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RESEARCH ARTICLE

Use, and acceptability, of digital health technologies in musculoskeletal physical therapy: A survey of physical therapists and patients

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Abstract

Objectives: Determine (a) frequency of digital health use to obtain/record clinical information (pre-COVID-19); (b) willingness to use digital technologies among physical therapists and patients with musculoskeletal conditions.

Methods: 102 physical therapists, and 103 patients were recruited in Australia. An electronic survey ascertained (a) demographic/clinical characteristics, (b) frequency of methods to obtain and record clinical information; (c) willingness to use digital technologies to support musculoskeletal care.

Results: Physical therapists mostly used non-digital methods to obtain subjective (e.g., face-to-face questioning, $n = 98$; 96.1%) and objective information (e.g., visual estimation, $n = 95$; 93.1%). The top three digital health technologies most frequently used by therapists: photo-based image capture ($n = 19$; 18.6%), accessing information logged/tracked by patients into a mobile app ($n = 14$; 13.7%), and electronic systems to capture subjective information that the patient fills in ($n = 13$; 12.7%). The top three technologies used by patients: activity trackers ($n = 27$; 26.2%), logging/tracking health information on mobile apps or websites ($n = 12$; 11.7%), and entering information on a computer ($n = 12$; 7.8%). Physical therapists were most willing to use technologies for: receiving diagnostic imaging results ($n = 99$; 97.1%), scheduling appointments ($n = 92$; 90.2%) and capturing diagnostic results ($n = 92$; 90.2%). Patients were most willing to use technologies for receiving notifications about health test results ($n = 91$; 88.4%), looking up health information ($n = 83$; 80.6%) and receiving personalised alerts/reminders ($n = 80$; 77.7%).

Conclusions: Physical therapists and patients infrequently use digital health technologies to support musculoskeletal care, but expressed some willingness to consider using them for select functions.

KEYWORDS

digital health technologies, musculoskeletal conditions, musculoskeletal pain, physical therapy

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1 | INTRODUCTION

Musculoskeletal pain conditions impose a considerable burden on individuals, the health care system and society, with persistent pain (lasting more than 3–6 months) second only to mental health conditions in terms of global burden of disease (James et al., 2018; Kovačević et al., 2018; World Health Organisation, 2019). According to the recent Global Burden of Disease study, over 1.7 billion individuals lived with a musculoskeletal condition in 2019, a rise of 62% since 1990 (Cieza et al., 2020). These account for the 71% of people globally with a health condition that would benefit from rehabilitation (Cieza et al., 2020). In particular, low back pain imposes the single biggest burden with 568 million individuals afflicted in 2019, while neck pain and osteoarthritis are also major contributors (Cieza et al., 2020; Vos et al., 2016). Significantly, these conditions are projected to rise in coming years with population ageing and growth (Cieza et al., 2020; Hartvigsen et al., 2018). Musculoskeletal pain is a leading driver for individuals to seek primary healthcare (Deloitte, 2019; Willett et al., 2017). Physical therapists play a pivotal role in managing musculoskeletal pain conditions, given their expertise in diagnosis, treatment and self-management across the continuum of care, from primary care settings through to post-operative rehabilitation.

In recent years, the international physical therapy community has begun to realize the potential of digital health technologies to benefit both patients and clinicians (World Confederation for Physical Therapy, 2020). For patients, digital health technologies may improve ability to connect and access care, enhance autonomy and empowerment, and decrease financial burden of healthcare. For clinicians, digital technologies may improve workflow efficiencies, provide control over how self-management information and resources are delivered, and expand care delivery options (World Confederation for Physical Therapy, 2020). Digital health technologies may include (but are not limited to) the Internet, smartphones, wearable devices and telehealth platforms (Murray et al., 2016). Importantly, such technologies can support the collection of clinical information required by physical therapists to guide treatment of an individual with a musculoskeletal condition (Bailey et al., 2020; Hewitt et al., 2020). Examples include collection of patient-reported outcome measures (PROMs), tracking/monitoring treatment adherence and response, and use of wearable and other remote monitoring devices to collect real-time objective (quantitative) data (Aggarwal et al., 2017; Appelboom et al., 2014; Chehade et al., 2020; Mendes et al., 2016). Digital health technologies can also help to connect points of care, augment clinical decision-making, and support the patient journey from in-room clinical care to community-based self-management. Digital health technologies have great potential, as they are scalable, may overcome issues of access to, and cost of care, and can be tailored to patient preferences (Murray et al., 2016).

Despite increasing recognition of the potential benefits that digital health technologies may bring to physical therapy practice and patient care, evidence regarding their uptake and acceptability among therapists and patients prior to the COVID-19 pandemic is largely unknown. Hence, this exploratory study aimed to determine

the (a) frequency with which digital health technologies are used to obtain and record clinical information and; (b) willingness to use digital technologies in the future, among both physical therapists and patients with musculoskeletal conditions.

2 | METHODS

2.1 | Design

A cross-sectional study utilising an electronic survey was conducted. This study is reported in line with both the Checklist for Reporting Results of Internet E-Surveys (CHERRIES; Eysenbach, 2004) and Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (Cuschieri, 2019).

3 | ETHICAL APPROVAL

Ethical approval was granted from the Human Research Ethics Committee at the University of Melbourne (Study ID 2056217.1). Completion of the survey was deemed to provide consent to participate. Funding for the study was supported by the University of Melbourne. No other funders played a role in the design, conduct, or reporting of this study.

3.1 | Recruitment and study sample

Participants were recruited from Australia between September 2019 and March 2020. Physical therapists who treat musculoskeletal conditions, and patients who had engaged with a physical therapist for a musculoskeletal condition, were the focus of recruitment. Inclusion criteria for physical therapists were (a) practicing clinician registered with the Australian Health Practitioners' Regulation Agency; (b) musculoskeletal health as primary area of practice and; (c) treated on average at least five patients per week with a musculoskeletal condition in the prior 6 months. To be included, patients were required to have consulted a physical therapist for a musculoskeletal condition in the 6 months prior. Therapist recruitment occurred via communication channels of the Australian Physiotherapy Association (APA), social media (Twitter, Facebook and LinkedIn) and professional networks of the research team. Patients were also recruited via targeted social media posts as well as from research volunteer databases of the authors. All participants were offered the opportunity to go into a draw to win one of four \$50 gift vouchers by completing the survey.

3.2 | Survey

The survey (with slightly different phrasing for physical therapist and patient cohorts) was developed by members of the

research team, adapted from the World Health Organisation's Classification of Digital Health Interventions (World Health Organization, 2018). Development of the survey is published elsewhere (Merolli et al., 2021). The survey was administered electronically to participants using Qualtrics™ (Qualtrics, Utah) survey software.

The physical therapist survey and the patient survey are found in Appendices 1 and 2. Questions ascertained participant demographics (including gender, age, postcode, and highest level of education) and clinical characteristics (e.g., patient survey ascertained the type of musculoskeletal condition experienced, whilst the therapist survey determined clinical experience, among other parameters). Both participant groups were also asked about online behaviours, including what devices they used to go online, and frequency of Internet usage.

Participants were surveyed about management practices of musculoskeletal conditions in a physical therapy context. Therapists rated how frequently they used various methods/tools to obtain both subjective (nine items) and objective (nine items) clinical information from patients. Therapists also rated how frequently they used different methods/tools for documenting clinical information (12 items). Similarly, patients were asked how frequently they used various methods/tools to record information about their musculoskeletal condition (10 items). Respondents from both cohorts scored each item using a 5-point Likert scale (ranging from 'never' to 'always'). Participants were also asked about their willingness to use digital technology for a range of different purposes (physical therapists, 32 items; patients, 16 items), using 5-point Likert scales (ranging from 'not willing at all' to 'very much willing'; Merolli et al., 2021).

3.3 | Data analysis

Data was analysed in SPSS™ version 25 (IBM Corp, USA) software using descriptive statistics. Only data from complete surveys were analysed. To interpret the data and examine level of agreement across the Likert scales in each survey, participants recording either 'always' and 'frequently' were categorised as 'users' of a given technology and all other respondents as 'non-users'. Similarly, participants recording either 'very much willing' and 'quite a bit' were categorised as 'acceptors' of the given technology and all other respondents as 'non-acceptors'.

4 | RESULTS

Of the 126 physical therapists who met eligibility criteria, 102 completed the survey; 24 were partial completions and not analysed (completion rate 90.0%). Of the 115 patients who met eligibility criteria, 103 completed the full survey, leaving 12 partial completions not analysed (completion rate 89.6%).

4.1 | Participant characteristics and online behaviour

Demographic and clinical characteristics of physical therapists can be found in Appendix 3. More than half of the physical therapists worked in the private sector ($n = 60$, 58.8%) and private practice was the most common workplace setting ($n = 55$, 53.9%). Descriptive characteristics of patient participants can be found in Appendix 4. Most patient respondents were female ($n = 78$; 75%) and the majority were aged over 50 years ($n = 69$, 67.0%). Most participants sought care for musculoskeletal problems affecting the lower limb regions and the overwhelming majority ($n = 94$, 91.3%) had received physical therapy care in private practice clinics. Almost all participants reported going online at least daily for any purpose, with over 50% of both physiotherapists and patients going online at least hourly (Appendices 3 and 4). Mobile smartphones were the most frequently used device by both cohorts to go online.

4.2 | Frequency of using different methods to obtain and record data

Figure 1 depicts the proportion of physical therapists who use each of the different methods to obtain subjective assessment information from patients. The most common method was face-to-face questioning, used by 96.1% ($n = 98$) of physical therapists. A smaller proportion (43.1%, $n = 44$) reported using paper-based questionnaires (or PROMs) that the patient fills out. Only 3.0%–14.7% of physical therapists were users of any digital health technology (e.g., electronic forms, mobile apps, email, telehealth, shared electronic health records), with email being the most frequently reported (14.7%, $n = 15$).

Figure 2 shows the proportion of physical therapists who use each of the different methods to collect objective assessment information. The most frequently reported method was using face-to-face visual estimation ('eyeballing'), used by 93.1% ($n = 95$) of physical therapists. More than half (59.8% ($n = 61$)) use some sort of non-digital measurement device (i.e., goniometer, pressure biofeedback cuff, tape measure, dynamometer, etc). Only 1.0%–18.6% were users of any digital health technology to obtain objective data (e.g., photo-based image capture, markerless motion capture, activity trackers, sensors, etc), with photo-based image capture being the most frequently reported (18.6%, $n = 19$) by users.

Figure 3 shows the proportion of physical therapists who use each of the different methods to document clinical information. The most frequently reported method was entering notes into an electronic medical record (using unstructured free-text boxes), reported by two thirds of therapists (68.6%, $n = 70$). 28.4% ($n = 29$) of physical therapists document information with paper-based hand-written notes using structured proformas/templates, whilst a similar proportion (27.5% ($n = 28$)) use hand-written free-text paper-based notes.

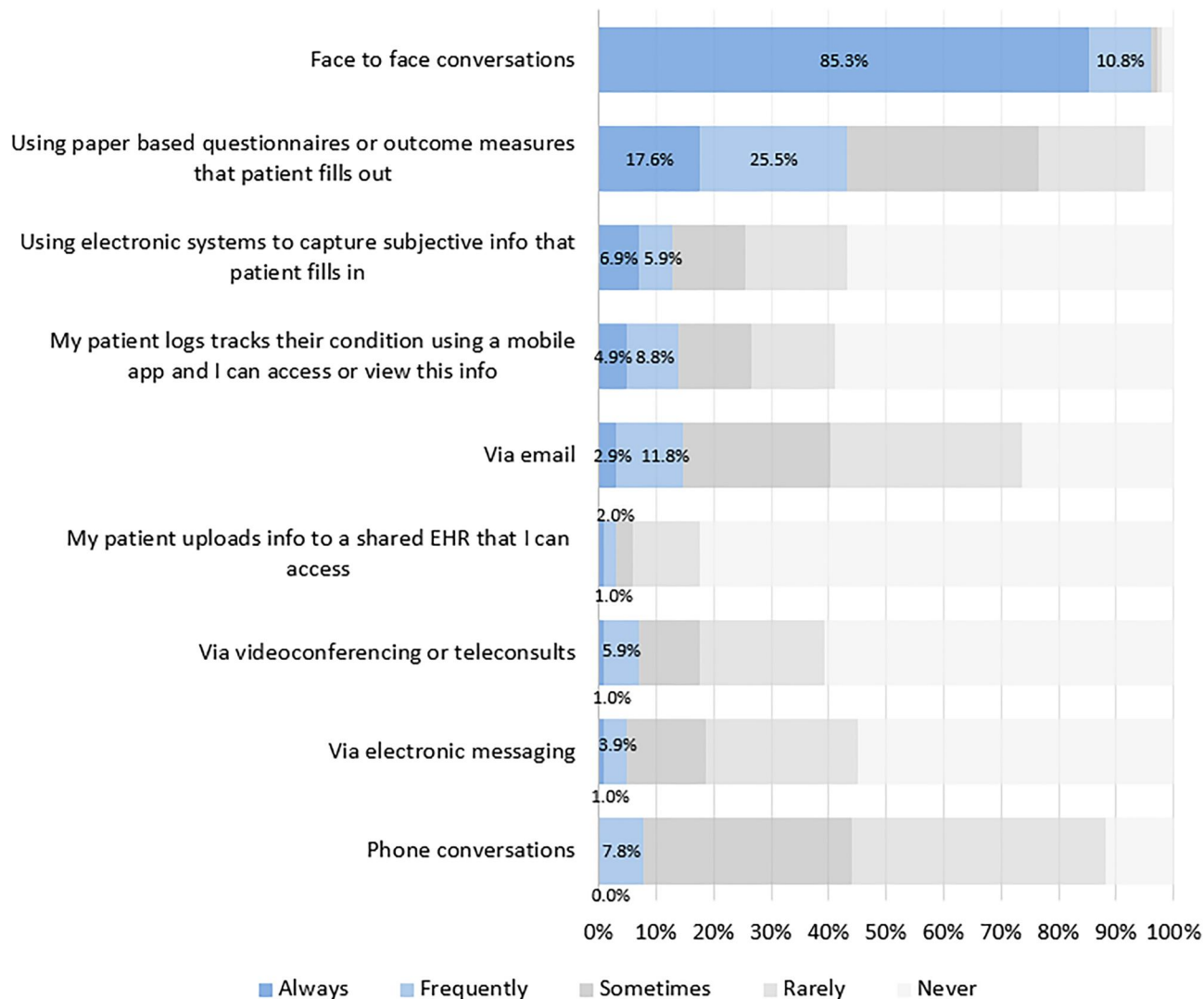


FIGURE 1 Proportion of physical therapists ($n = 102$) who use each method for obtaining subjective clinical information from patients with musculoskeletal conditions. Note those indicating 'always' and 'frequently' are classified as 'users' (indicated by blue shading)

The frequency that patients reported using different methods to record information about their musculoskeletal condition is depicted in Figure 4. Most frequently, patients used an activity tracker such as a Fitbit or Apple watch, reported by around a quarter of respondents (26.2%, $n = 27$). The other most frequently used methods included writing it down on paper (12.6%, $n = 13$), and logging or self-tracking information about their condition into a mobile app or website (11.7%, $n = 12$).

4.3 | Willingness to use digital health technology to support musculoskeletal care

The proportion of physical therapists who were 'acceptors' of digital health technology, across a range of functions, is presented in Figure 5. In general, 46.1%–97.1% of physical therapists were acceptors of digital health technology across the range of functions

surveyed. The top three functions for which physical therapists were most willing to accept digital health technologies were: receiving diagnostic imaging results (97.1%, $n = 99$), making clinical appointments for a patient (90.2%, $n = 92$) and capturing diagnostic results from digital devices (90.2%, $n = 92$).

The proportion of patients who were 'acceptors' of digital health technologies to support their musculoskeletal care is presented in Figure 6. In general, 26.2%–88.4% of patients were acceptors of digital health technology across the range of functions surveyed. The top three functions for which patients were most willing to accept digital health technologies were: receiving/notification of availability of health test results (88.4%, $n = 91$), looking up health information (80.6%, $n = 83$) and receiving personalised alerts and reminders (77.7%, $n = 80$). Patients were least accepting of using digital health technology for receiving generalised health alerts (35.9%, $n = 37$) and communicating online with other peer groups (26.2%; $n = 27$).

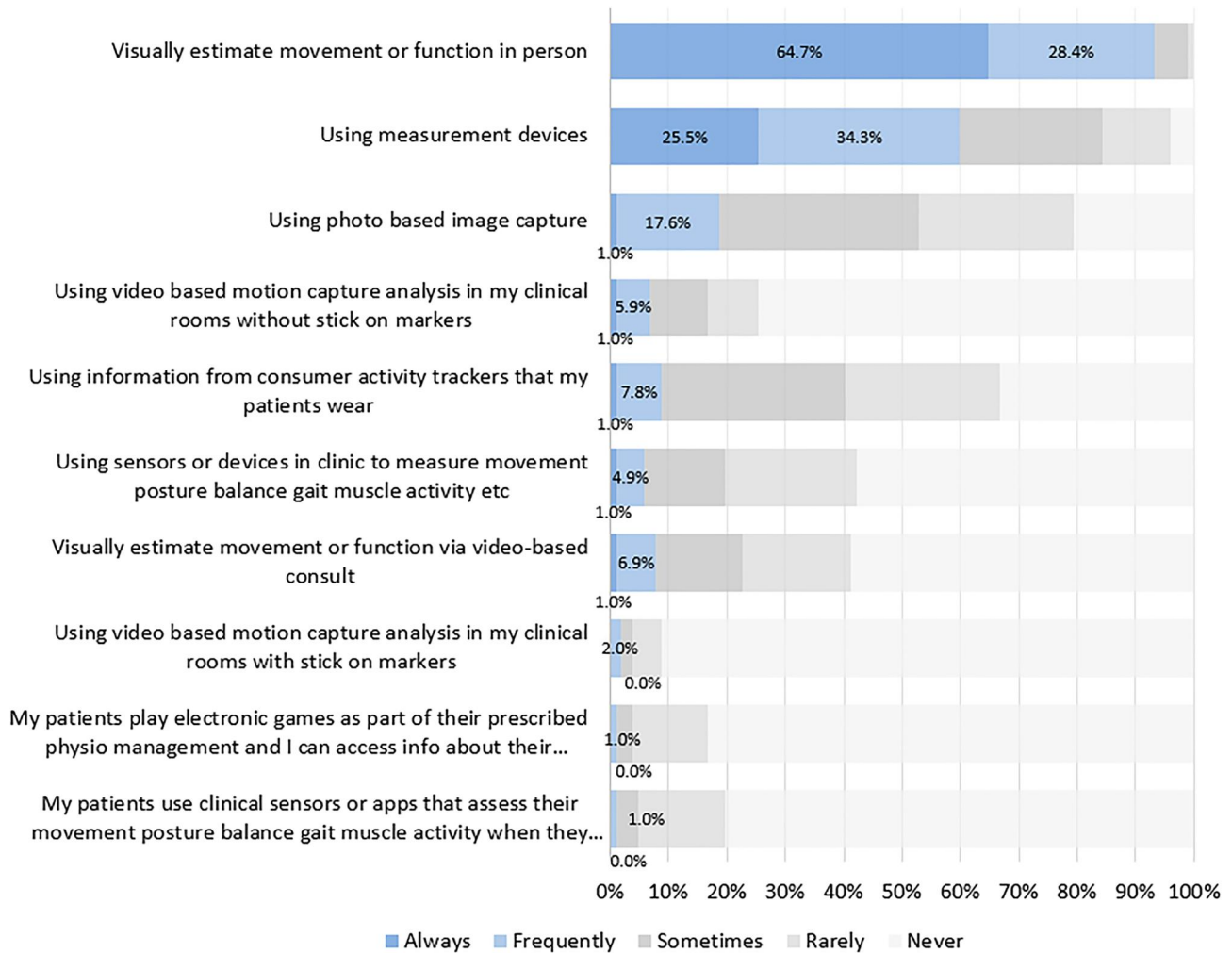


FIGURE 2 Proportion of physical therapists ($n = 102$) who use each method for obtaining objective clinical information from patients with musculoskeletal conditions. Note those indicating 'always' and 'frequently' are classified as 'users' (indicated by blue shading)

5 | DISCUSSION

Digital physical therapy practice has gained momentum and become increasingly topical in recent times, even prior to the emergence of the COVID-19 pandemic (Chehade et al., 2020; Cottrell & Russell, 2020; Hewitt et al., 2020; World Confederation for Physical Therapy, 2020). Moreover, the pandemic has been the catalyst for rapid and urgent uptake of digital health technologies in physical therapy to provide access and maintain continuity of care (Bennell et al., 2021; Dantas et al., 2020; Malliaras et al., 2021; Turolla et al., 2020). The findings presented in this study give the first comprehensive overview of how physical therapists and patients routinely engage with digital health technologies for managing musculoskeletal conditions, prior to the emergence of the COVID-19 pandemic.

Importantly, by using parallel survey instruments, our study is also the first to examine acceptability of digital health technologies for different purposes in musculoskeletal care, from the perspectives of both the physical therapist and the patient, which may

inform future practice and research priorities. Hence, this study has implications for the future of physical therapy practice in a digital age.

Our survey findings identified that physical therapists and patients used a limited range of digital health technologies in clinical practice to support patient assessment and management prior to the COVID-19 pandemic. Physical therapists most frequently used digital health technologies for a limited range of functions, namely email communication (to support subjective assessment), photo-based image capture (to support objective assessment), and electronic medical records (to record clinical information). To date, there has been a dearth of studies examining physical therapists' routine uses of digital health in clinical practice. However, recent research has examined technology use by other sports and exercise medicine professionals (Shaw et al., 2021). In contrast to our findings, the authors reported a much greater use of app-based tablets and smartphones to collect client data among exercise science professionals and coaches ($n = 204/335$; 60.9% users).

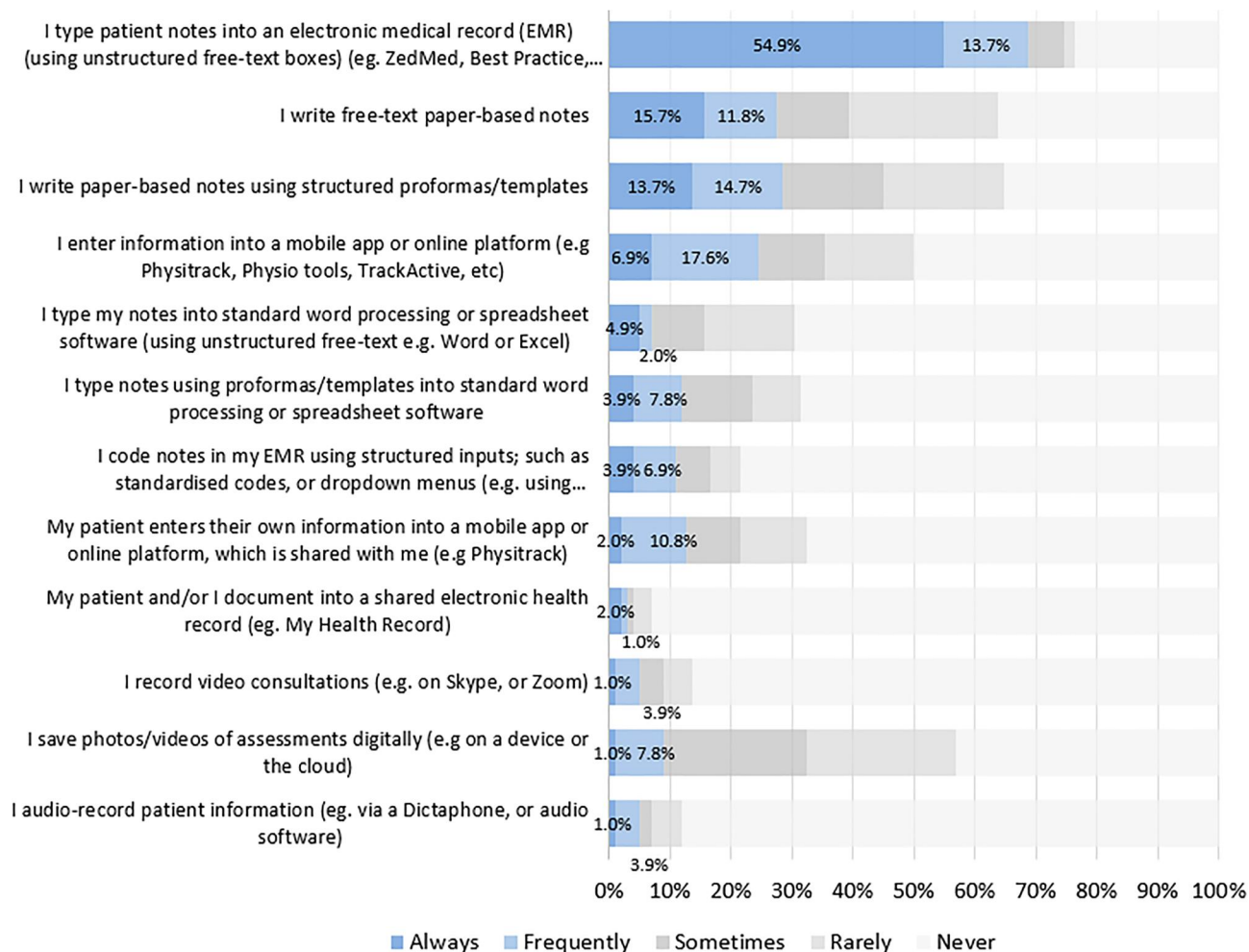


FIGURE 3 Proportion of physical therapists ($n = 102$) who use each method for documenting clinical information from patients with musculoskeletal conditions. Note those indicating 'always' and 'frequently' are classified as 'users' (indicated by blue shading)

While patients in our survey also reported use of a limited range of technologies, the most frequently used was technology to track physical activity (e.g., FitBits, Apple watches), and mobile apps to log or self-track information about their condition. These findings align with emerging research published in the field. It appears that wearable activity trackers, sensors, and mobile apps are the most frequently researched applications of digital health technologies for patients in musculoskeletal healthcare (Bailey et al., 2020; Biebl et al., 2021; Li et al., 2020; Machado et al., 2017; Ummels et al., 2020). For example, recent research into patient-facing digital health technologies suggests that integration of digital health technologies into osteoarthritis management is scalable and allows patients to track, monitor, and progress their rehabilitation remotely (Biebl et al., 2021).

Our research findings about willingness to use digital health technologies for different functions yielded mixed results that were not consistent across physical therapists and patients. The top digital health functions that physical therapists were most willing to use were: receiving diagnostic imaging results, making clinical appointments, and capturing diagnostic results from digital devices.

While there is a scarcity of literature examining the impacts of utilising digital health technology for these functions, recent research is pertinent to our findings, suggesting that artificial intelligence's role in supporting physical therapists is growing rapidly (Tack, 2019). For instance, in the area of diagnostic imaging with that our therapists indicated a desire to engage, machine learning can be used to accurately classify imaging, and support clinical decision-making (Tack, 2019).

In contrast to the therapists, patients in our study were most willing to use digital health technologies for: receiving/notification of the availability of health test results, looking up health information, and receiving personalised alerts and reminders (as opposed to 'receiving generalised health alerts', which was one of the least preferred functions). Recent clinical trials in people with knee osteoarthritis have relevance for these findings. One trial³² showed that a 24-week SMS programme increased self-reported adherence to unsupervised home exercise in people with knee OA and obesity. The other trial³³ showed that the same SMS programme, when combined with a self-directed web-based strengthening exercise and physical activity programme improved

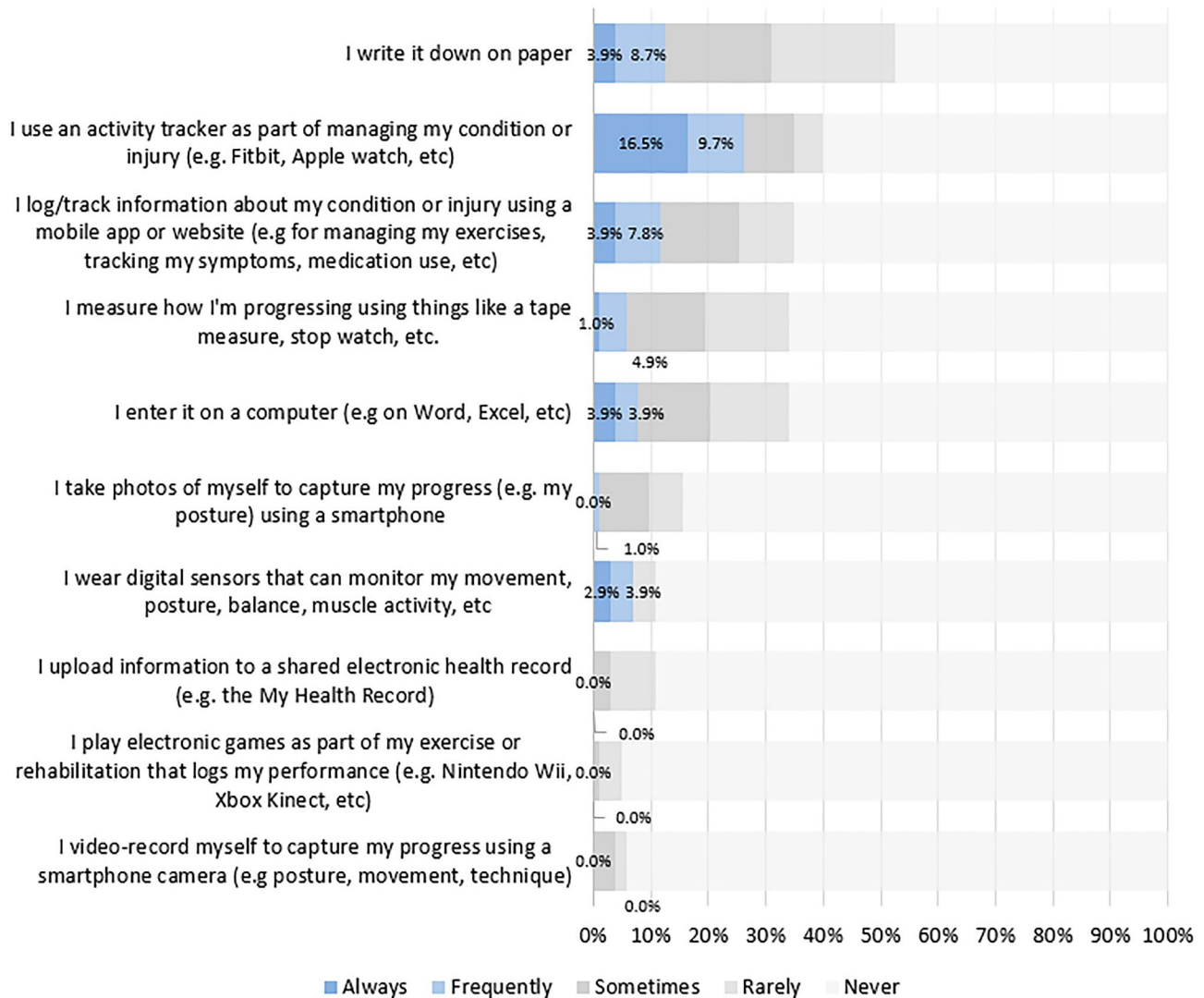


FIGURE 4 Proportion of patients ($n = 103$) who use each method for recording information about their musculoskeletal conditions. Note those indicating 'always' and 'frequently' are classified as 'users' (indicated by blue shading)

knee pain and physical function at 6 months. Collectively, these findings suggest that digital health technologies that provide health information and personalised alerts, messages and reminders are not only appealing and acceptable to patients, but also have emerging evidence of effectiveness.

Our findings suggest that physical therapists and patients may be motivated by functions of digital health technologies that support streamlining and personalisation of their activities (e.g., information flows, prompts/alerts, and knowledge aggregation provision/development of new knowledge). However, despite this willingness to engage, there appears to be limited use of digital health technologies in musculoskeletal care. Although not evaluated in this study, it is likely that there are barriers to implementation of technologies in physical therapy care. From the physical therapist perspective, barriers might include lack of awareness of which technologies can support any given function, lack of knowledge and skills to operate the technology, workflow systems and practices that are not

amenable to incorporating new technologies, and inflexible funding/reimbursement models (Gordon et al., 2020; Kloek et al., 2020). From the patient perspective, not all patients with musculoskeletal conditions may be suitable for receiving health care via digital health interventions. Researchers have suggested that physical therapists should screen a patient for suitability prior to integrating digital applications within health care, considering motivation, safety, equipment, digital skills, health literacy, self-management, time, and financial factors (Kloek et al., 2020).

Our mixed findings suggest that further research is warranted to better understand why physical therapists and patients may be willing to use digital health technology for some functions but not others. Also, in order to inform how digital health technology can be made more acceptable to patients, research is needed to understand why, in general, patients appear less willing to accept the various functions of digital health technologies compared to physical therapists. Given the significant and increasing burden musculoskeletal

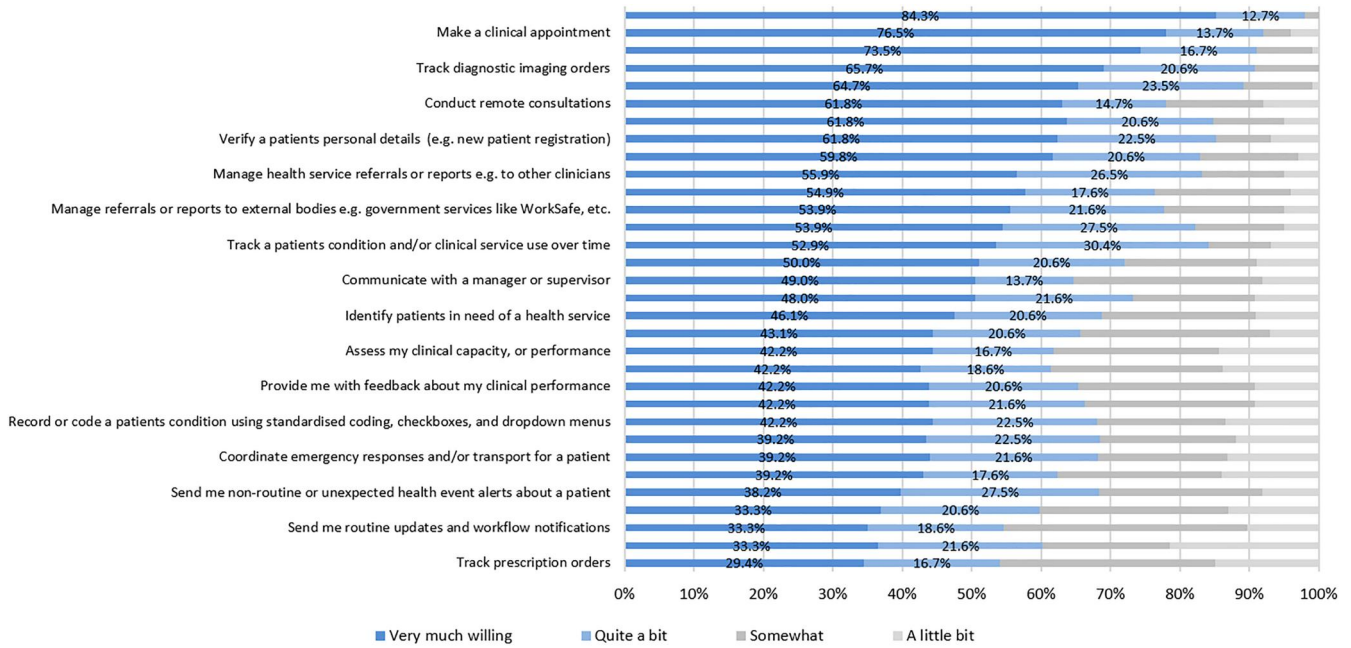


FIGURE 5 Proportion of physical therapists (n = 102) who are willing to use digital health technology for different functions in musculoskeletal practice. Note those indicating 'very much willing' and 'quite a bit' are classified as 'acceptors' (indicated by blue shading)

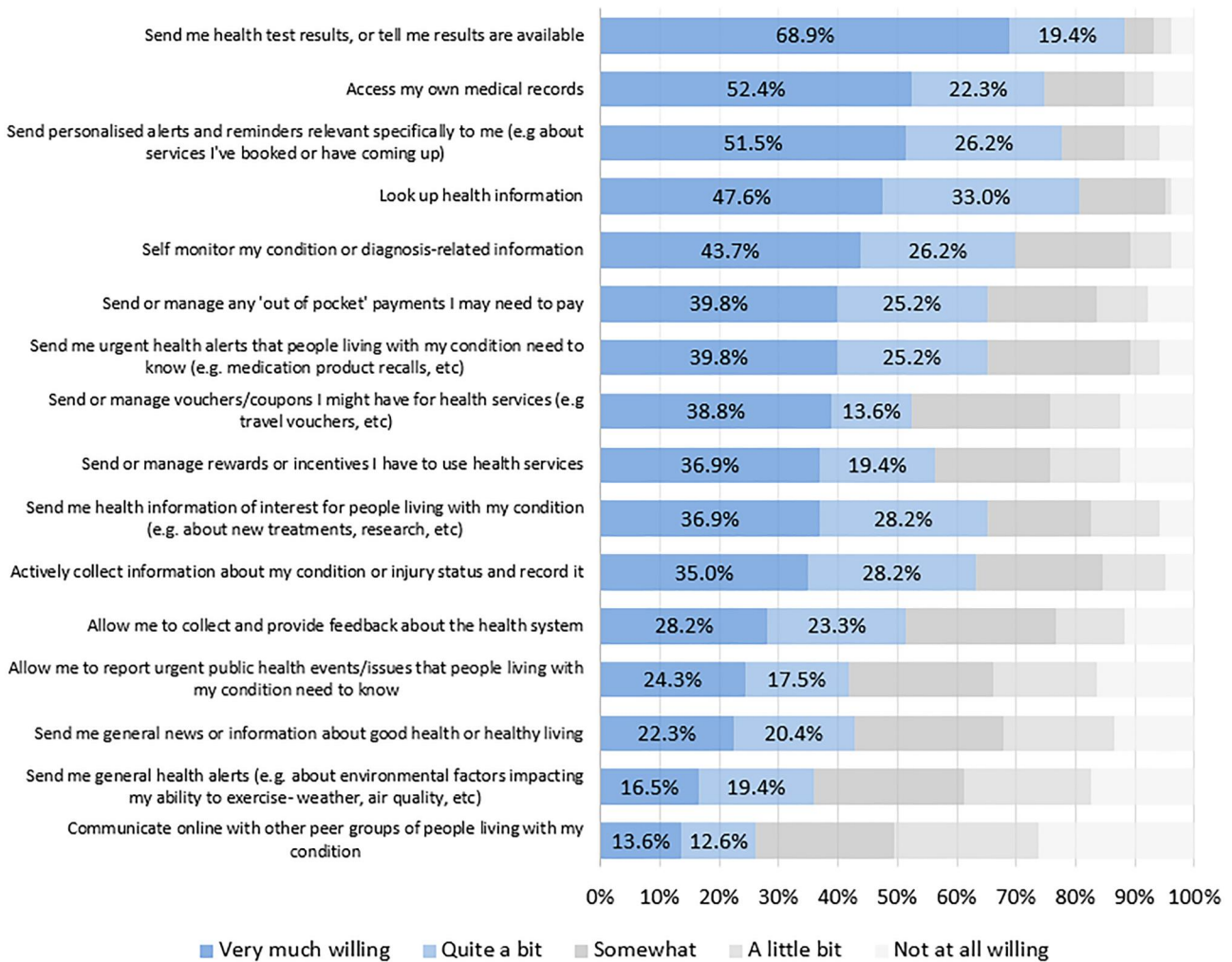


FIGURE 6 Proportion of patients (n = 103) who are willing to use digital health technology for different functions in the management of their musculoskeletal conditions. Note those indicating 'very much willing' and 'quite a bit' are classified as 'acceptors' (indicated by blue shading)

conditions impose on individuals, society and the healthcare system, innovative solutions are required to help improve the utilization of high-value treatments (e.g., exercise) in musculoskeletal conditions (Bailey et al., 2020; Chegade et al., 2020; Slater et al., 2016). Further research and development is required to determine the efficacy of fit-for-purpose technologies in supporting delivery of such treatments, and in particular, evaluating if integration of technologies into care improves patient-relevant outcomes such as symptoms (e.g., pain, physical function), access to or costs of care.

5.1 | Study limitations

There are a number of limitations to this study that must be considered. Findings cannot be generalised to physical therapy care outside of musculoskeletal conditions. Also, our survey was conducted in Australia, which has implications for generalisability across other jurisdictions where physical therapy care may differ considerably (i.e., in low-middle income countries, or where English is not the predominant language). Further, our surveys were delivered online, which may have attracted participants biased towards digital health technologies, and thus the voices of physical therapists and patients who are less digitally connected may be underrepresented. Our data emerged predominantly from physical therapy care delivered in private practice settings. Although this is where most musculoskeletal care is delivered in Australia, findings may not necessarily be generalisable to care that is, delivered in tertiary hospitals or other healthcare settings.

6 | CONCLUSION

In conclusion, the present study shows that physical therapists and patients infrequently use digital technologies to support musculoskeletal clinical care. However, data suggests that there is a willingness by physical therapists and patients to engage with select functions of digital technology.

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CONFLICT OF INTERESTS

None declared by all authors.

ETHICS STATEMENT

Ethical approval was granted from the Human Research Ethics Committee at the University of Melbourne (Study ID 2056217.1).

AUTHOR CONTRIBUTIONS

All authors contributed.

DATA AVAILABILITY STATEMENT

Data is not housed on any open repository.

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APPENDIX 1

Physio Survey

1. Are you an AHPRA* registered Physiotherapist currently providing clinical care in Australia? *Australian Health Practitioner Regulation Agency

Yes/no

2. Is your primary area of physiotherapy practice focused on musculoskeletal health care?

Yes/no

3. Have you treated or managed at least 5 patients per week with a musculoskeletal condition on average for the last 6 months *before the COVID-19 pandemic (e.g., Oct 2019 to April 2020)*?

Yes/no

Section 1: Brief Information About Your and Your Clinical Background

4. How did you hear about this survey?

Email

Social Media

The University of Melbourne website

Poster/Handout

Newsletters

Other (please specify):

5. What device(s) do you use to go online? (Please select all that apply)

Mobile phone

Tablet (e.g., iPad, etc.)

Desktop computer

Laptop

Smart TV

Game consoles

Smart watch (e.g., Apple watch, Samsung, Fitbit, etc.)

Ebook reader (e.g., Kindle, Kobo)

Smart home assistant (e.g., Google Home, Alexa)

Other (please specify):

6. How often do you go online/access the Internet?

Hourly

Daily

Weekly

Monthly

Less than Monthly

7. What is your gender?

Male/female/prefer not to say/other (please specify)

8. Please tell us your age range?

< 20/20-29/30-39/40-49/50-59/60-69/70+

9. How many years of clinical experience do you have (since graduating with your entry-to-practice Physiotherapy degree)?

<2 years/2-5/6-10/11-15/16-20/>20

10. Please indicate your highest level of educational qualification:

Bachelor degree (with/without honours)

Graduate certificate

Graduate diploma

Masters

Clinical Doctorate

PhD

Clinical specialisation

Other (please specify):

11. Which setting/sector(s) do you practice physiotherapy in?

Private

Public

Both private/public

Other (please specify):

12. What type of healthcare facility do you predominantly practice physiotherapy in? (Please select the one that is your primary place of work)

Private practice

Musculoskeletal outpatients (hospital)

Musculoskeletal/orthopaedic inpatients (hospital)

Rehabilitation facility

Community health centre

In-home care

Other (please describe):

13. How many hours per week on average do you engage in musculoskeletal clinical practice? (in the last 6 months before the COVID-19 pandemic e.g., Oct 2019 to April 2020)

<5/6-10/11-20/21-30/31-40/>40

14. What is the post code of your primary place of practice?

(Please type in a 4 digit postal code)

15. What musculoskeletal conditions would make up the majority of your clinical caseload?

(Please select one answer only)

Shoulder/Elbow/Wrist/hand/Pelvis/hip/Knee/Ankle/foot/

Head/neck/Mid back/thorax (including ribs & chest)/Low back/

buttock/Other (please specify):

Section 2: Routine Patient ASSESSMENT Practices

The following questions relate to how you COLLECT and DOCUMENT patient information subjectively and objectively in musculoskeletal care –(SPECIFICALLY IN THE LAST 6 MONTHS BEFORE THE COVID-19 pandemic, e.g., Oct 2019 to April 2020).

This section is about SUBJECTIVE Information Collection

16. Please select the best response ranging from 'Never' to 'Always' to indicate

HOW FREQUENTLY you use each of the listed methods or tools to obtain subjective clinical information from your patients with musculoskeletal conditions (SPECIFICALLY THINKING ABOUT THE LAST 6 MONTHS BEFORE THE COVID-19 pandemic, e.g., Oct 2019 to April 2020).

	Never use	Rarely use	Sometimes use	Frequently use	Always use
Face-to-face conversations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phone conversations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Via email (including sending attachments)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Via electronic messaging (includes text messages/SMS, or other digital messaging, e.g., Whatsapp, Facebook Messenger, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Via videoconferencing/teleconsults (e.g., Skype, Zoom, CoviU, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using paper-based questionnaires, or outcome measures that the patient fills out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using electronic systems to capture subjective information that the patient fills out (e.g., RedCap, MyScoreIT, MS Word, Excel, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patient uploads information to a shared electronic health record that I can access (e.g., My Health Record)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patient logs/tracks their condition using a mobile app and I can access/view this information (e.g., apps for exercise prescription, symptom tracking, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Please specify any other methods or tools you use to collect subjective information from patients (if any):

This section is about OBJECTIVE information Collection:

18. Please select the best response ranging from 'Never' to 'Always' to indicate *HOW FREQUENTLY* you use each of the listed methods or tools to obtain objective clinical information about your patients *with musculoskeletal conditions* (SPECIFICALLY THINKING ABOUT THE LAST 6 MONTHS BEFORE THE COVID-19 pandemic, e.g., Oct 2019 to April 2020).

	Never use	Rarely use	Sometimes use	Frequently use	Always use
Visually estimate ("eyeball") movement/function in person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visually estimate movement/function via video-based consultation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using measurement devices (e.g., goniometer, tape measure, dynamometer, pressure cuff, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using sensors or devices in the clinic to measure movement, posture, balance, gait, muscle activity, and so on (e.g., DorsaVi, pressure sensors, force plate, digital balance boards, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patients use clinical sensors, or apps that assess their movement, posture, balance, gait, muscle activity when they are not in my clinic and I can access the information (e.g., a wearable sensor for posture, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using information from consumer activity trackers that my patients wear (e.g., Fitbits, apple watches, smartwatches, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patients play electronic games as part of their prescribed physiotherapy management and I can access information about their performance/progress (e.g., Nintendo Wii, Xbox Kinect, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using video-based motion-capture analysis in my clinical rooms with stick-on markers (e.g., Vicon)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Continued)

	Never use	Rarely use	Sometimes use	Frequently use	Always use
Using video-based motion-capture analysis in my clinical rooms without stick-on markers (markerless) (e.g., Hudle, Vald Human Performance, Coach's Eye, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using photo-based image capture (i.e., using a smartphone camera)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Please specify any other methods or tools you use to collect objective information about patients (if any):

20. Please also use this space to provide any further comments you might wish to make about your routine clinical assessment information COLLECTION practices?

This section is about information DOCUMENTATION

21. Please select the best response to indicate HOW FREQUENTLY you use each of the listed methods OR tools to DOCUMENT clinical assessment information about your patients with musculoskeletal conditions (SPECIFICALLY THINKING ABOUT THE LAST 6 MONTHS BEFORE THE COVID-19 pandemic, e.g., Oct 2019 to April 2020).

	Never use	Rarely use	Sometimes use	Frequently use	Always use
I write free-text paper-based notes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I write paper-based notes using structured proformas/templates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I type patient notes into an electronic medical record (EMR) (using unstructured free-text boxes) (e.g., ZedMed, Best Practice, Cliniko, Cerner/Epic, etc.)—Please specify the EMR you use most	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I code notes in my EMR using structured inputs; such as standardised codes, or dropdown menus (e.g., using terminologies like Snomed CT, ICD/ICF codes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patient and/or I document into a shared electronic health record (e.g., My Health Record)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I type my notes into standard word processing or spreadsheet software (using unstructured free-text e.g., Word or Excel)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I type notes using proformas/templates into standard word processing or spreadsheet software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enter information into a mobile app or online platform (e.g Physitrack, Physio tools, TrackActive, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patient enters their own information into a mobile app or online platform, which is shared with me (e.g., Physitrack)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I audio-record patient information (e.g., via a Dictaphone, or audio software)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I save photos/videos of assessments digitally (e.g., on a device or the cloud)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I record video consultations (e.g., on Skype, or Zoom)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Please specify any other methods or tools you use to DOCUMENT clinical information (if any):

23. Please use this space to provide any final comments you might wish to make about your routine clinical assessment information DOCUMENTATION practices?

Section 3: Willingness to Use Digital Health Technologies

Digital technologies (e.g., smartphones, apps, electronic health records, wearable sensors, digital video, etc.) can be used to support a range of different **FUNCTIONS** in health care.

We are interested in understanding **HOW WILLING YOU ARE** to use digital health technology to support you in your clinical role as a Physiotherapist.

**The following items are adaptations of items in the World Health Organisation's Classifications of Digital Health Interventions v1.0*

24. For each FUNCTION listed below, **HOW WILLING ARE YOU** to use digital technology to...

	Not at all willing	A little bit	Somewhat	Quite a bit	Very much willing
Verify a patient's personal details (e.g., new patient registration)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make a clinical appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track a patient's condition and/or clinical service use over time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enter a patient's free-text clinical progress notes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Record or code a patient's condition using standardised coding, checkboxes, and dropdown menus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Record and/or flag indicators of change in a patient's condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prompt my thinking using software that supports clinical decision-making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide me a digital checklist of clinical procedures to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Screen my patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conduct remote consultations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remotely monitor or track a patient's condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me data about my patient's condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conduct case consultations with other clinicians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate with a manager or supervisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide me with feedback about my clinical performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me routine updates and workflow notifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me non-routine or unexpected health event alerts about a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilise online peer communication groups for clinicians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordinate emergency responses and/or transport for a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manage health service referrals or reports for example, to other clinicians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manage referrals or reports to external bodies e.g., government services like WorkSafe, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify patients in need of a health service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schedule my clinical activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide me with training or educational content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess my clinical capacity, or performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track prescription orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track patients' medication consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Report adverse medication events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me diagnostic imaging results (e.g., scans)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track diagnostic imaging orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Capture diagnostic results from digital devices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track pathology (e.g., blood tests)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Can you think of any other functions not identified in the previous table that you think digital health technologies could assist with? (Please specify below)

26. Please use this space to provide any further comments you might wish to make about HOW DIGITAL HEALTH TECHNOLOGY COULD SUPPORT you as a Physiotherapist in clinical practice?

APPENDIX 2

Patient Survey

1. Are you aged 18 and over?

Yes/no

2. Do you live in Australia?

Yes/no

3. Have you seen a Physiotherapist in the last 6 months before the COVID-19 pandemic e.g., Oct 2019 to April 2020 for a musculoskeletal condition, or injury? (e.g., problem with a muscle, ligament, tendon, joint, nerve, or bone)

Yes/no

Section 1: Brief information about you and your musculoskeletal condition(s) or injuries

We would like to ask some brief questions about you and your physiotherapy experiences.

4. How did you hear about this survey?

Email

Social Media Ad

The University of Melbourne website

Poster/Handout

Newsletters

Other (Please specify):

5. What device(s) do you use to go online? *(Please select all that apply)*

Mobile phone

Tablet

Desktop computer

Laptop

Smart TV

Game Consoles

Smart watch (e.g., Apple watch, Samsung, Fitbit, etc.)

Ebook reader (e.g., Kindle, Kobo)

Smart home assistant (e.g., Google Home, Alexa)

Other (please specify):

6. How often do you go online/access the Internet?

Hourly/Daily/Weekly/Monthly/Less than monthly

7. What is your gender?

Female/Male/Prefer not to say/Other (please specify):

8. What is your age range (in years)?

18-19/20-29/30-39/40-49/50-59/60-69/70+

9. In the last 6 months before the COVID-19 pandemic (e.g., Oct 2019 to April 2020), what musculoskeletal conditions have you seen a Physiotherapist for? (You can select more than one)

Shoulder/Elbow/Wrist/hand/Pelvis/hip/Knee/Ankle/foot/Head/neck/Mid back/thorax (including ribs & chest)/Low back/buttock/Other (please specify):

10. Where have you seen a Physiotherapist for your condition/injury in the last 6 months before the COVID-19 pandemic (e.g., Oct 2019 to April 2020)? (Select all that apply)

Private practice or clinic/Public hospital/Private hospital/Rehabilitation facility/Community health centre/In my home (i.e., the Physio visited me in my home)/Over the phone/Via a video over the Internet (e.g., Skype)

11. What is the highest level of education that you have completed?

No formal schooling/Primary school completed/High school (or, equivalent) completed/Diploma/University degree/Post-graduate degree (e.g., Graduate certificate, Masters, PhD)

12. Are you currently working?

Full time/Part-time/Not working for pay

- 12b. If you are not working for pay, what is the main reason?

Home maker or caring for family/Looked but cannot find work/Doing unpaid/voluntary activities/Studying or training/Retired/Ill health/Termination of employment or redundancy

13. What is the post code of your primary place of residence?

(Please enter your 4 digit postal code)

Section 2: RECORDING information about your condition or injury

The following questions relate to HOW FREQUENTLY (in the last 6 months before the COVID-19 pandemic e.g., Oct 2019 to April 2020) you used these different methods to record information about your musculoskeletal condition (e.g., for a problem with a muscle, ligament, tendon, joint, nerve, or bone), so that you can share it with your physiotherapist to help them better understand your problem and progress.

14. Please select the best response ranging from 'Never' to 'Always' to tell us how often you use each of the listed methods to RECORD information about your musculoskeletal condition(s) (SPECIFICALLY THINKING ABOUT THE LAST 6 MONTHS BEFORE THE COVID-19 pandemic, e.g., Oct 2019 to April 2020)

	Never use	Rarely use	Sometimes use	Frequently use	Always use
I write it down on paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enter it on a computer (e.g., on Word, Excel, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I upload information to a shared electronic health record (e.g., the My Health Record)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I log/track information about my condition or injury using a mobile app or website (e.g., for managing my exercises, tracking my symptoms, medication use, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I measure how I'm progressing using things like a tape measure, stop watch, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wear digital sensors that can monitor my movement, posture, balance, muscle activity, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use an activity tracker as part of managing my condition or injury (e.g., Fitbit, Apple watch, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I play electronic games as part of my exercise or rehabilitation that logs my performance (e.g., Nintendo Wii, Xbox Kinect, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take photos of myself to capture my progress (e.g., my posture) using a smartphone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I video-record myself to capture my progress using a smartphone camera (e.g., posture, movement, technique)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Please specify any other methods you used to RECORD information about your musculoskeletal condition(s) (if any) in the last 6 months:

16. Please use this space to provide any further comments you wish to make about how you RECORD information about your musculoskeletal condition(s) or, injury:

Section 3: Willingness to Use Digital Health Technologies

Digital technologies (e.g., smartphones, apps, websites, electronic health records, wearables, etc.) can be used for a range of different **PURPOSES** as part of your musculoskeletal physiotherapy care. These are listed below*.

We are interested in understanding **HOW WILLING YOU ARE** to use digital health technology to support you and your physiotherapist to manage **your musculoskeletal condition(s) or injury**.

*The following items are adaptations of items in the World Health Organisation's *Classifications of Digital Health Interventions v1.0*

17. For each purpose listed below, when considering managing your musculoskeletal condition(s), or injury: **HOW WILLING ARE YOU** to use digital technology to...

	Not at all willing	A little bit	Somewhat	Quite a bit	Very much willing
Send me urgent health alerts that people living with my condition need to know (e.g., medication product recalls, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me health information of interest for people living with my condition (e.g., about new treatments, research, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send personalised alerts and reminders relevant specifically to me (e.g., about services I've booked or have coming up)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me health test results, or tell me results are available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me general news or information about good health or healthy living	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send me general health alerts (e.g., about environmental factors impacting my ability to exercise- weather, air quality, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate online with other peer groups of people living with my condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Continued)

	Not at all willing	A little bit	Somewhat	Quite a bit	Very much willing
Access my own medical records	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self monitor my condition or diagnosis-related information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Actively collect information about my condition or injury status and record it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allow me to collect and provide feedback about the health system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allow me to report urgent public health events/issues that people living with my condition need to know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Look up health information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send or manage any 'out of pocket' payments I may need to pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send or manage vouchers/coupons I might have for health services (e.g., travel vouchers, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Send or manage rewards or incentives I have to use health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Can you think of any other purposes not identified in the previous table that you think digital health technologies could help you with managing a musculoskeletal condition, or injury?

(Please specify below)

19 Please use this space to provide any further comments you might wish to make about HOW DIGITAL HEALTH TECHNOLOGY COULD SUPPORT you and your Physiotherapist to help manage your musculoskeletal condition(s) or injury.

APPENDIX 3

Characteristics of physical therapists ($n = 102$) who completed the survey

	n (%)
Gender	
Male	44 (43.1)
Female	58 (56.9)
Age (years)	
20–29	18 (17.7)
30–39	36 (35.3)
40–49	25 (24.5)
50–59	17 (16.7)
60–69	5 (4.9)
70–79	1 (1.0)
Years of clinical experience	
<2	4 (3.9)
2–5	9 (8.8)
6–10	20 (19.6)
11–15	21 (20.6)
16–20	9 (8.8)
>20	39 (38.2)

(Continues)

(Continued)

	n (%)
Highest level of education	
Bachelor degree (with/without honours)	32 (31.4)
PhD	9 (8.8)
Clinical doctorate	1 (1.0)
Masters	44 (43.1)
Clinical specialisation	3 (2.9)
Graduate certificate	5 (4.9)
Graduate diploma	7 (6.9)
Physiotherapy student	1 (1.0)
Sector worked	
Both private/public	13 (12.8)
Not-for-profit	1 (1.0)
Private only	60 (58.8)
Public only	28 (27.5)
Workplace setting	
Community health centre	7 (6.9)
In-home care	1 (1.0)

(Continues)

(Continued)

	n (%)
Musculoskeletal outpatients (hospital)	30 (29.4)
Musculoskeletal/orthopaedic inpatients (hospital)	3 (2.9)
Rehabilitation facility	1 (1.0)
Private practice	55 (53.9)
Other	5 (4.9)

Work in musculoskeletal physiotherapy practice (hours/week)

<5	2 (2.0)
6–10	9 (8.8)
11–20	17 (16.7)
21–30	26 (25.5)
31–40	38 (37.3)
>40 h	10 (9.8)

Predominant body region treated

Ankle/foot	2 (2.0)
Head/neck	2 (2.0)
Knee	28 (27.5)
Low back/buttock	38 (37.3)
Mid back/thorax (including ribs & chest)	1 (1.0)
Pelvis/hip	9 (8.8)
Shoulder	12 (11.8)
Other	10 (9.8)

Geographic location (State/Territory)

Australian Capital Territory	0 (0.0)
News South Wales	21 (20.6)
Northern Territory	1 (0.0)
Queensland	5 (0.1)
South Australia	1 (0.0)
Tasmania	1 (0.0)
Victoria	53 (52.0)
Western Australia	20 (19.6)

Devices used to go online

Desktop computer	64 (62.7)
eBook reader	14 (13.7)
Gaming console	5 (4.9)
Laptop	86 (84.3)
Mobile phone	93 (91.2)
Smart home assistant	9 (8.8)
Smart TV	32 (31.4)
Smart watch	17 (16.7)
Tablet	57 (55.9)

(Continued)

	n (%)
Frequency of time online	
At least hourly	58 (58.9)
At least daily	42 (41.2)
At least weekly	2 (2.0)

APPENDIX 4

Characteristics of patients (n = 103) who completed the survey

	n (%)
Gender	
Male	22 (21.4)
Female	78 (75.7)
Prefer not to say	2 (1.9)
Other	1 (1.0)

Age (years)

20–29	7 (6.8)
30–39	15 (14.6)
40–49	12 (11.7)
50–59	18 (17.5)
60–69	34 (33.0)
70–79	17 (16.5)

Highest level of education

Primary school completed	1 (1.0)
High school (or, equivalent) completed	18 (17.5)
Diploma	14 (13.6)
University degree	25 (24.3)
Post-graduate degree (e.g., Graduate certificate, Masters, PhD)	45 (43.7)

Working status

Full time	41 (39.8)
Part time	20 (19.4)
Not working for pay	42 (40.8)

Setting of where care received

Community health centre	5 (4.9)
In my home	3 (2.9)
Private practice/clinic	94 (91.3)
Private hospital	2 (1.9)
Public hospital	3 (2.9)

(Continued)

	n (%)
Rehabilitation facility	5 (4.9)
Via video over the Internet	1 (1.0)
Condition saw a physiotherapist for	
Ankle/foot	15 (14.6)
Elbow	4 (3.9)
Head/neck	15 (14.6)
Knee	40 (38.8)
Low back/buttock	34 (33.0)
Mid back/thorax (including ribs and chest)	13 (12.6)
Pelvis/hip	37 (35.9)
Shoulder	23 (22.3)
Wrist/hand	7 (6.8)
Geographic location (State/Territory)	
Australian Capital Territory	1 (0.0)
News South Wales	7 (6.8)
Northern Territory	1 (0.0)
Queensland	4 (3.9)
South Australia	2 (1.9)

(Continues)

(Continued)

	n (%)
Tasmania	1 (0.0)
Victoria	86 (83.5)
Western Australia	1 (0.0)
Devices used to go online	
Desktop computer	42 (40.8)
eBook reader	17 (16.5)
Gaming console	4 (3.9)
Laptop	64 (62.1)
Mobile phone	96 (93.2)
Smart home assistant	13 (12.6)
Smart TV	24 (23.3)
Smart watch	16 (15.5)
Tablet	50 (48.5)
Frequency of time online	
At least hourly	55 (53.4)
At least daily	48 (46.6)
At least weekly	0 (0.0)