (0.58)	0.11	0.40	0.13 to 1.24

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Education				
Year 8 or below (ref)				
Year 10 to Diploma	0.84 (0.44)	0.06	2.30	0.98 to 5.40
Bachelor and above	0.88 (0.67)	0.19	2.41	0.65 to 8.92
Telerehabilitation Past				
No (ref)				
Yes	0.58 (0.37)	0.12	1.79	0.87 to 3.68
Willingness to engage				
No (ref)				
Yes	1.10 (0.40)	*0.006	3.00	1.38 to 6.53

*p<0.05, 3 participants who did not identify their sexes were excluded from the analysis.

Being of younger age, female and willingness to engage were independent factors that had a positive relationship in influencing the level of access to telerehabilitation (Table 4). Participants who were willing to engage in telerehabilitation had three times higher odds in having access to technology as compared to participants who were not willing. All other factors such as self-identified cultural, education, employment and past experience in telerehabilitation did not have a significant relationship in influencing the level of access.

Table 5. Regression analysis between readiness and demographic characteristics.

Predictors (reference variable)	*B (SE)*	P value	Odds ratio	95% CI
Age	-0.06 (0.15)	*<0.001	0.95	0.92 to 0.98
Sex				
Male (ref)				
Female	0.48 (0.39)	0.21	1.62	0.76 to 3.48
Self-identified cultural				
Non-CALD (ref)				
CALD	-0.04 (0.36)	0.90	0.96	0.47 to 1.95
Employment				
Employed (ref)				
Not-employed/others	-1.19 (0.49)	*0.02	0.30	0.12 to 0.79
Retired	-0.85 (0.51)	0.10	0.43	0.16 to 1.16
Education				
Year 8 or below (ref)				
Year 10 to Diploma	1.45 (0.68)	*0.03	4.28	1.12 to 16.34
Bachelor and above	2.25 (0.79)	*0.005	9.49	2.01 to 44.86
Telerehabilitation Past				
No (ref)				
Yes	0.64 (0.36)	0.08	1.90	0.93 to 3.87
Willingness to engage				
No (ref)				
Yes	1.21 (0.37)	*<0.001	3.35	1.63 to 6.89

*p<0.05.

In regards to the readiness to engage in telerehabilitation, factors such as younger age, having higher levels of education and willingness to engage in telerehabilitation do have a significant relationship in influencing readiness to engage (Table 5). People who had a Bachelor degree and above had a 9.5 times higher odd of being ready to engage in telerehabilitation as compared to people with year 8 or below education. Past experience in telerehabilitation did not have a significant relationship in influencing readiness to engage in telerehabilitation.

Table 6. Regression analysis between willingness and demographic characteristics.

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Predictors (reference variable)	*B (SE)*	P value	Odds ratio	95% CI
Age	-0.28 (0.12)	*0.02	0.97	0.95 to 1.00
Sex				
Male (ref)				
Female	0.35 (0.31)	0.26	1.42	0.77 to 2.59
Self-identified cultural				
Non-CALD (ref)				
CALD	-1.4 (0.29)	0.64	0.87	0.49 to 1.54
Employment				
Employed (ref)				
Not-employed/others	0.42 (0.41)	0.31	1.51	0.68 to 3.37
Retired	0.37 (0.44)	0.40	1.45	0.61 to 3.47
Education				
Year 8 or below (ref)				
Year 10 to Diploma	0.33 (0.41)	0.42	1.39	0.63 to 3.06
Bachelor and above	0.17 (0.53)	0.75	1.19	0.42 to 3.38
Telerehabilitation Past				
No (ref)				
Yes	1.00 (0.29)	*<0.001	2.73	1.55 to 4.79

*p<0.05.

In terms of willingness to engage in telerehabilitation, only two factors had a relationship with improvement of willingness to engage in telerehabilitation (Table 6). Participants who had past telerehabilitation experience had a 2.7 higher odds of being willing to engage in telerehabilitation as compared to participants who did not have past experiences with telerehabilitation. Age was another factor that influenced willingness to engage in telerehabilitation, with every one year of age, there is a reduction in the odds of willingness to engage in telerehabilitation. Other demographic factors such as sex, self-identified cultural, employment and education did not influence willingness to engage in telerehabilitation.

4. Discussion

Accessibility, level of education, employment status and willingness to engage in telerehabilitation are key elements that need to occur when it comes to ascertaining the extent of engagement in telerehabilitation (Hirani et al., 2017; Hossain et al., 2019). The findings from our study indicate that overall level of access, level of digital literacy and willingness to engage in telerehabilitation were low to moderate. While 72% of participants do have access to a device to carry out telerehabilitation, the overall access remained to be poorer than the national average in Australia (Thomas et al., 2021). According to the Australian Digital Inclusion Index report (2021), while the national access score has increased from 70 in 2021 to 73 in 2023, the improvement in access was not evenly shared. Our results provide further evidence of a worrying gap in access to technology amongst people from socioeconomic disadvantaged backgrounds as compared to the general population.

Other factors impacting access to technology include age and sex. As shown in our study, the older the patient, the poorer the access. Age was also the only factor that impacts on access, readiness and willingness to engage in telerehabilitation, adding to the literature that the introduction of digital technology such as telehealth, telerehabilitation and telemedicine will increase the digital divide between younger and older patients (Dykgraaf et al., 2022; Mao et al., 2022). Interestingly, more females in the study were found to have access to technology as compared to males. Contrasting with an earlier study, digital exclusion remains to be an issue for female worldwide, especially in low- and middle-income countries (Mariscal et al., 2019). Access to technology across sex tend to be more equitable in developed countries such as United Kingdom and United States (Mariscal et al., 2019).

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The findings from the study provides further evidence to support the claim that the gender gap is closing in developed high-income countries.

Apart from the age and gender gaps in digital inclusion, studies have highlighted that people from CALD background are often left behind in the growing digital world (Gallegos-Rejas et al., 2023). However, the results from this study contrast with the findings in the literature. When evaluating different factors impacting on use of telerehabilitation, our findings indicate that being from a CALD background did not impact on the individuals' willingness, access and level of digital literacy. The contrast in findings from our study as compared to the literature may be due to the fact that participants were mostly recruited from the lower socioeconomic disadvantaged areas of Sydney regardless of CALD status. Rather than suggesting that being from a CALD background was a direct contribution to the digital gap faced between people from CALD and non-CALD backgrounds, other factors such as age and lower educational status may play a bigger role in influencing readiness to engage in telerehabilitation.

The findings from our study do have significant implications to the future of telerehabilitation in Australia. Firstly, the results, contrasting to previous studies, suggest that people from CALD backgrounds have similar access, readiness and willingness to engage in telerehabilitation as compared to people from non-CALD backgrounds. Health professional should therefore provide an equal opportunity for all, regardless of CALD status to participate in telerehabilitation. It is important to note that this study did not explore whether participants did indeed engage in telerehabilitation hence it remains to be a likely hypothesis that people from CALD background may not participate in telerehabilitation as often as people from non-CALD backgrounds. Nonetheless, the findings from this study suggest that health professionals may need to consider other factors such as patient's self-belief in the efficacy of rehabilitation or health interventions when engaging people from CALD background in telerehabilitation as these factors may play a bigger role in influencing participation rates in telerehabilitation. Being less aware about rehabilitation programs among people from CALD background may also lead to reduce likelihood of people attending telerehabilitation. Drawing parallels from recent studies evaluating the level of awareness of rehabilitation among people with chronic respiratory diseases, people from CALD backgrounds were less likely to be aware about rehabilitation (Gardiner & Singh, 2022; Tang et al., 2022) resulting in poorer referral rates and attendance in rehabilitation. Further studies need to explore impact of other factors as to why people from CALD backgrounds are less likely to engage in telerehabilitation.

Next, the results suggest that there is an overall digital divide between people accessing care in lower socioeconomic areas as compared to the general population. In contrast to the study conducted by Seidman and colleagues in 2017, where 92% of participants had access to technology and 60% were willing to participate in telerehabilitation, our study indicated that use of telerehabilitation may not be as well received by patients receiving care in areas of lower socioeconomic status or diverse populations. While provision of technology may help to bridge the access issue, providing adequate support and developing people's trust in the technology appeared to be more critical for this population (Whitehead et al., 2023). Health service providers also need to reconsider their client/patient demographics before making a decision about redesigning health delivery to cater for the technological advancing society. A sudden shift to provision of only telerehabilitation over in-person care may result in greater health disparities. Furthermore, provision of only telerehabilitation may significantly impact on the health outcomes of older people accessing healthcare as age appears to be an independent factor in influencing access, readiness and willingness to engage in telerehabilitation. This digital divide has been evident during the pandemic where older people who could or decline to receive care via telerehabilitation, ended up missing in critical health interventions (Dykgraaf et al., 2022; Halcomb et al., 2023; Mao et al., 2022). Benchmarking of health services to compare uptake of telerehabiitation may also not be ideal without taking into account the demographic characteristics of patients residing in the area of service.

A strength of the study is the large sample size that have been included in this prospective study and the ability to accurately captured participant's CALD status through self-identification (Tang et al., 2022). The inclusion of only participants from one local health district may impact on the

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generalisability of the study. Nonetheless, the socioeconomic demographic is similar to other lower socioeconomic areas in other countries which suggest findings will be applicable to other multicultural population.

5. Conclusion

Access to technology to engage in allied health telerehabilitation does not mean patients will use telehealth to address their rehabilitation needs. In this study, one in two patients were willing and/or were deemed to be telehealth ready. Being from a CALD background did not appear to matter which suggest that all people, regardless of cultural and linguistic abilities, should be given the opportunity to engage with telerehabilitation. What does seem to matter is age, and factors associated with lower socioeconomics including education and employment. Future studies need to look at how health services can provide better support to bridge the growing digital divide in developed countries, especially for older people.

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Informed Consent Statement: Informed implied consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author due to the scope of the ethics approval. Participants have not provided consent to allow other authors to access their personal data.

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