Self-reported confidence of final year Australian physiotherapy entry-to-practice students and recent graduates in their capability to deliver care via videoconferencing

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Abstract:

Objective: To investigate the self-reported confidence of final year Australian physiotherapy students and recent graduates in their capability to deliver care via videoconferencing.

Design: A national cross-sectional survey

Participants: Australian physiotherapy students enrolled in their final year of an entry-to-practice physiotherapy program and recent graduates (graduating year 2020 or 2021) from an entry-to-practice physiotherapy program.

Methods: Participants were recruited via email invitation from their university, direct invitation during a lecture/tutorial and advertisements on social media. Participants rated their confidence (using 4-point Likert scales) in performing 60 individual core capabilities across seven domains from an international core capability framework developed for physiotherapists delivering quality care via videoconferencing. Data were dichotomised with 'moderately confident' and 'extremely confident' deemed as 'confident' and 'slightly confident' and 'not confident' deemed as 'not confident'.

Results: 343 participants from 20 (out of 25) Australian universities offering entry-to-practice physiotherapy programs completed the survey. The most common program participants were enrolled in/completed was a Bachelor of Physiotherapy (61%, n=209). Overall, most (75-100%) participants were confident in the domain 'delivery of telehealth', many (51-74%) were confident in domains of 'patient privacy and confidentiality', 'patient safety', 'assessment and diagnosis', 'care planning and management', and some (25-50%) were confident in 'technology skills' and 'compliance' issues.

Conclusion: Findings from this study highlight areas where final year entry-to-practice physiotherapy students and recent graduates may need additional support and training to deliver quality care via videoconferencing. These findings can inform the content of telehealth physiotherapy curricula.

Keywords: Physiotherapy, Physical therapy, Telerehabilitation, Telehealth, videoconferencing

Introduction:

Over the past decade, research supporting the safety, effectiveness, and acceptability of telehealth in physiotherapy has emerged (Grona, Bath et al. 2018, van Egmond, van der Schaaf et al. 2018). Videoconferencing is often chosen as the preferred telehealth delivery mode because it provides real-time visual contact, is convenient for patients and clinicians, and is accessible to many (Hinman, Lawford et al. 2019). There is evidence supporting physiotherapists' ability to assess (Russell, Blumke et al. 2010, Truter, Russell et al. 2014, Owusu-Akyaw, Hutyra et al. 2019), diagnose (Russell, Truter et al. 2010, Richardson, Truter et al. 2017), provide appropriate treatment pathways, and clinically manage patients via telehealth (Cottrell, O'Leary et al. 2018). Additionally, research suggests that physiotherapy delivered via telehealth can achieve similar and, in some cases, greater improvements in clinical outcomes compared to in-person physiotherapy care for certain populations such as; surgical patients (cardiac surgery, shoulder hemiarthroplasty, hip fracture) (van Egmond, van der Schaaf et al. 2018), musculoskeletal disorders, (Wong, Hui et al. 2005, Levy, Geiss et al. 2015, Bennell, Nelligan et al. 2017, Azma, RezaSoltani et al. 2018, Albornoz-Cabello, Barrios-Quinta et al. 2021) cardiac (Rawstorn, Gant et al. 2016) and pulmonary (Chan, Yamabayashi et al. 2016) rehabilitation, heart failure patients (Hwang, Bruning et al. 2017) and rehabilitation following knee replacement (Moffet, Tousignant et al. 2015).

Although research supports the acceptability and effectiveness of telehealth-delivered physiotherapy care, adoption of telehealth has been relatively slow until recently (Cottrell and Russell 2020). In 2020, the COVID-19 pandemic globally challenged the way in which physiotherapy services were delivered, with traditional in-person care being supplemented or replaced by telehealth (Lewis, Auliffe et al. 2021). As such, physiotherapists rapidly shifted to telehealth service delivery models, often with minimal preparation and training. Clinician resistance, reluctance to change clinical practice, as well as a lack of skills, training, technological competence, and inadequate knowledge have all been identified by physiotherapists as barriers to implementing videoconferencing during the pandemic (Cottrell and Russell 2020, Pegorari, Ohara et al. 2020, Albahrouh and Buabbas 2021, Malliaras, Merolli et al. 2021). These factors have also been raised by a joint task force established by the World Confederation of Physiotherapy (World Physio) and the International Network of Physiotherapy Regulatory Authorities in a report on digital physical therapy (World Confederation for Physiotherapy and International Network of Physiotherapy Regulatory Authorities 2019). The task force highlighted the need for developing clinicians who have the requisite knowledge, skills and expertise to provide physiotherapy care in a digital environment (World Confederation for Physiotherapy and International Network of Physiotherapy Regulatory Authorities 2019). This is particularly important given many physiotherapists intend to continue offering telehealth as a mode of service delivery beyond the pandemic (Bennell, Lawford et al. 2021, Grundstein, Fisher et al. 2021) even though in-person consultations are returning as covid restrictions ease.

University programs routinely provide entry-to-practice physiotherapy students with training in assessment, diagnosis, and management of patients who consult physiotherapists for in-

person care. However, training of these skills for telehealth consultations may be lacking, with anecdotal reports suggesting inconsistencies with telehealth education and training across physiotherapy programs (Martin, Mandrusiak et al. 2021). Despite evidence indicating training in telehealth facilitates an increase in clinician confidence, acceptance and adoption of the technology (Brewster, Mountain et al. 2014, Cottrell, Hill et al. 2018), few universities appear to have formally integrated telehealth coursework or practical telehealth experience into their programs (Martin, Mandrusiak et al. 2021). To support the development of a physiotherapy profession that can deliver care in a digital environment, adequate training in telehealth delivery at the university pre licensure level is essential. Recently, we developed an international core capability framework for physiotherapists to deliver quality care via videoconferencing (Davies, Hinman et al. 2021). The framework, structured around seven domains of telehealth practice, identifies the most important capabilities that physiotherapists need and can be used as best practice guidelines when delivering care via videoconferencing. However, we do not know how confident physiotherapists are in performing those skills.

Thus, the aim of this study was to determine the self-reported confidence of Australian final year entry-to-practice physiotherapy students and recent graduate physiotherapists in their capability to deliver physiotherapy care via videoconferencing according to an internationally-informed core capability framework (Davies, Hinman et al. 2021).

Methods:

Study design and participants: A national cross-sectional online survey was conducted in Australia between November 2021 and March 2022. Ethics approval was granted by the Human Research Ethics Committee at the University of Melbourne (# 22615). Australian physiotherapy students enrolled in their final year of an entry-to-practice Bachelor of

Physiotherapy, Master of Physiotherapy or Doctor of Physiotherapy program, as well as recently graduated physiotherapists from an entry-to-practice physiotherapy degree (who graduated in either 2020 or 2021) were recruited. Several recruitment strategies were utilised. First, direct emails were sent to academic staff and placement co-ordinators of all 25 Australian universities offering entry-to-practice physiotherapy programs asking them to forward an invitation to participate in the study to their student database (final year, entry-to-practice and recently graduated Alumni). Second, advertisements were placed on social media (Facebook, Twitter, Linkedin). Third, members of the research team and academic staff at participating universities were asked to directly invite students to participate during a lecture/tutorial if possible. As an incentive to participate, physiotherapy students and recent graduates had the option to go into a draw for a $1000 gift voucher if they completed the survey. Inclusion criteria for student physiotherapists were i) currently enrolled in an entry-to-practice physiotherapy degree in an Australian University; ii) in their final year of the physiotherapy program; and iii) fluent in English. Inclusion criteria for recently graduated physiotherapists were i) graduated from an Australian university entry-to-practice physiotherapy program in 2020 or 2021; and ii) fluent in English.

Survey instrument: Survey development was informed using the checklist for reporting results of internet e-surveys (CHERRIES) (Eysenbach 2004) and structured according to the core capabilities for videoconferencing identified in a recent international Delphi process (Appendix 1) (Davies, Hinman et al. 2021). Participants completed a single purpose-built online survey (via Qualtrics) regarding their self-reported confidence in their ability to deliver quality physiotherapy care via videoconferencing. Before proceeding to the survey, participants were required to complete an online consent form. The survey comprised two

sections. The first section comprised 12 questions that captured basic demographic data (e.g., age, gender, university attended, degree currently enrolled in/year graduated from physiotherapy program), whether telehealth training was provided by the university, and if participants had any practical experience delivering physiotherapy care via telehealth in their physiotherapy program. The second section comprised 60 questions, in which participants were asked to rate how confident they are in their ability to perform 60 individual capabilities across seven domains (compliance, patient privacy and confidentiality, patient safety, technology skills, telehealth delivery, assessment and diagnosis and care planning and management) (Davies, Hinman et al. 2021). Participants were asked to rate their confidence with each individual capability on a 4-point Likert scale ranging from "Not confident", "Slightly confident", "Moderately confident" and "Extremely confident".

Data Analysis: Survey data were downloaded from Qualtrics and imported to the Statistical Package for the Social Sciences (SPSS; Version 27, IBM) software for analysis. Descriptive statistics (counts and percentages) were calculated for the 4-point Likert scale ratings of self-reported confidence for the 60 individual capabilities. In addition, data for each capability were dichotomised into 'confident' ('moderately' and 'extremely' confident) and 'not confident' ('not' and 'slightly' confident) and reported as number and percentage of participants. To report the overall level of self-reported confidence within each domain the total number of participants (n=343) was multiplied by the number of capabilities in each domain to establish a denominator. Numbers for each of the 4-point Likert scale ratings across the capabilities in that domain were tallied and divided by the appropriate denominator and converted to a percentage. These were also dichotomised as described above. To aid interpretation of findings, we considered >75% of respondents as confident to be reflective of

"most" people, 51-74% to be reflective of "many" people, 25-50% to be reflective of "some" people and <25% to be reflective of "few" people.

Results

A total of 343 participants from 20 of the 25 Australian universities offering entry-to-practice physiotherapy programs completed the survey. Demographic data for participants are shown in Table 1. More than half of participants (67%, n=231) were final year physiotherapy students and the most common degree participants were enrolled in/completed was a Bachelor of Physiotherapy (61%, n=209). Over half of participants were female (60% n=206) and the majority were aged between 18-23 (50%, n=172) and 24-29 (38%, n=132) years of age. Around half of participants had received telehealth training (53%, n=182) within their physiotherapy program, most commonly provided via a lecture(s) (24%, n=81). Fifty three percent (n=182) of participants received telehealth training with an average of 33 hours of content (standard deviation [SD]: 52) and 47% (n=162) of participants received telehealth practical experience with an average of 43 hours (SD:54) during their program. Data for individual hours can be found in Appendix 2.

<Insert table here>

Figure 1 depicts the proportions of participants who are confident according to domain of videoconferencing capability. Data for each individual capability within the domains, both dichotomised and for each of the four Likert scale responses, can be found in Appendix 3. Regarding the domain of 'telehealth delivery', most participants (>75%) were confident setting up their physical environment, setting up their camera position, instructing a patient to

set up their camera and environment to optimise the consultation and adapting communication styles to suit a videoconferencing consultation. Regarding the domains of 'patient safety' and 'compliance' many (51-74%) were confident obtaining informed consent, managing clinical documentation, identifying safety hazards, assessing a patient's digital literacy and appropriateness to receive videoconferencing and informing the patient of potential risks, benefits and limitations associated with the delivery of videoconferencing. In contrast, for the 'compliance' and 'technology skills' domains, only some participants (25-50%) were confident complying with regulatory requirements (such as data security and indemnity insurance), selecting appropriate telehealth platforms for the intended purpose of the consultation, having the ability to proficiently use relevant features of the telehealth platform, identifying potential technical issues and how to mitigate them, identifying and interpreting evidence for physiotherapy delivered via videoconferencing and adapting treatment and assessment processes for videoconferencing. The majority of participants (89%, n=306) indicated interest in attending a course to upskill themselves in delivering physiotherapy care via videoconferencing.

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Discussion

The increased use of telehealth in physiotherapy practice and research during the coronavirus pandemic, as well as the adoption of telehealth clinical placements for students, (Ross, Whitehead et al. 2022) suggest that telehealth will continue post-pandemic (Flannery, Bladen et al. 2020, Bennell, Lawford et al. 2021, Grundstein, Fisher et al. 2021). This emphasises the importance of determining how confident entry-to-practice physiotherapists and recent graduates are in delivering care in a digital environment. The aim of this study was to

investigate the self-reported confidence of final year Australian entry-to-practice physiotherapists and recent physiotherapy graduates in their ability to deliver care via videoconferencing using a discipline-specific international core capability framework previously developed using consensus methodology (Davies, Hinman et al. 2021).

To our knowledge, no previous research has examined the confidence of final year physiotherapy students and recent graduates in delivering care via videoconferencing. However, our findings may be compared to research broadly examining the confidence of physiotherapists, other allied health clinicians and nurses (Cottrell, Hill et al. 2018, van Houwelingen, Ettema et al. 2019, Bennell, Lawford et al. 2021, Cottrell, Burns et al. 2021, Malliaras, Merolli et al. 2021) in delivering care via telehealth, mostly during the coronavirus pandemic. Results of these studies have been mixed. High levels of confidence were reported in one study of allied health clinicians, predominantly physiotherapists, when using telehealth to assess, diagnose and treat patients with acute and chronic musculoskeletal conditions (Malliaras, Merolli et al. 2021) and in another study of 207 physiotherapists providing videoconferencing consultations in private practice/community in Australia (Bennell, Lawford et al. 2021). However, these studies did not include final year physiotherapy students or focus on new graduates and only evaluated confidence broadly rather than across the breadth and number of capabilities encompassed by the framework we used. In contrast, other studies have reported more variable confidence levels. A study involving a range of allied health clinicians (from nutrition and dietetics, occupational therapy, physiotherapy, psychology, social work, and speech pathology) found they lacked confidence in their ability to trouble-shoot technical difficulties and lacked confidence in managing technical disruptions associated with videoconferencing platforms (Cottrell, Burns et al. 2021). They also found allied health professionals had difficulty performing tasks where

no formal adaptation procedures were established for a telehealth environment (Cottrell, Burns et al. 2021). Clinicians felt that their limited prior experience and training in telehealth negatively impacted their confidence levels (Cottrell, Burns et al. 2021). Furthermore, pre-pandemic research examining clinicians' perspectives of a novel home-based multidisciplinary telehealth service for patients with spinal pain found that clinicians had limited confidence and knowledge when performing telerehabilitation via videoconferencing, despite having high confidence in the general use of computers (Cottrell, Hill et al. 2018). We observed similar findings with some (25-50%) final year entry-to-practice physiotherapists and recent graduates displaying confidence in areas such as compliance and technology skills. A study involving hospital nurses (conducted prior to the coronavirus pandemic) found low to moderate confidence levels in 22 of 23 competencies relating to knowledge, skills, and attitudes when delivering care via videoconferencing (van Houwelingen, Ettema et al. 2019). Nurses were moderately confident in areas such as determining whether telehealth technology was appropriate for patients, medical data laws and regulations, and encouraging the use of electronic measurement devices to collect patient information. Confidence was lower in areas such as policies, procedures, what to do in the event of an emergency during a telehealth consultation, and organisational protocols concerning the deployment of telehealth technologies (van Houwelingen, Ettema et al. 2019). This highlights the need to evaluate confidence across a range of capabilities.

Our study findings identified that overall, most final year entry-to-practice physiotherapists and recent graduates were confident in the domain of 'telehealth delivery', many were confident in the 'patient privacy & confidentiality', 'patient safety', 'assessment and diagnosis' and 'care planning and management' domains and some were confident in the 'technology skills' and 'compliance' domains. The fact that only some final year entry-to-

practice physiotherapists and recent graduates were confident in their technology skills was an interesting finding because it is generally assumed that younger generations ("digital natives") who have grown up using technology such as computers and the internet, (Jones, Ramanau et al. 2010, Judd 2018) must be inherently “tech savvy” and have a natural ability to use and adapt to new technologies (Judd 2018). In fact, research suggests that while younger generations are comfortable with some types of technology (e.g., common office suite software and searching the internet), they are less comfortable using specialised technologies (Caruso and Kvavik 2005, Jones, Ramanau et al. 2010). This may explain the lower confidence observed in final year entry-to-practice physiotherapists' and recent graduates’ ability to choose an appropriate fit-for-purpose telehealth technology for patient assessment and management, as well as their ability to identify and resolve potential technical issues that patients are likely to face when using telehealth. Research shows that exposing new-graduate physiotherapists to telehealth technology prior to using such platforms is beneficial to their transition to the digital environment because it improves their problem-solving abilities, such as troubleshooting technology issues (Martin, Mandrusiak et al. 2021).

One explanation for lower confidence in compliance issues and technology skills may be due to a lack of knowledge, experience, and understanding of telehealth delivery. These factors are thought to result from insufficient education and training in the telehealth environment (McClellan, Florell et al. 2020). Indeed, only half of the final year entry-to-practice physiotherapists and recent graduates in our study indicated that they had received education and training in telehealth as part of their programs. This is not surprising given anecdotal evidence suggesting that telehealth education in physiotherapy programs is inadequate and/or inconsistent, with some university programs offering training and practical experience while

others offer none (Martin, Mandrusiak et al. 2021). According to a recent review of the literature, similar findings are observed across allied health professional programs which appear to lack incorporation of evidence-based telehealth training (Hui, Haines et al. 2021). Current training is suggested to be highly variable in terms of learning objectives, type of training provided, assessment criteria and duration of training (Hui, Haines et al. 2021). Indeed, in our cohort there were large variations in the type of training received by participants (i.e. lecture(s), workshop, module, tutorial, seminar, guest speaker) and large variations in the estimated number of telehealth training hours received (ranging from 1 hour to 200 hours). Despite only half of the entry-level physiotherapists receiving telehealth training during their programs, most (89%, n=306) expressed interest in upskilling in delivery of physiotherapy care via telehealth. Further research is needed to better understand the nature of telehealth training currently offered in entry-to-practice physiotherapy programs, the pedagogy around optimal telehealth training as well as the challenges and enablers to implementing telehealth-specific training.

The implications of our findings for physiotherapy educators are noteworthy. Our findings suggest that the emerging physiotherapist workforce could benefit from more hands-on practical experience with videoconferencing software to improve their technology, assessment, and diagnosis skills. In addition, future telehealth curricula for universities offering entry-to-practice physiotherapy programs should include education and training on relevant laws pertaining to physiotherapy care delivered in a digital environment, regulatory issues, reimbursement models, data security requirements for telehealth, selecting appropriate telehealth platforms for the intended assessment and management task, understanding and identifying potential issues and/or technical problems that patients are likely to encounter, how to resolve such problems and how to effectively adapt and modify assessment processes

(such as using special tests) for videoconferencing. The core capability framework we based our survey on may provide a useful tool to guide curricula and to evaluate learning outcomes and student confidence across the breadth of capabilities required to deliver quality care via videoconference (Davies, Hinman et al. 2021).

Our study has strengths and limitations. Strengths include a large national sample with broad representation from 20 of 25 (80%) Australian universities offering entry-to-practice physiotherapy programs across 6 of 8 states and territories of Australia. Although most Australian universities were represented, there were limited respondents from some universities. As we did not use random sampling, we do not know whether participants are representative of the eligible population. Given the online nature of the survey, there may be a bias towards people who were more confident with technology agreeing to participate in the study. Because we only recruited Australian physiotherapy students and recent graduates, the findings of this study may not be generalisable to other countries where physiotherapy is taught and practised differently. Another consideration is that final-year students were at different stages of their studies, and some may not have received telehealth training at the time of the survey; however, it is possible they received telehealth training at a later stage of their program which may have improved their confidence in telehealth.

In conclusion, most entry-to-practice physiotherapy students and recent graduates were confident in the domain ‘telehealth delivery’. Many were confident in the domains ‘patient privacy and confidentiality’, ‘patient safety’, ‘assessment and diagnosis’ and ‘care planning and management’, while only some were confident in the domains ‘technology skills’ and ‘compliance’. Results from this study highlight where students and recently graduated physiotherapists require the most support and training when delivering care via

videoconferencing. This can help inform the development of telehealth curriculum in entry-to-practice physiotherapy programs.

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