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- Physiotherapy-led antenatal education delivery
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PHYSIOTHERAPY NEW ZEALAND
Kōmiri Aotearoa

Neurofeedback-based Brain–computer Interface for Pain Management: A Research Perspective

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Mathew, J. (2025). Neurofeedback-based brain–computer interface for pain management: A research perspective. *New Zealand Journal of Physiotherapy, 53*(1), 4–6. https://doi.org/10.15619/nzjp.v53i1.479

Persistent pain is a complex and highly individualised experience, existing on a dynamic continuum that does not affect everyone equally (García-Rodríguez et al., 2023). Persistent pain remains one of the most prevalent and disabling conditions worldwide, impacting 20–30% of the population and affecting more than half of older adults (El-Tallawy et al., 2021). In Aotearoa New Zealand, one in five people live with chronic pain, placing a significant burden on individuals, their whānau, and the broader healthcare system (Abbott et al., 2017). While conceptually compelling, the pain experience associated with persistent pain conditions does not always have a relationship to the underlying aetiopathology. Research has shown that persistent pain is associated with widespread changes in brain activity and functional connectivity in regions involved in pain perception and experience (De Ridder et al., 2021).

The experience of pain is a complex and dynamic process that integrates multiple factors, including sensory perception, emotional and cognitive components, and the pain-inhibitory mechanisms of the brain (Vanneste & De Ridder, 2021). These dynamic interactions between pain-related brain regions and networks are driven by brain oscillations (waves) (Ploner et al., 2017). Notably, electroencephalographic (EEG) studies have identified distinct changes in brain oscillations across acute, chronic, and experimentally induced musculoskeletal pain conditions (Mathew, Perez, et al., 2022). For example, an inverse relationship has been observed between the strength of alpha brain oscillations (the dominant waves that are active during relaxed wakefulness) in the somatosensory cortex and pain sensitivity (Babiloni et al., 2006; Tu, Tan, et al., 2016; Tu, Zhang, et al., 2016). Similarly, reviews highlight alterations in various brain oscillations across various chronic pain conditions (Dos Santos Pinheiro et al., 2016; Mathew, Perez, et al., 2022). If this is the case, modulating these oscillations in the appropriate pain-mediating brain regions should lead to corresponding changes in pain perception and experience. However, the bigger question is: can we modulate these brain wave alterations to influence pain experience?

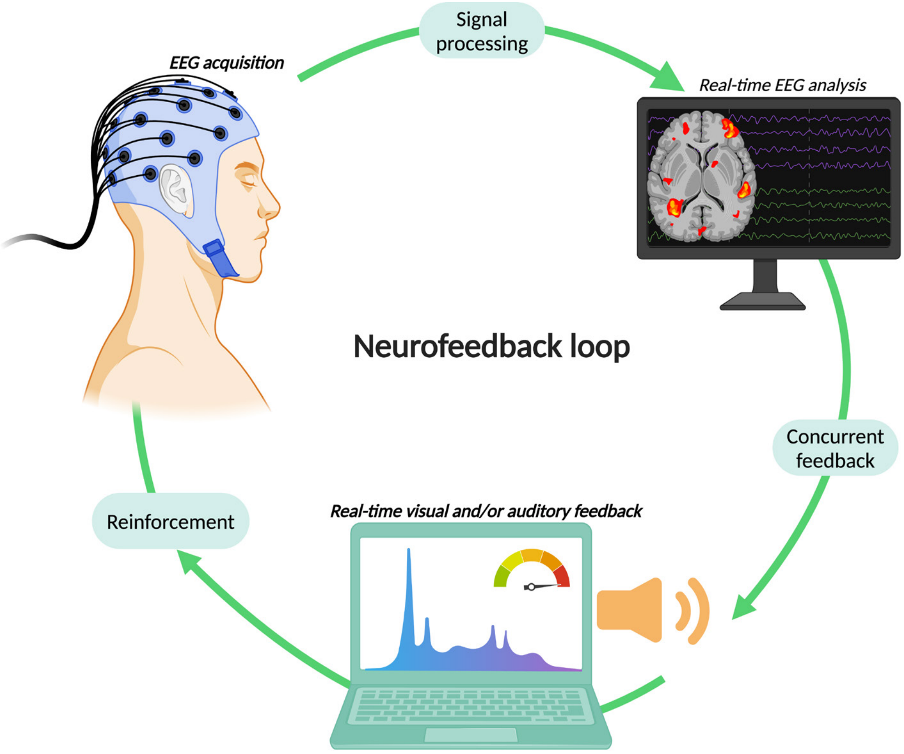
The field of non-invasive neuromodulation and brain–computer interfaces for pain management is rapidly advancing, offering promising avenues for intervention. Several non-invasive neuromodulation techniques, including neurofeedback (NF), repetitive transcranial magnetic stimulation, and transcranial electrical stimulation, have been explored for pain modulation (Hesam-Shariati et al., 2021; Knotkova et al., 2021). Among these, EEG-based neurofeedback (EEG-NF) stands out as a non-invasive, endogenous brain–computer interface technique with demonstrated efficacy in chronic pain management (Hesam-Shariati et al., 2021; Patel et al., 2020; Roy et al., 2020). EEG-NF operates in a closed-loop system, enabling individuals to learn self-regulation of brain activity through real-time feedback (e.g., visual, auditory, or combined visual and auditory). This approach allows researchers to investigate how brain regulation influences behaviour and pain perception using validated outcome measures (e.g., the Brief Pain Inventory, Numerical Pain Rating Scale, Pain Unpleasantness). The application of EEG-NF has been explored in both animal models and humans, and interest in this field of research has accelerated over the last few decades. The principal goal of EEG-NF is to modulate specific brain oscillations linked to a disease or behavioural state (Strehl, 2014). Each EEG-NF protocol can be designed to train (increase or decrease) a specific brain oscillation through the selected EEG electrode (surface NF) or can be localised to a specific region of the brain (Marzbani et al., 2016) using advanced neuroimaging technologies (Adhia et al., 2023; Mathew, Adhia, et al., 2022). Figure 1 illustrates the EEG-NF setup and feedback loop.

EEG-NF shows promise as a tool for managing various conditions by regulating brain signals through feedback-based learning. Unlike other neuromodulation techniques, EEG-NF necessitates active engagement from the participant to achieve optimal results, and each individual will respond uniquely to the training, which facilitates endogenous neuromodulation. As a result, the time required for successful regulation of brain activity can vary among people. For example, during a 30-minute EEG-NF session, one participant may successfully train their brain waves for 10 min, while another may achieve 20 min of successful training (Mathew et al., 2025). Therefore, it is crucial to account for the duration of successful training for individuals when studying the effects of EEG-NF. Moreover, conventional pre-post group analyses may fail to capture this individual variability, increasing the risk of Type I and Type II errors and potentially masking the true effects of training. This emphasises the need to account for the duration of successful training as a key variable in future clinical trials evaluating the effectiveness of EEG-NF, particularly for chronic pain.

EEG-NF training is based on well-established learning principles, and operant conditioning is a key component. Operant conditioning is a learning process in which behaviour is shaped by its consequences – desired actions are reinforced, increasing the likelihood of their repetition. In EEG-NF, individuals modify their neural responses based on the feedback received, a process known as reinforcement learning. By repeatedly reinforcing specific neural patterns, this training enhances the potential for sustained changes in brain function (Skinner, 1971; Staddon & Cerutti, 2003). A successful change according to the task is

Figure 1

EEG-NF Set-up and Feedback Loop



During EEG-NF, real-time activity and/or connectivity metrics of the targeted brain region(s) are recorded using EEG electrodes placed on the scalp. The signals are processed and analysed in real time to determine whether they meet the training threshold. If the criterion is met – such as uptraining a specific frequency in a designated region – the computer provides feedback as positive reinforcement. This process facilitates the feedback loop, allowing the participant to receive reinforcement each time they achieve the threshold. Created in BioRender. Mathew, J. (2025) https://BioRender.com/m56v825

positively reinforced with feedback (e.g., auditory, visual), while failure to change is not rewarded with any form of feedback, enabling individuals to self-regulate real-time brain activity (Koralek et al., 2012; Strehl, 2014). Despite ongoing debate regarding methodological implementation, operant conditioning remains a fundamental mechanism underlying EEG-NF learning.

Another supporting theory, the Dual-Process Theory, suggests that learning involves both efferent (outgoing) and afferent (incoming) processes. Individuals use cognitive strategies and interoceptive awareness to actively regulate their brain activity (Dunn et al., 1986; Lacroix, 1986; Muñoz-Moldes & Cleeremans, 2020). The CRED-nf (Consensus on the reporting and experimental design of clinical and cognitive-behavioural neurofeedback studies) checklist further supports the integration of cognitive strategies to optimise NF training outcomes. Moreover, the CRED-nf can be a valuable guide for clinicians and for designing robust clinical trials to explore the effects of EEG-NF (Ros et al., 2020).

While extensive research has established the potential of NF for chronic pain management, its clinical translation and implementation remain critical, particularly in Aotearoa New Zealand. The time has come to bridge the gap between research and practice by integrating NF into clinical settings. I strongly believe in the potential of NF as a transformative approach for pain management, and I am hopeful that its widespread adoption will soon become a reality.

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An Observational Cross-sectional Study of Expectant Mothers in Western Australia: To Understand Perceptions of Delivery Mode of Education and Exercise Physiotherapy-led Antenatal Classes

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ABSTRACT

Antenatal physiotherapy-led education and exercise classes moved from face-to-face to telehealth delivery in 2022 due to coronavirus disease restrictions. The aim of this study was to describe the experiences of mothers who participated in (face-to-face and telehealth) antenatal education and/or exercise classes. An observational cross-sectional design was employed, which incorporated the development of an online Qualtrics survey, containing a total of 51 items with eight open-ended questions. Surveys were emailed to participants who took part in antenatal education and/or exercise classes at two public maternity hospitals in Western Australia. Overall, 202 surveys were distributed, and 44 (22%) surveys were returned with 41 (20%) complete responses. Of the 41 responses, 17 (89%) were satisfied with the face-to-face classes and 30 (77%) were satisfied with the telehealth classes. Results highlighted that participants preferred face-to-face classes, despite noting the convenience of telehealth. Three themes were derived from the open-ended questions: "difficulties with the classes", "lack of connection and support", and "class convenience and enjoyment". The reasons for the difficulties and lack of connection included challenges with technology whereas class enjoyment was related to the classes continuing during periods of isolation. In conclusion, participants were more satisfied with face-to-face, versus online telehealth classes. Future research investigating experiences with a hybrid model of delivery, to increase accessibility of antenatal classes for women, is recommended.

Simillion, I., Nolan, J., Norrish, N., Hosking, C., Lokuge, A., & Timler, A. (2025). An observational cross-sectional study of expectant mothers in Western Australia: To understand perceptions of delivery mode of education and exercise physiotherapy-led antenatal classes. *New Zealand Journal of Physiotherapy, 53*(1), 7–18. https://doi.org/10.15619/nzjp.v53i1.395

Key Words: Antenatal, Education, Hospital-led, Physiotherapy, Telehealth

INTRODUCTION

On 11 March 2020, the World Health Organization (2020) declared Coronavirus Disease 2019 (COVID-19) a global pandemic and, in response, medical professionals turned to telehealth to deliver a range of services, including physiotherapy-led antenatal classes that were traditionally delivered face to face (Aksoy Derya et al., 2021; Dantas et al., 2020). Antenatal physiotherapy-led education and exercise classes aim to improve expectant mothers' birthing outcomes and optimise maternal physical wellbeing (Çankaya & Şimşek, 2021; Hassanzadeh et al., 2020). The mandated transition to medical service delivery via telehealth was introduced rapidly in Western Australia (WA) and the effectiveness of online class delivery remains largely unexplored.

Typical physiotherapy-led antenatal classes include topics such as pregnancy-safe exercises, massage and relaxation techniques, pelvic floor muscle exercises, pain management during labour, and post-partum bladder and bowel care (Çankaya & Şimşek, 2021; Hassanzadeh et al., 2020; Pelaez et al., 2014). These classes aim to create a safe environment for pregnant women to exercise and receive education about exercise guidelines during their pregnancy (Cilar Budler & Budler, 2022; Hill et al., 2017). For example, some studies have suggested that exercise during pregnancy, including perineal massage, has positive effects on maternal health, such as improved fitness, reduced reports of lower back pain, improved activation of pelvic floor muscles, and subsequently reduced urinary incontinence (Álvarez-González et al., 2021; Kalisiak & Spitznagle, 2009; Woodley et al., 2020). Moreover, participation in face-to-face antenatal education classes can foster connection to others, build confidence in the education women are receiving, and provide inclusivity for partners (Silva-Jose et al., 2022; Spiby et al., 2022; Wright et al., 2021).

Telehealth rapidly increased as a mode of physiotherapy delivery in 2020, as it enabled a reduction in the spread of COVID-19 through accessing health services from home (Aksoy Derya et al., 2021; Campo et al., 2023; De Simone et al., 2022). Delivering physiotherapy services via telehealth has been described as a transformation to care and will outlive the pandemic due to its accessibility to deliver services to more people (Campo et al., 2023). However, online delivery of medical services is associated with additional risks, such as data security, and relies on a person's computer literacy, access to equipment, and education levels for successful delivery (Dantas et al., 2020; Houser et al., 2023).

Pregnancy is associated with many changes in maternal psychological, physical, and social health and COVID-19 posed many threats to maternal wellbeing with a large number of appointment cancellations, uncertainty of disease progression, and reduced support from family and friends (Chen et al., 2022). Although digital and online physiotherapy services did not provide a solution for all challenges, telehealth enabled allied health professionals to continue service provision and alleviate healthcare burdens during the pandemic (Aksoy Derya et al., 2021; Dantas et al., 2020).

Few studies have previously considered understanding the participant experience in telehealth physiotherapy-led antenatal classes. This is despite many physiotherapy interventions during pregnancy showing positive benefits to improving labour outcomes such as reducing caesarean birth rate and improving postpartum recovery time (Álvarez-González et al., 2021; Barakat et al., 2012; Price et al., 2012). Additionally, the majority of previous literature has focused on face-to-face midwifery-led classes (Spiby et al., 2022; Wright et al., 2021) with a lack of literature exploring the effectiveness of telehealth physiotherapy-led antenatal classes during COVID-19. Physiotherapy-led antenatal classes have a strong focus on maternal physical health through promoting the benefits of regular exercise as stated in the American College of Obstetricians and Gynecologists (2020) guidelines. These guidelines highlight the potential benefits of exercise to improve maternal cardiorespiratory fitness, reduce bodily pain and disability, and prevent depressive symptoms, with physiotherapy-led antenatal classes serving as an adjunct to midwifery-led education. Therefore, the aim of this study was to compare the experiences of expectant mothers who participated in face-to-face physiotherapy-led antenatal classes with those who participated via telehealth across two public hospitals in WA during COVID-19.

METHODS

Study design and ethics

This study utilised an observational cross-sectional survey design. The survey was developed by the research team and included both numerical and open-ended responses and followed the CROSS checklist for reporting survey studies (Sharma et al., 2021). This design was selected due to a current lack of literature regarding physiotherapy-led antenatal classes and the specific impact of COVID-19 on class delivery. This study was approved by the Women and Newborn Health Service Ethics Committee (reference: RGS0000005607). Reciprocal ethical approval was granted through the University of Notre Dame Australia (reference 2023-001F).

Setting and participant recruitment

Participants were recruited from two public maternity hospitals serviced by the Women and Newborn Health Service in WA and were identified through an online patient registry that holds details for women attending the antenatal class(es) between December 2021 and 2022. Women were invited to the antenatal class(es) if they planned to deliver their baby at one of the public maternity hospitals, including women who lived in the metropolitan and regional areas. In WA, women can deliver at Women and Newborn Health Service sites if they live within the hospital catchment, are living regionally with a complex pregnancy, or have no other local public hospital (Department of Health, 2022). The antenatal education sessions ran for 2 hours across two weeks covering a range of antenatal topics and the exercise classes ran weekly for up to six weeks with the aim to inform expectant mothers of pregnancy safe exercises. A women's health physiotherapist specialist team comprised three physiotherapists who facilitated both classes in a dedicated space within the hospital. Women were invited to attend the education and/or exercise classes via telehealth or face to face if they were to deliver their baby at one of the Women and Newborn Health Service sites. The classes were run as group sessions with one physiotherapist leading the class and the other two physiotherapists responsible for the creation and ongoing development of the classes.

A total of 202 eligible mothers, identified through a clinical database, were contacted via email from the clinical treating team. Inclusion criteria involved those who were biologically female from birth, over 18 years of age, able to participate in English, and who had participated in at least one telehealth or face-to-face physiotherapy-led antenatal education and/or exercise class(es). Women under 18 years of age and women whose pregnancies did not result in live birth were excluded. The recruitment period was open for a two-week period during March 2023, whereby a survey was sent out via email to the participants from the head of the physiotherapy department across both maternity hospitals with a link to connect them to complete the online survey. The email also contained an attached participant information sheet asking for voluntary participation; therefore, consent was provided by opting into completing the anonymous survey. A follow-up email was sent one-week later reminding participants to complete the survey. Each participant was only able to complete the survey once, limited by parameters set in the online survey.

Data collection

An online anonymous survey (Qualtrics, Provo, Utah, USA) was created in consultation with three clinical experts in women's health physiotherapy and one person with lived experience of attending the face-to-face classes. The survey was piloted with a person with lived experience of the classes and class facilitators for functionality and usability prior to it being sent to the participants, and no further adjustments were required. The survey (made available from the corresponding author upon reasonable request) included quantitative (i.e., Likert scale) and qualitative (open ended) questions on the mothers' experiences of attending telehealth or face-to-face antenatal class(es) and/or a combination (telehealth and face-to-face), to allow for triangulation of results, consisting of a total of 51 items with eight open-ended questions. Questions were linked to exercise completion or education received, and participants were asked to select all options that applied to them. The survey was developed to use adaptive questioning, as participants were only shown questions dependent on which type(s) of antenatal class(s) they attended. The survey included five key sections: 1) demographic information, 2) barriers and benefits to class participation, 3) partner involvement and social interaction during the classes, 4) impact of COVID-19, and 5) overall attendance preference. The open-ended questions were included to allow for comments on the class experience and mode of delivery.

Data analysis

Data were screened and descriptive results (counts and percentages) were analysed using Microsoft Excel. The demographic information, challenges and benefits of the classes, and participant satisfaction scores were collated and grouped based on the participants who completed 1) education class(es), 2) exercise class(es), and 3) both education and exercise class(es). Additionally, the data were categorised by mode of class attendance (e.g., face-to-face, telehealth, or a combination of telehealth and face-to-face). The counts and frequencies (deductive analysis) were examined for each of the five sections of the survey. Open-ended qualitative data were entered into an Excel spreadsheet and grouped in accordance with participants' responses. The qualitative data were analysed using inductive content analysis with a descriptive approach.

RESULTS

From the total of 202 surveys that were distributed, 44 (22%) surveys were returned and 41 (20%) surveys contained complete responses (the data were excluded from three participants as they had not started the survey). Of the 41 surveys, incomplete responses were received from four participants; however, their available data were retained in the analysis. The demographic information from 41 women is presented in Table 1. The majority of respondents (35/41, 86%) were > 30 years of age, with an even mix of Australian women (22/42, 54%) and those born overseas (19/51, 46%). The majority had engaged in tertiary education or further studies (39/41, 89%) and were currently employed (30/41, 73%). This was the first birth for most of the participants (36/41, 88%) and the majority gave birth vaginally (29/41, 71%), followed by emergency caesarean (9/41, 22%).

Table 1

*Demographic Information for the Cohort (*N *= 41)*

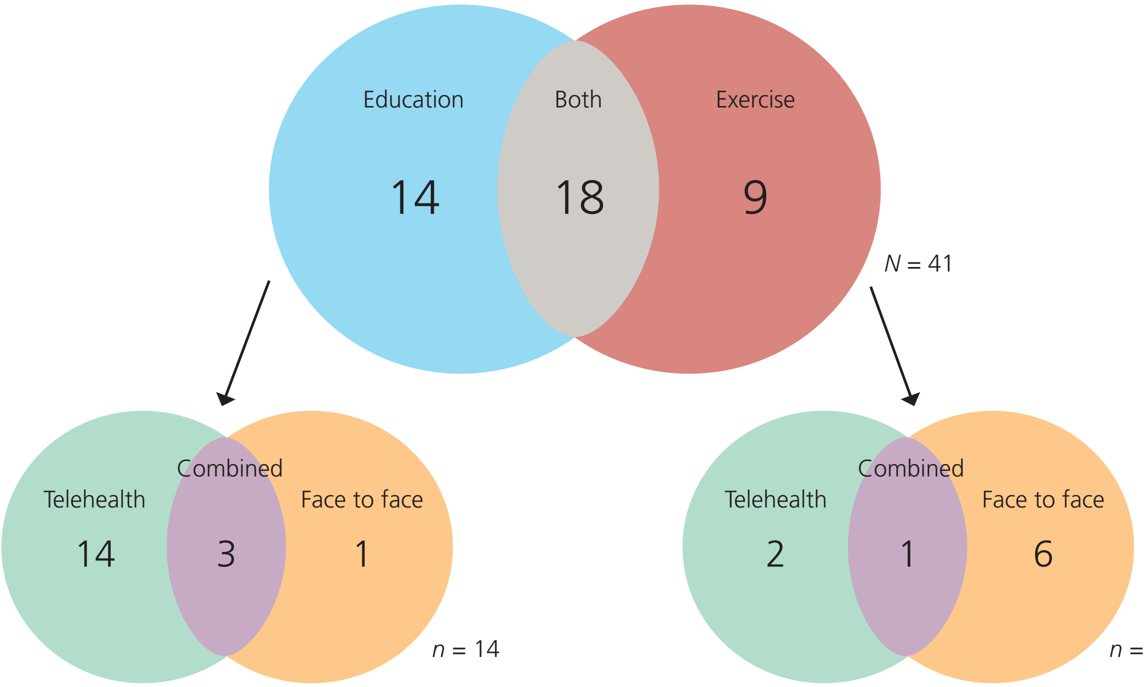
Demographics	Total	
	n	%
Age (years)		
18–24	2	5
25–29	4	10
30–34	22	54
≥ 35	13	32
Nationality		
Australian	22	54
Born overseas	19	46
Level of education		
Tertiary education	18	44
Post-graduate studies	18	44
Technical and further education	3	7
Secondary education	2	5
Employment status		
Unemployed	11	27
Part-time employment	16	39
Full-time employment	13	32
Casual employment	1	2
Parity		
One	36	88
Two or more	5	12
Type of birth		
Vaginal	29	71
Planned caesarean	3	7
Emergency caesarean	9	22

Figure 1 provides a breakdown of participant attendance in both the type of classes (exercise or education), and the mode of delivery. Fourteen (34%) respondents completed the education classes only, with 12 (86%) of those participating via telehealth, and 1 (7%) attending this class via telehealth and face to face (noted as "both" in Figure 1). Eighteen (44%) participants engaged in both the education and exercise classes, and 9 (22%) completed the exercise class only. Of those in the exercise class, most participants (6/9, 67%) attended via face-to-face delivery (see Figure 1).

Figure 2 displays the mode of class delivery for participants who attended both the education and exercise classes. Eighteen (44%) participants completed both class types. Of those in the education class, 14 (78%) completed the class via telehealth, with a minority participating via a face-to-face option (1/18, 5%). Of those in the exercise classes, 8 (20%) participants attended the class via telehealth and 8 (20%) via face-to-face. A small number (3/18, 17%) participated in a combination of telehealth and face-to-face in the education classes and likewise (2/18, 11%) in the exercise classes.

Figure 1

Overall Class Attendance, Categorised into Type of Class and Mode of Delivery



Twelve participants completed one or more of the classes via a combination of both telehealth and face to face. Of note, participants were unable to choose their mode of class delivery due to COVID-19 restrictions. Table 2 highlights the difficulties that these mothers reported experiencing in attending the classes face to face or via telehealth, and the difficulties noted varied between the two groups. Women participating in the face-to-face classes noted their greatest difficulty to be finding parking (4/11, 36%), whereas those in the telehealth classes said it was forming a connection with others (12/21, 57%).

Figure 2

Participant Breakdown of Mode of Class Delivery for Participants Who Attended Both the Education and Exercise Classes

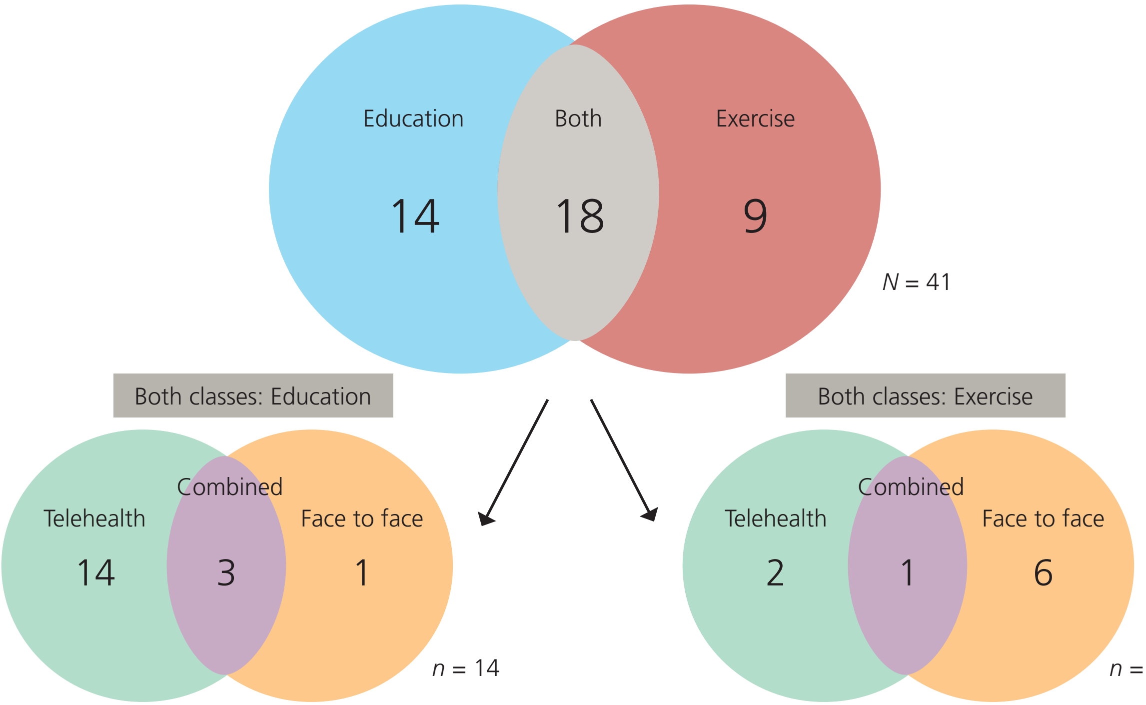


Table 2

Difficulties with Class Attendance, Categorised into Type of Class and Mode of Delivery

Characteristic	Total		Type of class					
			Face to face		Telehealth		Combined [a]	
	n	%	*n*	%	*n*	%	*n*	%
Class attendance (total *n*)	41		8		21		12	
Both education and exercise classes	18	44	1	5	7	39	10	56
Education	14	34	1	7	12	86	1	7
Exercise	9	22	6	67	2	22	1	11
Face-to-face difficulties (total *n*)	8		3				5	
Finding parking	4	36	–				3	60
Finding the classroom	3	27	–				2	40
Signing up	3	27	1	33			1	20
Forming a connection with others	3	27	–				2	40
Time of the class	2	18	1	33			1	20
Asking questions	2	18	1	33			1	20
Telehealth difficulties (total *n*)	18				10		8	
Forming a connection with others	12	57			6	60	4	50
Time of the classes	6	29			2	20	3	37
Visual and audio issues	5	24			3	30	2	25
Asking questions	5	24			3	30	2	25
Completing the exercises	5	24			5	50	–	
Other	4	19			2	20	2	25
Logging in	3	14			1	10	1	13

[a] Combined = telehealth and face to face.

Table 3 provides a summary of participants' experiences, stratified by mode of class delivery. In the face-to-face classes, most women felt connected to others (5/6, 83%), compared to most not feeling connected to each other in the telehealth classes (8/9, 89%). The majority of the participants attended the classes with a support person, irrespective of mode of class delivery (23/29, 79%), with most feeling it was important to attend with somebody else (21/29, 72%). All the participants who attended the face-to-face classes said they would refer a friend to the classes (19/19, 100%), whereas in the telehealth classes, a smaller proportion said they would refer a friend (21/26, 81%). Overall, all participants voted for either a face-to-face class delivery (22/37, 59%) or a combination of both face-to-face and telehealth delivery for future classes (15/37, 41%), noting that the telehealth only delivery was not suggested.

Table 4 illustrates the satisfaction level across all types of class attendance. Most of the participants were satisfied across both classes and both modes of class delivery. Satisfaction was similar among groups, with the majority (17/19, 89%) satisfied with the face-to-face classes and the telehealth classes (30/39, 77%).

Themes derived from open-ended responses

From the written responses left by the participants, three key themes emerged relating to class experience. These themes included "Difficulties completing the classes", "Lack of connection and support", and "Class convenience and enjoyment" (Figure 3). Overall, 75 comments were made and most participants (38/41, 93%) left at least one comment. Each participant was assigned a unique identification number to maintain anonymity; the number was assigned based on the order in which they completed the survey. Women either completed the education, exercise class, or both classes via telehealth, face to face, or a combination of both modes of delivery.

Difficulties completing the classes

Participants in the telehealth education classes and the face-to-face classes both shared they were overloaded with information regardless of the mode of delivery.

> The education classes covered a lot of information. Too much to properly cover in the assigned 2 weeks so it felt very rushed. Either reduce the content or increase the number of weeks over which the class is presented. (025, telehealth, both classes)

When asked about helpful ways to remember the information in the education sessions, three participants said they did not receive the PowerPoint slides during the education class, which made it harder for them to remember the information. One

Table 3

Summary of the Participants' Class Experiences

Questions and responses	Total		Type of class					
			Face to face		Telehealth		Combined [a]	
	n	%	*n*	%	*n*	%	*n*	%
What strategies helped you to remember information in the education class(es)?	66		6		31		29	
Slide shows shown throughout the class	19	59	1	50	12	63	6	54
Props and demonstrations by physiotherapist	17	53	2	100	9	47	6	54
Getting the PowerPoint one week prior	11	34	1	50	3	16	7	64
Practising the exercises	11	34	1	50	5	26	5	45
Other (e.g., handouts)	8	25	1	50	2	11	5	45
Did you feel connection to others in the class(es)?	22		6		9		7	
Felt connected to others	12	55	5	83	1	11	6	86
Felt no connection to others	10	45	1	17	8	89	1	14
Did anybody attend the education class(es) with you?	29		1		18		10	
Partner/spouse	22	76	1	100	15	83	6	60
Family member	1	3	–		1	6	–	
None	6	21	–		2	11	4	40
How important is it that a support person attends the education class(es)?	29							
Very important	13	45	1	100	8	44	4	40
Important	8	26	–		6	33	2	20
Neutral	3	10	–		1	6	2	20
Unimportant	1	3	–		1	6	–	
Very unimportant	4	14	–		2	11	2	20
How comfortable did you feel asking questions in the education class(es)?	29							
Very comfortable	8	28	1	100	4	22	3	30
Quite comfortable	10	34	–		5	28	5	50
Neutral	8	28	–		6	33	2	20
Uncomfortable	3	10	–		3	17		
How much information did you remember after the education class(es)?	29							
Most of the information	12	41	1	100	6	33	5	50
Some of the information	12	41	–		8	44	4	40
Half of the information	5	17	–		4	22	1	10
Did your support person feel actively included in the education class(es)?	26		1		16		9	
Yes	18	69	1	100	12	75	5	56
No	8	31	–		4	25	4	44
Did you have any unanswered questions after the education class(es)?	28		1		17			
Yes	1	4	–		1	6		–
No	27	96	1	100	16	94	10	100

Table 3 *Continued*

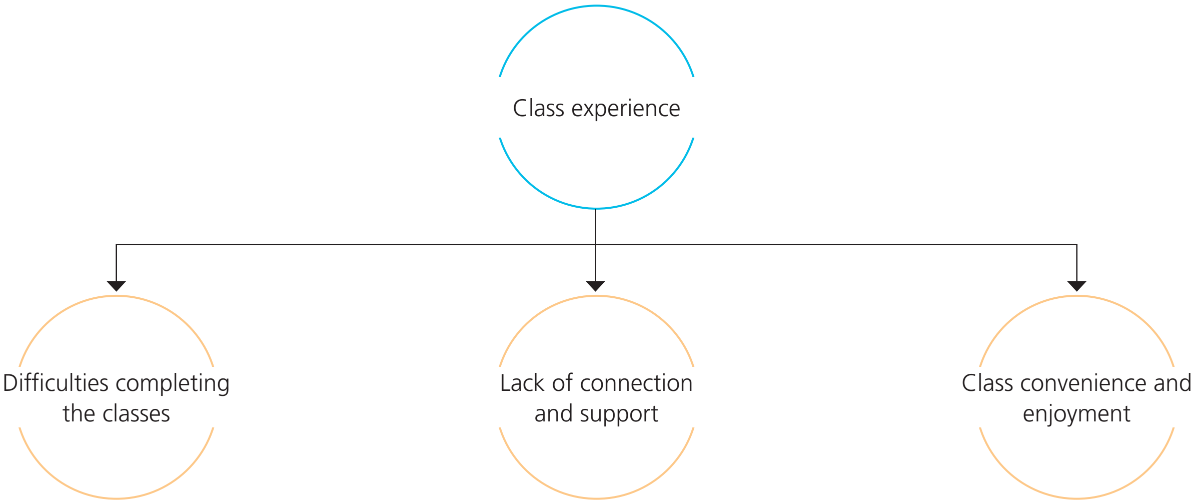
Questions and responses	Total		Type of class					
			Face to face		Telehealth		Combined [a]	
	n	%	*n*	%	*n*	%	*n*	%
Did you feel safe attending face-to-face class(es) during COVID?	15		1		6			8 [c]
Yes	13	87	1	100	6	100	6	75
No	2	13	–		–		2	25
Did you prefer to attend telehealth class(es) during COVID?	29		13		3			13 [c]
Yes	13	45	8	62	2	67	3	23
No	11	38	3	23	1	33	7	54
Other	5	17	2	15	–		3	23
Would you refer a friend to the class(es)?	56		5		14		26	
Yes	46	82	5	100	14	100	21	81
No	10	18	–		–		5	19
How would you prefer to attend the class(es) in the future?	37		7		20		10	
Education classes – Face to face	8	22	1	14	7	35	–	
Education classes – Combined	6	16	–		5	25	1	10
Exercise classes – Face to face	6	16	4	57	1	5	1	10
Exercise classes – Combined	2	5	1	14	1	5	–	
Both classes – Face to face	8	22	1	14	2	10	5	50
Both classes – Face to face	7	19	–		4	10	3	30

[a] Combined = both face-to-face and telehealth class participation.

[b] Both education and exercise classes, rather than a combined classes.

Figure 3

Key Themes Derived From the Open-ended Responses



participant said, "We took notes that we referred to later. Receiving a summary of key information would have been helpful" (028, face to face, both classes).

A few mothers also commented that the education classes caused more anxiety about giving birth and the post-partum period as they received a lot of education about the complications that could arise. One mother commented, "We felt the classes went into too much detail about things that could go wrong – it gave us more anxiety than what we felt was helpful. Especially via telehealth when pictures of bad engorgement and mastitis were shown" (037, telehealth, both classes).

Table 4

Participants' Overall Satisfaction with the Class(es) They Attended

Response	Attended education and exercise (both classes [*n* = 18]) *n* (%)						Education class (*n* = 14) *n* (%)			Exercise class (*n* = 9) *n* (%)		
	Education (*n* = 15)			Exercise (*n* = 16)								
	Total [a] (*n* = 17)	Face to face (*n* = 3)	Telehealth (*n* = 14)	Total [b] (*n* = 1 8)	Face to face (*n* = 9)	Telehealth (*n* = 9)	Total [c] (*n* = 14)	Face to face (*n* = 1)	Telehealth (*n* = 13)	Total (*n* = 9)	Face to face (*n* = 6)	Telehealth (*n* = 3)
Very satisfied	5 (29)	2 (67)	3 (21)	6 (33)	5 (56)	1 (11)	2 (14)	1 (100)	1 (8)	4 (45)	4 (66)	–
Satisfied	9 (53)	1 (33)	8 (58)	9 (50)	3 (33)	6 (67)	9 (64)	–	9 (69)	3 (33)	1 (17)	2 (67)
Neutral	1 (6)	–	1 (7)	1 (6)	–	1 (11)	2 (14)	–	2 (15)	1 (11)	1 (17)	–
Unsatisfied	2 (12)	–	2 (14)	2 (11)	1 (11)	1 (11)	1 (7)	–	1 (8)	1 (11)	-	1 (33)

[a] Three women attended the education class both face to face and via telehealth. [b] Two women attended the exercise class both face to face and via telehealth. [c] One woman attended the education class face to face andvia telehealth.

One mother felt some of the information in the education classes was too focused, particularly towards the information surrounding lactation: "Education given on lactation is far from the reality. The education seemed to be extremely biased to encourage breastfeeding. I believe we can encourage breastfeeding and have a more realistic explanation on how things can go" (007, both classes, combination).

The participants who attended face-to-face classes were required to wear masks due to mandatory COVID-19 hospital guidelines. As a result, some participants would have preferred to attend via telehealth as the mask made it uncomfortable while attending the class. When asked if they would attend the classes again, one participant said, "Yes, if we won't be forced to have a mask on during the class. I don't think it was healthy being pregnant and doing exercise at the same time while having a mask on" (002, face to face, exercise class).

Issues specific to attending the telehealth classes were described, which included difficulties doing exercises over telehealth. Many reported it was difficult to see the physiotherapist or ineffective as many could not ask for immediate feedback on the exercise(s) they were completing. This was particularly difficult when completing the pelvic floor muscle exercises.

> The classes were not effective as it was difficult to see how to do exercises correctly and there was no personal connection with the instructor or fellow mums. I also found [it] hard to work on the pelvic floor as I couldn't ask for immediate feedback on how to do it. (025, telehealth, both classes)

Participants also commented that asking questions via telehealth was harder than asking questions in-person. One participant noted that asking questions over the chat function was ineffective because the physiotherapist could not answer their comments in a timely manner and a lot of participants asked the same question.

> Asking questions via the chat function was not effective. Most of the time the class would be interrupted due to questions being asked midway through the presenter talking. There were a lot of double ups on questions because it's on a chat with a large audience. (025, telehealth, both classes).

Telehealth classes added a new element of difficulties as this required the participants to rely on the use of their personal technology at home. Some participants experienced technological difficulties including adjusting the volume and difficulty finding appropriate space at home to practise the exercises. One mother said, "When I attended the telehealth classes, there were lots of technical issues with volume and sound and the classes were not performed in an appropriate space" (022, telehealth, exercise class).

Finally, several commented that they could not remember a lot about the classes since the survey was sent out 3–12 months after completion of the antenatal classes.

> I completed the class nearly a year ago. It's difficult to remember specifics of the class now. However, I do remember feeling very reassured and well informed after the class and found the physios very approachable and I had all my questions answered. (003, face to face, education class)

Lack of connection and support

A lack of connection with other participants was a common theme experienced, particularly for those who attended the telehealth classes. Several reported feeling a lack of connection with other participants during the telehealth classes because many attended the classes with their cameras turned off. Some women reported that a lack of introductions among class participants contributed to this lack of connection: "It would have been great to encourage people to turn their cameras on and introduce themselves so that there was some connection between us, rather than just having information delivered one way" (035, telehealth, both classes).

Some mothers noted that they wanted to do the classes to meet other expectant mothers and felt this was taken away with the telehealth option. A minority reported the classes felt impersonal over telehealth and would have preferred face-to-face attendance if they had the option. One participant said, "A major part of attending is to connect and talk to other mums, so the online option didn't appeal to me. I would attend face to face again if I had another pregnancy" (023, telehealth, exercise class).

Although the majority of the participants felt a good sense of connection to others in the face-to-face exercise classes, a few commented that they struggled to form connections in these classes.

> The exercise class I took was poorly run, and most of the participants talked loudly to each other through the class and didn't really participate, making it difficult for those who wanted to do the exercises, to hear, and participate in the class. (044, face to face, both classes)

Class convenience and enjoyment

Several participants were impressed with the convenience of the telehealth class option, especially during periods of isolation, as these classes were better for their schedules. Many appreciated this option instead of the class being completely cancelled.

> The online classes were more convenient. I probably wouldn't have attended any face-to-face exercise classes in-person because it was too hard logistically with other children to care for, but I do enjoy face-to-face classes more when I do make the effort to attend. (035, telehealth, both classes)

Participants enjoyed that they did not have to travel to the telehealth classes, struggle to find parking, and were less distracted when watching online.

> My preference would be to do the education online – made it a lot easier timing and parking wise and was a lot more comfortable to ask questions in the chat and felt I was less distracted by being on [a] laptop in home setting. (015, telehealth, both classes)

Several participants had difficulties booking into another face-to-face class if they had to cancel their initial booking. Those in the telehealth classes did not share this issue. One mother wrote about the long wait times to access a face-to-face class again if they had missed one class:

> It was inconvenient that there is only one session and if we missed it, it was too bad for us. I've missed one session as I was at the hospital, and I couldn't have any information about it unless I waited for the next session which was after my due date. (007, combination, both classes).

One participant suggested it may be more effective if the telehealth exercise classes were pre-recorded and then if they had any issues, they could book an appointment to receive feedback from a physiotherapist: "The exercise class could have been a pre-recorded video and if you have any additional requirements/concerns, then arrange a one-on-one telehealth appointment with a physio" (022, telehealth, exercise class).

Overall, the majority of participants reported they would prefer to attend the classes face to face. Participants enjoyed meeting other expectant mothers, and said it was easier to practise the exercises in front of a physiotherapist and was an effective education tool. One participant summarised, "I enjoyed meeting other mothers to be and also to educate myself on the correct exercises" (038, face to face, exercise class).

Many saw the value in completing these classes prior to giving birth. Several mothers left positive comments like, "Great classes! I feel it's important for all expecting mothers to have a class on physio and impacts on the body before and after birth" (018, combination, education class).

To summarise, participants commented about the overload of information covered in the education classes (regardless of the mode of class delivery), felt a lack of connection to others in the telehealth classes, and overall responded more positively to the face-to-face classes.

DISCUSSION

The main purpose of this study was to explore participants' experiences of physiotherapy-led antenatal classes who attended telehealth and/or face-to-face delivery across two different classes (exercise vs education) during COVID-19. While several studies have explored the benefits of implementing telehealth medical services during COVID-19 (Aksoy Derya et al., 2021; De Simone et al., 2022; Halcomb et al., 2023), differences between telehealth and face-to-face delivery of physiotherapy-led antenatal classes remain unexplored. The three key findings from this study include (1) greater difficulties completing the classes over telehealth compared to face to face, (2) participants felt a lack of connection to others while participating in the telehealth classes, and (3) women enjoyed the convenience of telehealth class delivery; however, the majority still preferred the face-to-face classes. These findings are also reflected in the quantitative data with the majority (12/21, 57%) having difficulties forming a connection with others in the telehealth classes and fewer participants satisfied with the telehealth classes (30/39, 77%) compared with the face-to-face classes (17/19, 89%).

Difficulties completing the classes

This study revealed that participants felt overloaded with information in the antenatal education class(es) regardless of the mode of delivery. Only 8 (44%) of participants who attended via telehealth felt they could remember "some of the information". This was also supported in the open-ended responses, as several participants commented on the large amount of information covered. Difficulties remembering information during antenatal class was also found by Lee and Holroyd (2009), who highlighted that women in their reproductive years often work full time, resulting in lower attention spans during the classes running in the evenings. This is comparable to this study, with the majority of participants being employed (30/41, 73%) potentially contributing to them feeling overloaded with information as the classes were conducted on weekdays, after business hours.

Some mothers in this study reported that receiving information about birthing complications made them more anxious about giving birth. In contrast, Çankaya and Şimşek (2021), in a randomised control trial found reduced rates of depression and anxiety, and fear of birth including increased childhood self-efficacy among the group who participated in several antenatal classes compared to controls. However, their results were not clinically significant, which may suggest bias in the study's findings (Çankaya & Şimşek, 2021). Similar to the present study, a systematic review investigating the effects of antenatal education on maternal and foetal health found no effect on maternal stress, anxiety, and fear of birth after antenatal education; however, there was a lower elective caesarean birth rate of the educated cohort (Hong et al., 2021). In this study, (3/41, 7%) of participants gave birth via an elective caesarean, with the majority (29/41, 71%) giving birth vaginally. Despite these findings, this study did not explore whether antenatal class participation was associated with type of birth.

The increase in utilisation of telehealth during COVID-19 in Australia was essential in maintaining safe medical service delivery. Telehealth service delivery can sustain both a high standard of healthcare and reduce the risk of disease transmission for both health professionals and consumers (Campo et al., 2023; De Simone et al., 2022; Halcomb et al., 2023). During physiotherapy education and exercise classes, hands-on feedback and support from a physiotherapist plays a valuable role in teaching and engaging the participants (Kalisiak & Spitznagle, 2009). In the present study, participants reported difficulty completing exercises via telehealth as they were unable to receive immediate feedback, which was an issue not encountered by face-to-face participants. Prior studies have found there are many benefits to hands-on physiotherapy, extending past the role of only antenatal physiotherapy to other areas such as the musculoskeletal and neurological settings (Geri et al., 2019; Shahid et al., 2023). Recently, Halcomb et al. (2023) found the use of telehealth during COVID-19 in an outpatient setting among various medical professionals was less useful when physical examinations, physical intervention, and/or visual cues were required. Participants in the present study found it more difficult to practise exercises over telehealth and did not experience the benefits of hands-on care. These factors relating to class experience should be considered when planning mode of class delivery.

Furthermore, poor computer literacy and Information Technology (IT) skills among class participants is considered a significant barrier in receiving medical care over telehealth (Halcomb et al., 2023). Participants in the present study expressed greater difficulties in the telehealth compared to face-to-face classes, however only a minority experienced IT issues (8/21, 38%), which included visual and audio issues (5/21, 24%) and difficulties logging in (3/21, 14%). Participants in the present study, however, had completed high education levels with 36 (88%) participants having completed tertiary education, with 28 (68%) of the participants being younger than 35 years. The only mode of participation in this study was by completing an online survey, which may have led to some selection bias and a lack of generalisability of these findings. Similarly, Spiby et al. (2022) acknowledged that selection bias through an online survey may silence those who do not have access to the internet or electronics and marginalise minority groups who may benefit the most from antenatal classes.

Lack of connection and support

The greatest reported disadvantage of telehealth participation was the lack of connection and support from others during the antenatal classes. A greater percentage of participants in the telehealth classes (8/9, 89%) reported a lack of connection with others, compared to the face-to-face participants (1/6, 17%). Spiby et al. (2022) found first-time mothers wanted to feel reassured about giving birth and to meet others, and felt this was achieved though attending face-to-face antenatal sessions with health professionals. They also found the main reason for class attendance was to meet others, even though this study was carried out prior to COVID-19 (Spiby et al., 2022). Consequently, these results may not reflect the unique circumstances of the pandemic period and therefore future class delivery could include introductions and active class participation (regardless of the mode of class attendance) to improve class engagement.

Class convenience and enjoyment

Overall, the majority of the participants in this study were satisfied with the classes, despite lack of choice regarding mode of delivery due to COVID-19. Across all classes only 11% of participants were unsatisfied, but of those who were unsatisfied, 83% had completed a telehealth class. Despite this small number of participants who were dissatisfied with the classes, most telehealth class participants noted the convenience of connecting to a telehealth class from home. Similarly, Silva-Jose et al. (2022) conducted interviews with 24 women who felt safer attending classes online during COVID-19 and had more time available to adhere to an exercise programme. Comparably, 45% of respondents in the present study said they preferred attending classes via telehealth during the pandemic.

Although this does not represent the majority of participants in this study, the impact of COVID-19 between Australia and Spain is not comparable, as Australia had fewer confirmed COVID-19 cases and did not have community transmission at the time of the study (World Health Organization, 2023). However, participant safety from illness is an important determinant to reduce maternal stress and telehealth services allowed antenatal classes to continue safely, likely serving a role in reducing maternal stress during pregnancy (Aksoy Derya et al., 2021).

The level of satisfaction (75%) with the telehealth classes in this study is comparable to Quinn et al. (2021) who found women were highly satisfied with virtual antenatal appointments due to the convenience, avoidance of travel, and staying safe during the pandemic. However, Quinn et al. (2021) focused on individual antenatal appointments with medical and nursing staff, whereas the present study focused specifically on physiotherapy care. Telehealth offers further benefit in that it enables participation among people who live in rural and remote areas who may not have the means to attend face-to-face classes (De Simone et al., 2022). This is particularly relevant in a Western Australian context, as the state only has one tertiary referral centre for complex pregnancies, meaning that rural and remote participants need to travel long distances to access physiotherapy-led antenatal classes. The present study did not specifically capture experiences from women living outside the metropolitan area; however, the potential benefits of a telehealth class option to increase access for this population must be considered.

Strengths and limitations

The focus on physiotherapy-led classes, which differs from current literature focusing mostly on midwifery-led antenatal class experience, provides a novel contribution to the literature. This study also captured perceptions of both modes of delivery (face to face and telehealth), which allowed for between-group comparisons. Although the survey utilised in this study was not a validated tool, it was developed by experts and a person with lived experience of antenatal classes during the pandemic. Participants did not have choice in the mode of class delivery due to the COVID-19 restrictions, which must be noted when considering generalizability in a context outside of the pandemic. Despite the small sample size, the present study received a 20% response rate and pursuing a higher response rate often creates other measurement problems (Hendra & Hill, 2019). A response rate between 15 and 20% is acceptable for survey responses when aiming to collect a truly random sample and not "knowing" (purposively sampling) the participants (Fincham, 2008). It is also important to note that the response for some individual questions was low, which can be explained by the surveyed cohort being new mothers and likely time poor, fatigued, and still dealing with ongoing effects from the COVID-19 pandemic (e.g., survey fatigue). This study did not aim to target participants from a higher socioeconomic background; however, selection bias may have occurred due to the online delivery of the survey. The online nature of the survey may have presented barriers to participation for people with limited internet access, computer literacy, and from non-English speaking backgrounds. This limitation speaks to the representativeness of the data, as it may not have captured those living in rural WA, those from a lower socioeconomic background, and non-responders. Finally, some participants may have had difficulties remembering details of the classes due to survey distribution being three to 12 months' post class competition, leading to a risk of recall bias.

CONCLUSION

Findings from the present study provide insight into differences between face-to-face and telehealth class delivery of physiotherapy-led antenatal classes. Overall, women preferred to attend antenatal classes face to face, enjoyed the convenience of telehealth, or wanted to attend through a hybrid (face-to-face and telehealth) model. Despite the challenges experienced by medical services during COVID-19, the utilisation of telehealth services was beneficial in a WA context and the significance of online physiotherapy services should be an ongoing option for women. Future services may consider offering antenatal education classes as a hybrid model incorporating both online and face-to-face class delivery, to allow participation via telehealth among those who cannot attend face to face. Further research investigating satisfaction associated with hybrid models of delivery is warranted. Considering findings from the present study, it may be recommended that antenatal exercise classes are offered face to face, but if face-to-face exercise class attendance is not possible, online class delivery presents a suitable alternative.

KEY POINTS

1. There are benefits in providing physiotherapy-led antenatal classes over telehealth; however, participants prefer face-to-face class delivery, regardless of class mode (education or exercise).
2. Greater difficulties with telehealth classes were experienced, which included a lack of opportunity to form connections with others.
3. A hybrid mode of delivery may offer the satisfaction associated with face-to-face education and accessibility associated with online education. Further research into acceptability of a hybrid model is warranted.

DISCLOSURES

No funding was obtained for this study. There may be a perceived conflict of interest as the primary author worked at one of the hospitals from which the data was collected; however, the primary author did not contact the participants (this was done by the clinical team did).

PERMISSIONS

This study was approved by Women and Newborn Health Service ethics committee (EC00350), PRN: RGS0000005607. Reciprocal ethical approval was granted through the University of Notre Dame Australia (2023-001F).

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CONTRIBUTIONS OF AUTHORS

Conceptualisation, IS, JN, NN, CH, AL and AT; methodology and formal analysis, IS, JN, NN, and AT; writing – original draft preparation, IS, JN, NN, CH, AL and AT; writing – review and editing, IS, JN, NN, and AT; supervision, JN, NN and AT; project administration, IS, JN, BB and AT.

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“I’m Sorry, I Can’t. I Feel the Tears Coming On Already”: The Views of Mothers, Midwives, and Physiotherapists on Postpartum Recovery in New Zealand

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ABSTRACT

Worldwide, mothers experience physical postpartum symptoms affecting their quality of life, such as perineal pain, urinary incontinence, faecal incontinence, pelvic girdle pain, and dyspareunia. However, the experience of postpartum recovery in New Zealand is poorly understood. The primary objective of this study was to explore the views of postpartum mothers, midwives, and pelvic and women’s health physiotherapists regarding physical postpartum symptoms. The secondary objective was to investigate perceptions of the response of New Zealand’s funded maternity services, including access to pelvic and women’s health physiotherapy. Fifteen participants completed a semi-structured interview: five mothers in the first postpartum year, five midwives, and five pelvic and women’s health physiotherapists. Through thematic analysis, five key themes were identified: (a) beliefs about the postpartum period; (b) the “knock-on” effect; (c), the current maternity model; (d) belief that pelvic and women’s health physiotherapy can help; and (e) barriers and facilitators to pelvic and women’s health physiotherapy. Physical postpartum symptoms were seen to limit daily activities and have psychological ramifications for mothers. Participants felt that there is limited support for mothers’ physical symptoms under New Zealand’s funded maternity services. Pelvic and women’s health physiotherapy was perceived as a beneficial service for postpartum rehabilitation; however, several perceived barriers to this service were noted, including cost, a lack of knowledge, and difficulty navigating the healthcare system. Greater contributions are desired for mothers’ physical symptoms under the current maternity model of care, including more funding, education initiatives, and improved referral methods.

Watane, A., Belcher, S., Ward, D., Webb, E., & Kovanur Sampath, K. (2025). “I’m sorry, I can’t. I feel the tears coming on already”: The views of mothers, midwives, and physiotherapists on postpartum recovery in New Zealand. *New Zealand Journal of Physiotherapy, 53*(1), 19–31. https://doi.org/10.15619/nzjp.v53i1.413

Key Words: Childbirth, Physiotherapy, Postpartum, Recovery, Rehabilitation

INTRODUCTION

The postpartum period relates to the time following childbirth during which a mother’s body undergoes a major phase of healing and recovery (Romano et al., 2010). The length of the postpartum period varies in the research literature (Romano et al., 2010). In the past, the postpartum period was proposed to be six weeks long, based on the length of time required for reproductive organs to be restored to their near pre-pregnancy state (Tulman & Fawcett, 1988). However, more recent longitudinal studies show that mothers continue to experience physical symptoms related to pregnancy and childbirth up to one year postpartum (Chien et al., 2009; Gjerdingen et al., 1993; Nygaard et al., 2021; Saurel-Cubizolles et al., 2000; Schytt et al., 2005; Tavares et al., 2020).

Self-reported conditions during the postpartum period may include perineal pain, persistent headaches, backache, pelvic girdle pain, dyspareunia (painful sexual intercourse), haemorrhoids, constipation, urinary incontinence, faecal incontinence, and breast soreness (Cheng & Li, 2008; Tavares et al., 2020). Urinary incontinence has been shown to affect 13.9% of mothers at 1–2-months postpartum (Schytt et al., 2005), 10.7% of mothers at 6–7-months postpartum (Brown & Lumley, 1998), and 43.4% of mothers at 12-months postpartum (Nygaard et al., 2021). There is a high prevalence of general and musculoskeletal symptoms in the early postpartum period, with 77.1% of mothers reporting backache (Chien et al., 2009) and 47% reporting persistent headaches (Lagro et al., 2003) within the first 3-months postpartum.

The accessibility of postpartum services is an important predictor of maternal health outcomes (Mangesi & Zakarija-Grkovic, 2016; Miquelutti et al., 2013; Steen, 2012; Woodward & Matthews, 2010). However, in many countries, it is believed that the postpartum period is granted significantly lower priority in healthcare management, when compared to care offered during pregnancy and childbirth (Albers, 2000; Cheng & Li, 2008; Glazener et al., 1995). Comparatively, New Zealand has a gold-standard maternity service that includes fully funded midwifery care to all New Zealand mothers from conception to six weeks postpartum (Dawson et al., 2019; Grigg & Tracy, 2013). During the postpartum period, mothers are entitled to receive a minimum of seven appointments with their midwife within the first 6 weeks (Ministry of Health, 2021). The 2022 Triennial Maternity Consumer Survey found that 88% of New Zealand mothers were either "satisfied" or "very satisfied" with midwifery care "during baby's first few weeks" (Health New Zealand Te Whatu Ora, 2024). However, when questioned about their physical symptoms, mothers were 21% less satisfied with the "physical check of you from your midwife" compared to responses in 2014. This question was the only item in the report regarding mothers' physical symptoms, and the only item to see such a significant decrease in terms of "very satisfied" across the entire survey. Accordingly, little is known about mothers' experiences of physical symptoms and their perceptions of the responsiveness of maternity services.

The World Health Organization recognises that, worldwide, postpartum services specific to aiding mothers' recoveries are neglected (World Health Organization, 2022). They recommend "treatment, support and advice to aid recovery and manage common problems that women can experience after childbirth". Pelvic and women's health (PWH) physiotherapists are clinicians who have undertaken additional training in the management of postpartum symptoms, and positive outcomes for postpartum recovery have been associated with access to their service (Cristuta, 2019; Critchley, 2022; Mazur-Bialy et al., 2020; Rajsekhar & Sumalatha, 2015). If so desired, New Zealand mothers may access physiotherapy privately, or, if they are eligible, may receive this service fully funded via a referral to a public hospital (Health Navigator New Zealand, 2025; Health New Zealand Te Whatu Ora, 2022). However, PWH physiotherapy lies outside New Zealand's funded maternity services and is not included in the routine midwifery referral schedule (Ministry of Health, 2021). Despite New Zealand's leading maternity model, it is unclear whether mothers receive sufficient support for their physical postpartum symptoms. The objectives of this study were to (a) explore the views of postpartum mothers, midwives, and PWH physiotherapists regarding physical postpartum symptoms and (b) investigate perceptions of the response of New Zealand's funded maternity services, including access to PWH physiotherapy.

METHODS

Semi-structured interviews were utilised to collect open-ended data exploring the New Zealand postpartum experience (DeJonckheere & Vaughn, 2019). The perspectives of three populations (mothers, midwives, and physiotherapists) directly involved in the postpartum period were collected. Ethics approval was provided by the Waikato Institute of Technology Ethics Committee (reference number WTLR12110422). Findings are presented by participant populations, and quotes are anonymised to avoid participant identification.

Participants and recruitment

Purposeful sampling was used to recruit suitably knowledgeable participants (Moser & Korstjens, 2018). Participants were recruited via special interest websites (e.g., physiotherapy), social media pages, such as Facebook mothers' groups, and word of mouth. Interested participants were included if they met one of the three inclusion criteria described in Table 1. Participants who expressed interest in this study were provided with a participant information sheet and consent form via email. The completed consent forms were returned to the researchers via email. Fifteen participants were included in this study, with two others excluded – one midwife and one mother, due to their unavailability for an interview within a suitable timeframe.

Interviews

Data were collected, between July to September 2022, through one-on-one semi-structured interviews using an online communication programme (Zoom Video Communications Inc, Version 5.9). Population-specific interview guides (Appendix A) were developed based on the research aims, previous research, and test pilot interviews (Martin et al., 2014). The individual guides were tested in pilot interviews with the relevant populations of interest (mother, midwife, and PWH physiotherapist). The pilot interviews were overseen by two research supervisors (KSK and SB). Feedback from the pilot interview participants and supervisors enabled the finalised interview guides (McGrath et al., 2018). The interviews were conducted by three student researchers: AW interviewed mothers, DW interviewed midwives, and EW interviewed physiotherapists. The interviews were audio and video recorded via Zoom, with space for field notes available on the interview guide. Interviews took between 18 and 60 minutes. No prior relationship existed between the researchers and the participants.

Data analysis

The Zoom recordings were transcribed verbatim first using a software program (Otter.ai) and then checked by each of the student researchers against the relevant audio recording. Interviews were anonymised. Each researcher independently analysed the dataset for the population they interviewed. A thematic approach based on the six phases described by Braun

Table 1

Inclusion and Exclusion Criteria of Participant Groups

Participant groups	Inclusion criteria	Exclusion criteria
Mothers	Within the first postpartum year: between 6 weeks and 12 months postpartum. Given birth in New Zealand and continue to live in New Zealand since giving birth. Primary caregiver since birth. Mothers have experienced at least one physical health condition since childbirth. Over 18 years of age.	Currently pregnant. If the mother had a complicated birth and an extended stay in hospital.
Midwives	Registered with the New Zealand midwifery council. Working as a midwife for a minimum of 1 year. Currently practising in New Zealand. Over 18 years of age.	Midwives who have not worked with mothers during the postpartum period.
Physiotherapists	Registered with the Physiotherapy Board of New Zealand. Currently practising in New Zealand as a pelvic and/or women's health physiotherapist. Over 18 years of age.	Physiotherapists who had no experience working in pelvic and women's health. Physiotherapists who had not been working in the field for the last year.

and Clarke (2006) was used to identify themes and subthemes. The analysis process included each researcher reading the transcripts and field notes to become familiar with the data they had obtained via the interviews. Generation of initial codes and categories was completed independently using Microsoft Office package tools such as colour codes, or other organisational software (QDA Minor lite). Multiple group discussions took place between the three student researchers to look for patterns relating to similarities and differences between the data, codes, and categories, which were eventually collated into themes and subthemes. The themes, subthemes, and supporting evidence were submitted for final review to the two research supervisors.

Reflexivity

The research team comprised three final-year physiotherapy students and two research supervisors. The students' backgrounds included sport and exercise (AW), massage therapy (DW and EW), and natural science (DW). The students undertook the processes of study design, participant recruitment, data collection, analysis, and interpretation. The two research supervisors (KSK and SB) have a background in physiotherapy and education, and, additionally, KSK is a qualified osteopath. KSK and SB have both quantitative and qualitative research experience. As supervisors they reviewed student processes, data, analysis, and interpretation.

RESULTS

Study group

A total of 15 interviews were conducted and analysed across the three groups (five mothers in the first postpartum year, five midwives, and five PWH physiotherapists). The majority of participants across all cohorts identified as either New Zealand European (n = 9) or European (n = 4); one mother identified as Māori and New Zealand European and another as Pacific Island and Filipina. All mothers were multiparous, and most lived in the Waikato region (80%). The experience of the health professionals ranged from 3 to over 15 years. Most (80%) midwives were based in the Waikato; however, the included physiotherapists practised across New Zealand (Table 2).

Themes

Five major themes were identified, supported by 11 subthemes (Table 3). The major themes were: (a) Beliefs about the postpartum period; (b) The "knock-on" effect; (c) The current maternity model; (d) The belief that PWH physiotherapy can help; and (e) Barriers and facilitators to PWH physiotherapy. Each theme and subtheme is discussed below.

Theme 1. Beliefs about the postpartum period

Three sub-themes emerged related to beliefs about the postpartum period: A time for healing and adjusting, Length of the postpartum period, and Mothers' health is not a priority.

Sub-Theme 1.1. A time for healing and adjusting

When asked about the postpartum period, participants described experiences of physical pain and dysfunction attributed to pregnancy and childbirth. One midwife commented:

> All the time their bodies are sore you know, their bodies are sore, their bones like if you think about when a woman births a baby and how their bones in the pelvis everything moves to let this baby … women like feel like they've been hit by a bus after they have a baby and I hear it all the time. (Midwife #4)

This was supported by a physiotherapist's perspective: "So PGP [pelvic girdle pain] and back pain and all that and then postnatal musculoskeletal stuff as well but also diastasis, stress incontinence, overactive bladder urge incontinence, and painful sex after having a baby" (Physiotherapist #5).

The postpartum period was understood to be the designated time after childbirth for the mother to heal from these physical symptoms and adjust to the new changes in her life: "Just the time after having a baby. So, I guess adjusting your body

Table 2

*Background Characteristics of Participants (*n *= 15)*

Participants	Ethnicity	Professional experience (years) [a]	Location of residence
Mothers			
#1	New Zealand European		Waikato
#2	European		Waikato
#3	New Zealand European		Bay of Plenty
#4	Māori/New Zealand European		Waikato
#5	Pacific Island/Filipina		Waikato
Midwives			
#1	English/European	5–10	Waikato
#2	New Zealand European	5–10	Waikato
#3	New Zealand European	≥ 15	Waikato
#4	New Zealand European	10–15	Waikato
#5	Irish/European	10–15	Wellington
Physiotherapists			
#1	New Zealand European	≥ 15	Waikato
#2	English/European	10–15	Wellington
#3	New Zealand European	0–5	Canterbury
#4	New Zealand European	≥ 15	Southland
#5	New Zealand European	10–15	Auckland

Note. All mothers were multiparous. # = identification number.

[a] Relevant only to midwives and physiotherapists.

and your mind and being a mum" (Mother #2); and "My understanding is until you're recovered, I suppose physically and emotionally, I suppose and gotten into some sort of routine" (Mother #4). These sentiments were shared by midwives: "Until, you know, really, you start to feel kind of back to yourself" (Midwife #1).

Sub-Theme 1.2. How long is the postpartum period?

All cohorts attempted to define the postpartum period according to the length of time they felt it took for the mother to recover from her pregnancy and birth-related symptoms. One midwife commented, "We always used to say 6 weeks, but yeah, that always to me felt ridiculously short" (Midwife #5). A mother voiced, "Maybe I'd say about 6 months before you feel like … your body has recovered" (Mother #4).

Participants expressed that pregnancy and childbirth altered mothers' physical bodies and suggested the postpartum period is of an indefinite duration: "Yeah, basically for life once you've had a baby, your body's permanently changed, and you'll always be postpartum" (Physiotherapist #4); and "Once postpartum always postpartum" (Physiotherapist #5). This was echoed by a mother, who expressed, "I guess you, you know, once you have a baby, your body and everything has changed forever. So, I don't know if it maybe lasts forever" (Mother #3).

Sub-theme 1.3. Mothers' health is not a priority

Mothers stated that they tend to prioritise other responsibilities before their health, including caring for their infant and family:

> It was hard for me to rest and to take that time out because I needed to take care of everybody else … I will always put everybody else, everything else ahead of my own health, which is really bad. But I will sacrifice. (Mother #5)

This was also acknowledged by physiotherapists, with one commenting:

> You've got this period of your life where you've never been so vulnerable, and when you are sleep deprived and you're feeding this new baby … And then you've got all these physical things going on as well. So, it's just adding more stress to the already full stress bucket. (Physiotherapist #5)

Midwives further added that when it comes to routine midwifery care in the postpartum, the baby's health is prioritised over the mother: "It's essentially all about baby, there isn't a lot that's about mum and I feel that that's a part that's lacking" (Midwife #3).

Theme 2: The "knock-on" effect

This theme comprised three sub-themes: Postpartum physical symptoms, More than just physical symptoms, and Effects on daily living.

Table 3

Themes and Subthemes

Themes and subthemes	Supporting quote
1. Beliefs about the postpartum period	
1.1 A time for healing and djusting	“Just the time after having a baby. So, I guess adjusting your body and your mind and being a mum” (Mother #2) “My understanding is until you're recovered, I suppose physically and emotionally” (Mother #4)
1.2 How long is the postpartum period	“Maybe I'd say about six months before you feel like … your body has recovered” (Mother #4) “We always used to say six weeks, but yeah, that always to me felt ridiculously short” (Midwife #5) “Ultimately, maybe there’s no end to it, because maybe you’re always slightly different after you’ve, your body’s gone through that you know” (Midwife #5)
1.3 Mothers’ health not a priority	“It’s essentially all about baby, there isn’t a lot that’s about mum…” (Midwife #3)
2. The “knock-on” effect	
2.1 Postpartum physical symptoms	“Incontinence, urinary and faecal. Pelvic organ prolapses, perineal tears levator ani avulsions. DRAM [diastasis recti abdominus] … pelvic girdle pain...” (Physiotherapist #1)
2.2 More than just physical symptoms	“I'm sorry, I can't. I feel the tears coming on already. I was just tired. I was just exhausted … Breastfeeding was really, really sore. I remember close to being like being in tears almost. Because it was so painful” (Mother #4) “…if they're leaking when they're doing the exercise that they love that can affect their physical and mental health” (Physiotherapist #3)
2.3 Effects on daily living	“Walking hurt or laying down hurt which was quite challenging with like picking up the baby or feeding the baby…” (Mother #2) “…she would consider quitting her job … basically because of her urinary incontinence” (Physiotherapist #3)
3. The current maternity model	
3.1 Six weeks is not long enough	“The only thing is that I feel like the six weeks isn’t long enough” (Midwife #1) “In New Zealand, women are discharged from the LMC about 4 to 6 weeks postnatal, but some of their pelvic health stuff or the musculoskeletal stuff might not start bothering them until after that even like a year later” (Physiotherapist #5)
3.2 Midwife to the rescue	“If I needed anything … like, she's so amazing. And, and I feel like she's part of our family” (Mother #1) “Whether it's a case of midwife, like their job is just so big and so huge that it becomes too much to add something else onto the list and you know chronically understaffed and overworked as well” (Physiotherapist #4)
4. A belief that pelvic and women’s health physiotherapy can help	
	“When it comes to physical health, and physical, you know, exercise or physiotherapy, and things like that I feel that’s a real lacking area” (Midwife #5) “We need that visit around 4 to 6 weeks post and then the ability to see them after that as needed because that will reduce incontinence and will reduce the costs and socialisation embarrassment, anxiety, stress levels that will enable them to care for their children better to have relationships” (Physiotherapist #1)
5. Barriers and facilitators to pelvic and women’s health physiotherapy	
5.1 Cost	“I mean, for me, that's kind of that is a bit of a barrier to go and get like a check. It's like, it's quite expensive.” (Mother #3)
5.2 Knowledge	“There's people that don't know what pelvic health physios are or what is normal or not in terms of symptoms…” (Physiotherapist #5) “If they showed you all, you know, gave you some information on how to do your pelvic floor exercises … just something that was more informative so you could be prepared for it” (Mother #1)
5.3 Navigating the system	“I don't know whether I could self-refer myself to a physiotherapist or if I have to go to the GP” (Mother #5) “If there was a more robust referral system … I would probably refer 99% of them” (Midwife #3)

Sub-theme 2.1. Postpartum physical symptoms

All participants attempted to describe various physical health symptoms that mothers may experience during the postpartum period. Physiotherapists appeared to have a clearer indication of the variety of symptoms: "So, incontinence, urinary and faecal, pelvic organ prolapses, perineal tears, levator ani avulsions, DRAM [diastasis recti abdominus] … pelvic girdle pain. Those are the major ones we see, oh and coccyx injuries" (Physiotherapist #1). Comparatively, mothers had difficulty understanding their symptoms and often struggled to know if they were related to maternal experiences: "I'm still having like a really bad pain that goes through my spine, my back to my like toe to my leg … I'll have to Google the name of it" (Mother #2); and "It's my wrist, which is weird. I know, it has nothing to do with my, my like body. But it was my wrist like, even now like I can't like, if I push it it's sore" (Mother #5).

Sub-theme 2.2. More than just physical symptoms

All cohorts recognised that the mothers' physical symptoms had an impact on psychological domains of their health, with one mother sharing:

> I'm sorry, I can't. I feel the tears coming on already. I was just tired. I was just exhausted … Breastfeeding was really, really sore. I remember close to being like being in tears almost. Because it was so painful. (Mother #4)

A midwife noted that "I think my world has opened up to really other things that go on in the postnatal period for mums and it's hard, it is a hard period to be honest" (Midwife #4).

It was believed that the psychological impact may have influenced mothers' attitudes and behaviours:

> And so sometimes I don't want to leave the house unless I've gone to the toilet. You know, I've had that, that you know a bowel motion beforehand, because it's kind of scary if I'm out and about for that to happen. (Mother #3)

Physiotherapists also acknowledged this: "If they're leaking … every time they stand up, they flood. They isolate … they are embarrassed, they don't understand what's happened" (Physiotherapist #1). A physiotherapist noted this impact on mothers' relationships with others:

It also can affect so many factors in their life, like if they're unable to be intimate with their partner that can affect the relationship. If they're leaking when they're doing the exercise that they love that can affect their physical and mental health. (Physiotherapist #3)

Sub-theme 2.3. Effects on daily living

Participants described how physical symptoms in the postpartum period influenced activities of daily living, including the ability to care for the infant. For example, "Walking hurt, or laying down hurt, which was quite challenging with like picking up the baby or feeding the baby but that was like really bad pain" (Mother #2); and "It took her a year almost a year to, like, so there was no intercourse, like, she couldn't have intercourse or anything like that, it took her a year" (Midwife #4).

Physiotherapists also recognised the effects it had on participation in society.

> One lady recently … will only wear dresses and her workplace is thinking about implementing a uniform like polo and trousers and she said if you do that, I will quit … She finds in dresses she is able to manage the incontinence better and she's worried if she wears trousers she will leak through the trousers, and it'll be visible and smelly and stuff like that … she would consider quitting her job … basically because of her urinary incontinence. (Physiotherapist #3)

Theme 3: The current maternity model

The current maternity model refers to New Zealand's funded maternity services. Two sub-themes emerged related to the current model: Six weeks is not long enough and Midwife to the rescue.

Sub-theme 3.1. Six weeks is not long enough

All cohorts voiced that the standard six-week allowance of care under New Zealand's funded maternity services was not considered sufficient to support mothers with their physical symptoms: "The only thing is that I feel like the six weeks isn't long enough" (Midwife #1). A mother expressed, "All the real pains, real struggles started after my midwife stopped seeing me" (Mother #1). A physiotherapist echoed these views:

> In New Zealand, women are discharged from the LMC [lead maternity carer] about four to six weeks postnatal, but some of their pelvic health stuff or the musculoskeletal stuff might not start bothering them until after that even like a year later. (Physiotherapist #5)

Sub-theme 3.2. Midwife to the rescue

All mothers expressed appreciation for their midwife and the support they provided: "If I needed anything … I could call her and stuff like that. I didn't want her to leave because I really liked her. Like, she's so amazing. And, and I feel like she's part of our family" (Mother #1).

Participants expressed a need for mothers to have support with their physical symptoms; however, as the lead maternity carer, midwives believe they are often obliged to cover these topics, which they feel lie outside their scope of practice.

> That's not really our specialty, but I feel like a lot of that stuff kind of gets put on midwives to then kind of cover and it can be a little bit like, 'uhm' especially when we don't feel like we've probably had the education. (Midwife #1)

Participants also recognised the high work volumes of midwives. They felt that adding to their workload would be a burden: "Whether it's a case of midwife, like their job is just so big and so huge that it becomes too much to add something else onto the list and you know chronically understaffed and overworked as well" (Physiotherapist #4). When asked how much longer she would prefer the midwife to stay, a mother said, "Maybe, you know, another 3 or 4 weeks … And man, that would put a massive strain on their workload. They're already so stressed" (Mother #3).

Theme 4: A belief that PWH physiotherapy can help

When exploring the services available within New Zealand's maternity model of care, participants expressed a desire for rehabilitation support such as physiotherapy. A mother mentioned, "…to have the option to consult with a physiotherapist about my hips … it was just the fact that I was still rolling out of my bed until maybe about 3 months" (Mother #5). Physiotherapists believed their services could improve mother' symptoms and quality of life:

> We need that visit around 4 to 6 weeks post, and then the ability to see them after that as needed, because that will reduce incontinence and will reduce the costs and socialisation embarrassment, anxiety, stress levels that will enable them to care for their children better to have relationships. (Physiotherapist #1)

Theme 5: Barriers and facilitators to PWH physiotherapy

Three subthemes emerged related to barriers and facilitators: Cost, Knowledge, and Navigating the healthcare system.

Subtheme 5.1. Cost

Participants identified cost to be a barrier to accessing PWH physiotherapy. On average, PWH physiotherapists indicated their services to cost approximately $150–$200 for an initial, 1-hour consultation:

> $195 is a lot of money … that's the thing that I hate about it as I realise it costs money but then I also I think of the amount of money I've spent on training and go like this is … reflective of my training and my experience. (Physiotherapist #3)

In contrast, when asked what mothers could afford, the responses ranged from $0 to $60: "I mean, for me, that's kind of that is a bit of a barrier to go and get like a check. It's like, it's quite expensive" (Mother #3). Midwives understood the cost barrier: "You're thinking in your head, you go, damn you really need to go and see a pelvic floor physiotherapist but there's no way you can afford it" (Midwife #2).

Physiotherapists gave examples of their attempt to address cost barriers.

> I do say it quietly to people if they are struggling with cost, they just need to speak to me … I am very happy and very keen that women can always access quality healthcare and cost shouldn't be a barrier. But I've also got to run a business, so it's a balancing act. (Physiotherapist #2)

Across the cohorts it was voiced that every mother should have access to at least one funded physiotherapy appointment in the postpartum period, regardless of their birth history or postpartum experience. For example, a physiotherapist stated:

> Everybody has a funded GP appointment and 6-week LMC [lead maternity carer] check after having their baby, so I think needing to add a 6-week or a 12-week pelvic floor physio check to that, so that just becomes part of the funded maternity care. (Physiotherapist #5)

A mother and midwife shared the same view: "I think that every woman should be able to go and have a, a pelvic floor check … I think that should be free just to have a one-off check. To make sure everything's going well" (Mother #3); and "I wish everyone had access to … funded physiotherapy sessions postnatally regardless of how they'd given birth, or regardless of the trauma that they'd had" (Midwife #5).

Subtheme 5.2. Knowledge

Participants voiced that mothers had a lack of knowledge about their symptoms and felt this prevented them from seeking help: "I'm still having like a really bad pain that goes through my spine, my back to my like toe to my leg … I'll have to Google the name of it" (Mother #2). A physiotherapist commented that:

> There's people that don't know what pelvic health physios are or what is normal or not in terms of symptoms or how they feel after having a baby so they don't know if they should be getting help or who from. (Physiotherapist #5)

Additionally, midwives often felt unsure which mothers would be appropriate candidates for referral to physiotherapy: "… more information needs to be shared with midwives for assessing what they can access for, what they can refer for" (Midwife #4).

Mothers and physiotherapists voiced that additional information on the postpartum period was needed, including education about physical changes and knowing what to do if symptoms occurred: "If they showed you all, you know, gave you some information on how to do your pelvic floor exercises … just something that was more informative so you could be prepared for it" (Mother #1); and "So that's where us as pelvic health physios come in, where we can get in quite early on in that postnatal period and … give them lots of education" (Physiotherapist #5).

Midwives expressed a desire for inter-professional education to facilitate a better understanding of what physiotherapy could offer mothers: "I think the next best thing would be some sort of collaborative education between midwives and physios where we could meet in the middle somewhere and share knowledge and wisdom" (Midwife #2). Physiotherapists supported this: "Education particularly for midwives, of what pelvic floor physios can offer and when to send patients to pelvic floor physio and developing those relationships and connections between the pelvic floor physio and the midwife" (Physiotherapist #4).

Subtheme 5.3. Navigating the healthcare system

Navigating the healthcare system was a barrier to accessing physiotherapy. For example, one woman commented, "I don't know whether I could self-refer myself to a physiotherapist or if I have to go to the GP" (Mother #5). Physiotherapists and midwives discussed the complexity of navigating referrals and wait times through the public healthcare system:

> In New Zealand there's a range of 1-week wait list, which is amazing and I don't know which DHB [district health board] does that but they are nailing it and, then like a 60-something week wait, which isn't good enough. (Physiotherapist #5)
>
> The only physio that we can refer to that I know will be free would be the DHB physios. And then I know that there's also a bit of a barrier there because the wait times seem tend to be very long. (Midwife #1)

All cohorts talked about the desire for a multidisciplinary approach to postpartum care, including a referral system where mothers could transition from a midwife to a physiotherapist. One mother suggested, "…maybe if it's your midwife, referring you to a, you know, a women's health physio and maybe there should be more [of] that sort of working hand in hand. That should be more of a normal thing" (Mother #5). Midwives and physiotherapists agreed: "If there was a more robust referral system and they could be seen for those sore bits and pieces you know shoulders, hips, pelvis, whatever, I would probably refer 99% of them" (Midwife #3); and "I guess, it's getting that link between midwife and referral to pelvic floor physio" (Physiotherapist #4).

DISCUSSION

Worldwide, postpartum recovery is a neglected area of maternity care, and the experiences of mothers regarding their physical symptoms is poorly understood (World Health Organization, 2022; Clark & Thorpe, 2023). This study presents information on mothers' and clinicians' experiences of physical postpartum symptoms, and perceptions of the response of New Zealand's funded maternity services, including access to PWH physiotherapy.

Mothers, midwives, and PWH physiotherapists provided a unique insight into the postpartum experience. Despite their varying roles in the postpartum experience, all three cohorts shared many common views; therefore, much of the information in this study is presented as a combined viewpoint. For example, there was a common concern regarding the negative impact physical symptoms can have on mothers' quality of life. Our findings suggest that experiences of physical pain and dysfunction create debilitating experiences for mothers, impacting their ability to care for their infant and carry out basic daily activities. It was suggested that secondary effects of their symptoms could also lead to feelings of isolation, fear, social embarrassment, self-consciousness, and heightened awareness. These findings align with recent research on the bio-social impact of physical postpartum symptoms on New Zealand mothers' ability to engage in physical activity (Clark & Thorpe, 2023).

The perceived quality of postpartum care was an important topic of discussion. New Zealand is believed to have a leading model of maternity care comparable to countries such as the United Kingdom or Australia (Gilkinson et al., 2016). For example, the Ministry of Health (2021) states that in New Zealand a midwife "will be available 24 hours a day, 7 days a week" to address mothers' needs. Accordingly, our findings suggest that the midwife was the most accessible health professional to mothers in the postpartum period, and mothers felt attentively cared for. This is in contrast with other countries where mothers do not receive postnatal home visits and feel their midwife's ability to provide emotional and social support is insufficient to meet their needs (Razurel, 2011; Shorey et al., 2015).

All cohorts reported that as the first line of support for mothers, the midwife is frequently relied on for help with any physical health conditions that might arise. As government funding already exists for a midwife to be the full-time maternity carer (Ministry of Health, 2021), this raised discussion from all cohorts about whether midwives should also become the primary health professionals to provide management of physical postpartum symptoms. In response, mothers and PWH physiotherapists felt that while it might be appropriate for midwives to do so, they recognised that midwives are already overworked and exhausted with their current workload. This theme is also reflected in a study by Oliver and Geraghty (2022) where midwives reported feeling overworked and time-poor and, as such, felt they did not have the capacity to provide the necessary support to mothers. Midwives in this study acknowledged that due to time pressures and limited education, they are not equipped to support mothers with the various physical symptoms that may arise and felt that many symptoms fall outside their scope of practice. Therefore, despite New Zealand's respected model of care, the results of this study suggest that more support for managing physical symptoms is needed. All cohorts talked of the need for another health professional to have a routine role in the management and rehabilitation of postpartum symptoms. Participants across all cohorts proposed that physical rehabilitation with a PWH physiotherapist would be an appropriate service to aid mothers with their physical symptoms due to their expertise in pelvic and women's health. Studies have shown that physiotherapy can have a positive outcome on common postpartum symptoms including urinary and faecal incontinence and diastasis recti abdominus (Critchley, 2022; Mazur-Bialy et al., 2020). Likewise, mothers in this study who had accessed PWH physiotherapy felt it contributed to positive outcomes for their postpartum recovery, and PWH physiotherapists who had supported mothers with postpartum-related symptoms felt they had contributed to successful results for their patients.

Navigating the healthcare system without guidance was a barrier commonly voiced by mothers. Mothers expressed their desire for a better referral system. All cohorts felt that midwives would be best placed to refer mothers to physiotherapy services prior to discharge from midwifery care. In addition, they believed that enhancing the relationship between the midwife and physiotherapist would naturally promote continuity of postpartum care. Similarly, a lack of knowledge was seen as a factor preventing referrals to PWH physiotherapy. All cohorts expressed concern that mothers and midwives alike have an insufficient understanding of physical symptoms, which prevented them from accessing management solutions including PWH physiotherapy. It was suggested that this barrier could be mitigated if midwives were further educated on identifying symptoms and could then initiate the referral process to PWH physiotherapy. These findings align with a qualitative study conducted in Sweden, which found a perceived lack of education for midwives regarding postpartum symptoms (Gustavsson & Eriksson-Crommert, 2020). The study proposed that improving education could enhance collaboration and referrals between midwives and physiotherapists, ultimately leading to better outcomes for mothers.

A further barrier highlighted by all cohorts was the cost of PWH physiotherapy services. Mothers and midwives talked of the significant cost barrier to accessing PWH physiotherapy privately. According to the PWH physiotherapists in this study, the average cost of their services is $150–$200. In contrast, the price mothers were able or willing to pay ranged between $0 and

$60. New Zealand's current funding options were not discussed by participants; however, it was frequently suggested by mothers and midwives that New Zealand's maternity model of care should include fully funded PWH physiotherapy following discharge from midwifery care. All participants voiced that "6 weeks isn't long enough" to be deemed recovered and "fit-for-discharge" from the healthcare system, and that extending the existing funding to include private PWH physiotherapy would improve maternal outcomes.

Current sources may exist to receive fully or partially funded PWH physiotherapy in New Zealand; however, eligibility for funding may not be available to all mothers. For example, at the discretion of their healthcare provider, mothers may be eligible to receive fully funded PWH physiotherapy via a referral to a public hospital; however, referrals may only be accepted if mothers meet certain criteria (Health Navigator New Zealand, 2025; Health New Zealand Te Whatu Ora, 2022). Additionally, it was perceived by participants that referrals through the public health system often involve a lengthy wait. Another avenue may be through New Zealand's Accident Compensation Corporation (n.d.) which subsidises the cost of private treatment for a limited number of birth injuries. This initiative was implemented on 1 October 2022, through the Accident Compensation (Maternal Birth Injury and Other Matters) Amendment Act 2022, to be inclusive of more birth injuries (New Zealand Government, 2022); however, this policy discounts many additional physical symptoms that several international studies have reported exist amongst postpartum mothers, such as persistent headaches, backache, and breast soreness (Chien et al., 2009; Gjerdingen et al., 1993; Saurel-Cubizolles et al., 2000; Schytt et al., 2005). Furthermore, ACC funding is commonly offered as a subsidy to partially cover the cost of treatment, but based on the monetary expectations identified in this study, future queries should investigate the degree to which ACC funding improves affordability.

Study limitations

Limitations of this study include the geographic location of participants, with 60% based in the Waikato region. This means that the mothers' perspectives may not be reflective of the general population across New Zealand. Potentially, a future recruitment process could more effectively target other regional geographical locations, giving a greater national distribution. Additionally, this study did not distinguish postpartum experiences according to ethnicity, socioeconomic status, or urban or rural regions; and some demographical information (e.g., age) was not collected from the healthcare professionals. Future research into these population demographics may provide valuable insight into varying experiences and potential health disparities.

Future directions

This study acknowledges that potential funding opportunities exist for birth injuries within New Zealand's healthcare system. However, considering the limited eligibility criteria, as well as the cost barriers identified in this study, further review of policies to support all mothers' access to PWH physiotherapy is encouraged.

To better address the needs of postpartum mothers, this study proposes that an updated, evidence-based definition of the postpartum period, including its length, be determined. To do so could support decisions regarding the continuity of New Zealand's maternity care.

As there is limited national-level epidemiology or quantitative research regarding the prevalence of physical postpartum conditions and/or symptoms within New Zealand, future research in this field would be beneficial to determine the socioeconomic cost of these conditions.

CONCLUSION

Exploring the views of mothers, midwives, and pelvic and women's health physiotherapists paints a picture of the realities of physical postpartum recovery. Understanding these perspectives is an integral step in recognising potential areas for improving maternal health outcomes. The information in this study may be used to guide health professionals and policymakers to better respond to mothers' needs and mitigate barriers to quality postpartum care.

KEY POINTS

1. Physical postpartum symptoms limited daily activities and had psychological ramifications for mothers; however, there is limited support under New Zealand's current maternity model of care to address these symptoms.
2. Pelvic and women's health physiotherapy was recognised as a beneficial solution to managing many postpartum symptoms.
3. Greater contributions are desired to improve access to PWH physiotherapy, including funding, education initiatives, and improved referral methods.
4. An updated, evidence-based definition of the postpartum period, including its length, may support decisions regarding the continuity of New Zealand's maternity care.

DISCLOSURES

No funding was obtained for this study. The researchers are unaware of any conflicts of interest.

PERMISSIONS

Ethics approval for this study was granted by the Waikato Institute of Technology Ethics Committee (reference number WTLR12110422). Informed consent was obtained by all participants prior to their participation in this study.

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CONTRIBUTIONS OF AUTHORS

Design conceptualisation and methodology, AW, DW, EW and KSK; validation, KSK and SB; formal analysis, AW, DW, EW, KSK and SB; data curation, AW, DW, EW and KSK; writing—original draft preparation, AW, EW and DW; writing—review and editing, AW, ED, DW, SB and KSK.

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Appendix A

INTERVIEW GUIDE

Questions – Participant group A: Mothers

Pre-interview questions
- Gravida (number of pregnancies)
- Parity (number of births with gestational age greater than 24 weeks)
- Ages of children
- Mode of delivery for all births (e.g., caesarean, instrumental, epidural, normal vaginal delivery)

Overview of the early postpartum experience. The following questions are regarding the recent birth:
- Think back to the first few days after leaving the hospital/birth-care centre, can you paint a picture of yourself and what your experience was like?
- What are the biggest challenges you have faced since having a baby? You can list as many as you can think of.
- How long did your midwife care for you after childbirth? Did you feel you were ready for your midwife to discharge you when they did? Why/why not?
- At that time, your midwife discharged you, would you have liked more "care" offered to you?
- If yes, what care would you have liked offered? If not, why?

Physical health conditions
- What physical health conditions have you experienced as a result of childbirth or caring for your baby (e.g., physical pain or discomfort)? You can list as many as you want to.
- For each of the problems you've mentioned, how did they impact on your ability to carry out day-to-day activities?
- Where would you prioritise your physical health needs in a typical day?
- Do you think your midwife prioritised your physical health needs as part of your postpartum care?
- Did you feel you had all the support you needed to help you with your physical health condition(s)?
- If yes, what was your experience? If no, what support do you wish you had and from whom?

Barriers to healthcare and physiotherapy
- Did you try to reach out to any healthcare professionals for help with any of the physical health condition(s) that you mentioned? Who did you see?
- If yes, what was your experience? Did your midwife refer you to that/those healthcare professional(s) you mentioned? Was there anything that made it difficult to reach out to the (insert healthcare professionals name(s))?
- If they saw a physiotherapist – Go to Question 2.
- If no, can you elaborate on what your life looked like and why this prevented you from getting help? Can you think of any other reasons you didn't get help? Did you see a physiotherapist for your physical condition(s)?
  - If yes: What was your experience with physiotherapy? Did your midwife refer you? Was there anything that made it difficult for you to see the physiotherapist?
  - If no: What were the reasons you didn't see a physiotherapist? Did you know whether or not a physio could have helped you with your [insert condition(s)]? Do you wish you could have seen a physiotherapist?

Questions – Participant group B: Midwives

Pre-interview questions
- How many years have you been practising midwifery?
- Which setting/practice of midwifery do you work in, for example, in a DHB, or in the community?
- What setting of midwifery have you worked in previously?
- What location are you currently practising in? Or What as the last location you were practising in?

Midwifery in New Zealand
- Can you explain to me what it is like being a midwife in New Zealand when it comes to the postpartum period?
- If prompting is needed.
  - What do you normally focus on?
  - Can you explain what midwife care is involved in during the 6 weeks after birth?
  - What happens at the very end of the 6 weeks, when it comes to discharging?
- Are you happy with the current way the postpartum period is set up for midwives?
  - If yes, what are you happy with?
  - If no, what are you unhappy with?

Physiotherapy and midwife relationship
What physical conditions do your women often develop after their pregnancy and birth? If additional prompting is needed. What impact have you noticed this has on the mother's life? What physical conditions do you know that a physiotherapist can help with? What conditions would you refer to a physiotherapist? Where did you learn your knowledge about physiotherapy and how they can help during the postpartum period? If further prompting is needed. During the degree? Past personal experience? Past work experience? Can you roughly estimate how often you refer postpartum mothers to a physiotherapist? Is this the same as how often you would like to refer your women to a physiotherapist?
Barriers and solutions
What stops you from being able to refer your mothers to a physiotherapist? Do you feel confident referring mothers to any of the physiotherapists regardless of the setting (DHB or private)? Why or why not? What do you think stops your mothers from going to the physiotherapist? What do you think would help you in referring women to physiotherapists? Is there anything else you would like to add about any of the topics/questions we have talked about?
Questions – Participant group C: Physiotherapists
Pre-interview questions Tell me about your practice? What made you want to work as a pelvic and women's health physiotherapist? What are the most common physical conditions that you treat in postpartum women? What other physical conditions do you treat, but aren't so common? How do these conditions impact the mother's quality of life?
Quality of care
Is postpartum physiotherapy standardised across New Zealand? For example, would a woman receive the same level of care across different healthcare settings – for example, private practice/hospital. In your opinion, where does New Zealand stand globally for postpartum physiotherapy care?
Barriers to access
In your experience, what are the most common barriers that New Zealand women currently face to access physiotherapy services in the postpartum period? To the best of your knowledge, does a mother have to pay for the consultation. If so, what is the average cost? Are there other routes for the patients to receive funding to cover the costs of their treatment? To the best of your knowledge, how easy/difficult is it for a mother to book in an appointment? Prompt: What is the current wait time?
Facilitators for the future
If there was an opportunity to grow a pathway for postpartum women to regularly receive physiotherapy care, do you think this could improve health outcomes? If so, which health outcomes and why? What would be your suggestion to improve/develop a pathway for women postpartum to receive referral and care? Do you think that mothers would benefit from prenatal classes to educate them on the physical conditions they could potentially acquire and how to prevent, manage, or treat these conditions?

THANK YOU NZJP REVIEWERS!

We would like to take this opportunity to thank all of the reviewers who completed reviews of manuscripts for the New Zealand Journal of Physiotherapy in 2024. We truly appreciate your time, willingness and expertise in contributing to the peer review process, and your thoughtful comments and recommendations which assist our decision-making and improve the quality of published papers. We could not publish our Journal without you!

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WHAKATERE

Physiotherapy Conference 2024

CONFERENCE ABSTRACTS

PHYSIOTHERAPY
NEW ZEALAND
Kōmiri Aotearoa

NZJP

Abstracts from Whakatere/Physiotherapy Conference 2024, held in Christchurch, New Zealand, 6–8 September 2024 [https://doi.org/10.15619/ncjp.v53i1.478]

Abstracts are listed in order by first-named author under the following categories: keynote speakers, invited speakers, focused symposia, workshops, and podium and poster presentations. Where relevant, the presenting author's name(s) is bolded and underlined.

Keynote Speaker Abstracts

RE–IMAGINING THE REHABILITATION SYSTEM: WORKING TO CREATE A SUSTAINABLE FUTURE

Main, M.

Accident Compensation Corporation, New Zealand

Over the last 50 years, the health and rehabilitation sector in New Zealand has experienced many changes and challenges. What has stayed consistent is the vital role physiotherapy plays in ACC's kiritaki (clients') recovery journeys. Today, ACC continue to face challenges around sustainability of the Accident Compensation Scheme, including declining rehabilitation performance and workforce availability. With these challenges in mind, ACC are focused on understanding what they need to do to ensure the Scheme's future is sustainable for generations to come and that all kiritaki receive the treatment and support they need to recover.

In this presentation, ACC's Chief Executive Megan Main will explore:

- an overview of the ACC system in context and our current operating landscape
- changes ACC are making to the way we commission services and our shift towards commissioning models that place kiritaki at the centre of their recovery through a focus on value-based healthcare
- integrating injury prevention into everything we do
- our strategic priorities for the next 3 years and the opportunities to work together.

LINKED THROUGH PRESSURE: BREATHING, TALKING, POSTURE, AND A WHOLE LOT MORE!

Massery, M.

Owner, MasseryPT LLC, Chicago, USA

Course description: This lecture proposes a new definition of "core stability"; redefining it as the dynamic control of trunk pressures in order to optimise postural stability (balance). Dr Massery will present novel research demonstrating the role of vocal folds as a critical component of these normal balance strategies and she will present five major roles of the diaphragm: 1) breathing (of course), 2) maintaining postural stability, 3) minimising reflux forces, 4) enhancing bowel motility, and 5) aiding venous return. You'll never look at the diaphragm as "just a respiratory muscle" again!

Learning objectives:

1. Describe how trunk pressures link breathing and postural control using the Soda Pop Can Model.
2. Demonstrate the role of the vocal folds in normal postural stability responses (balance) and make the case for using speaking valves for patients with tracheostomies.
3. Describe the multiple, simultaneous roles of the diaphragm as related to breathing, postural control, gastroesophageal reflux, constipation, and venous return, thus making the case for including diaphragm strengthening as a common practice in rehabilitation programmes.

THE FIT FOR PURPOSE/PLAY/PERFORMANCE MODEL – THE SCIENCE, THE EVIDENCE AND THE FUTURE

Moseley, L.

University of South Australia, Kaurna Country, Adelaide, Australia

Until recently, treatment approaches to chronic pain were predominantly repurposed approaches that had been tested, with variable success, in other conditions. However, discoveries around “how pain works”, how complex bodily systems learn and adapt, and how sensorimotor processing is disrupted in chronic pain, led to new treatments built “from the ground up” that directly targeted those disruptions. The Fit for Purpose model was developed to integrate the most effective of those treatments into complex care programmes, grounded in rethinking pain and its causes, refining neuroimmune networks (or “neurotags”) and gradually reinstating functional and structural resilience. The model is centred around the concept of “bioplasticity” and clinical trials testing the model against a range of comparators are in process, planned, or completed. In this talk I will cover the scientific underpinnings of the model, the current evidence around its effectiveness in a range of conditions, its failures and limitations, the powerful role that consumer feedback has played in adaptation, and the resources that have been developed to standardise and optimise implementation.

* * *

COGNITIVE FUNCTIONAL THERAPY FOR PEOPLE WITH DISABLING LOW BACK PAIN

O’Sullivan, P.

Curtin University, Perth, Australia

The presentation will present the latest findings from the RESTORE back pain trial of Cognitive Functional Therapy published in the *Lancet.* Cognitive Functional Therapy is a person-centred care led by physiotherapists, once serious causes of back pain have been ruled out. It is aligned to best practice guidelines.

Cognitive Functional Therapy helps the patient make sense of their pain by understanding the various and unique contributing factors related to their condition and develop a positive mindset about their pain. It guides people to re-learn how to move and build trust their back without protection. Re-engaging with the body in this way promotes a return to valued living based on the person’s goals, while decreasing pain and restriction. It also promotes a healthy lifestyle, such as engaging in physical activity, sleep, stress management, work, and social activities. Cognitive Functional Therapy provides a broad framework for person-centred care and behaviour change, applicable for people with other chronic pain and health conditions.

* * *

THE ROLE OF WHAKATERE IN THE MEIHANA MODEL – HAS IT A PLACE IN PHYSIOTHERAPY?

Pitama, S.

University of Otago, Christchurch

The Meihana Model whakapapa starts within psychology, further found a home in medical education, and has since been adapted in many health professional education programmes including nursing, speech language therapy, social work, and other disciplines. This presentation will provide a brief overview of the Meihana Model as a tool for decolonising clinical practice, the role of whakatere within the Meihana model, and provides space to discuss whether there is a place for the Meihana Model in the discipline of physiotherapy.

* * *

FUNCTIONAL NEUROLOGICAL DISORDER – PAST, PRESENT, FUTURE

Stone, J.

University of Edinburgh, United Kingdom

In this talk, I will discuss where we've been, where we are, and where we are going with clinical and research aspects of functional neurological disorder (FND). I will do so with particular relevance to physiotherapy.

How things were. FND was previously Conversion Disorder in DSM-IV. It was a diagnosis of exclusion that couldn't be made unless there was a recent stressful event. Neurologists who generally made the diagnosis were typically disinterested or ambivalent about whether FND was similar to feigned illness. The treatment was considered purely psychological.

How things are. FND is now firmly a diagnosis of inclusion with positive signs like Hoover's sign, the tremor entrainment test, and typical features of seizures. Entities like Persistent Postural Perceptual Dizziness and Functional Cognitive Disorder have pushed the boundaries of how we define FND. Positive diagnosis also allows us to approach communication with the patient in the same way as any other condition and has helped us recognise a high frequency of FND comorbidity in patients with other neurological conditions. FND is a disorder that challenges dualistic ideas about the brain and mind. Studies of the neural underpinnings of the disorder don't negate the importance of a psychological perspective, but do help rebalance it as a multidisciplinary condition, and not just the domain of psychiatry. Predictive processing models are especially promising. I will describe how the evidence base for physiotherapy, occupational therapy, psychological, and other therapies has emerged from this new way of thinking about the disorder.

Where things are going. The FND Society (fndsociety.org) is a new international society with around 1000 members and a meeting in Verona 2024 that highlights new vigour in the field. We are discovering new things about comorbidity, especially with Autism/ADHD and joint hypermobility as well as developing novel approaches to treatment, especially for patients where treatment has failed. Data from the largest trial of physio, Physio4FND, should be available for presentation. The FND field has been particularly successful at working with patient-led organisations such as fndhope.org and fndaction.org.uk and I think future success lies in strengthening these collaborations.

REFRAMING PHYSIOTHERAPY EDUCATION: JOYFUL COMPLEXITY AND COMFORTABLE UNCERTAINTY

van Wijchen, J.

Western Norway University of Applied Sciences, Norway; HAN University of Applied Sciences, The Netherlands

In this workshop, "Reframing Physiotherapy Education: Joyful Complexity and Comfortable Uncertainty", we explore innovative approaches to physiotherapy education that embrace the inherent complexities and uncertainties of healthcare practice. The focus is on educating physiotherapists and physiotherapists as educators, linking physiotherapy practice contexts.

By placing becoming at the core of education, we emphasise growth, development, and transformation through dynamic interactions with content, context, and situations. Participants will delve into the integration of existentialism, critical pedagogy, and the capability approach to create a framework that prepares physiotherapists for contemporary challenges. We will discuss how mindlines – collectively developed, tacit guidelines – foster adaptive, context-sensitive practitioners capable of critical thinking and self-management.

The workshop will highlight the value of embracing strangeness and absurdity to promote critical inquiry and reflective practice. We will explore strategies for developing resilient, capable physiotherapists through holistic and contextually rich learning environments and examine the plural roles of physiotherapists as practitioners, educators, and innovators, emphasising continuous professional development and mentorship.

Key themes include promoting educational justice, navigating different learning zones (comfort, learning, and panic zones), and implementing sustainable practices to ensure future relevance. Participants will engage in interactive discussions, reflective exercises, and collaborative activities to inspire and empower educators and practitioners.

By the end of this workshop, participants will have experienced insights and practical tools to foster more effective, inclusive, and dynamic learning environments in physiotherapy education. Participants are invited to embrace the joyful complexity and comfortable uncertainty at the heart of transformative learning, ensuring their practices are both current and forward-thinking.

Focused Symposia Abstracts

KAUPAPA MĀORI IN PHYSIOTHERAPY PRACTICE

[1,2]Petley, W., [1,2,3]Buhler, M., [1,4]Wilson-Scully, D., [1,2,5]Tikao-Harkess, S., & [1,6]Taylor, B.

[1]Tae Ora Tinana, Physiotherapy New Zealand; [2]University of Otago, Dunedin; [3]Te Whatu Ora – Health New Zealand; [4]Wai Mauri Health, Hamilton; [5]Taurite Tū Inc.; [6]TBI Health, New Zealand

Due to a disastrous history of colonisation, Māori are yet to enjoy the same level of health care access and outcomes as most other populations in Aotearoa. Major ongoing factors include service costs, racism, and practice environments and customs that are not familiar or welcoming. Physiotherapy is no exception. For example, despite higher rates of injury for Māori, utilisation of ACC-funded rehabilitation services including physiotherapy is much lower.

Kaupapa Māori health services are designed by Māori, for Māori, and use mātauranga Māori. They are designed with the knowledge of the way in which Māori will flourish best. Resource redistribution is also a goal of the wider social transformation sought by these initiatives. Kaupapa Māori health services are becoming more familiar in Aotearoa. However, Western biomedical knowledge and systems are still privileged, making it difficult to have mātauranga-evidenced interventions recognised by funders and decision makers. Both biomedical outcomes and those that align with Māori health world views have been demonstrated by Kaupapa Māori interventions. Evidence is also in the experiences of Kaupapa Māori health service designers, providers, and recipients.

In this focused symposium we gather experiences of Kaupapa Māori in physiotherapy practice to share learnings, celebrate successes, and help us look to the future. We introduce some of the theoretical underpinnings of Kaupapa Māori in practice to better understand what it is that is being done. This then prepares a space for exploring perspectives, navigating obstacles, and beginning to define our foundations for growing and enabling Kaupapa Māori physiotherapy practice.

"Ko te manu e kai ana i te miro, nōna te ngahere. Ko te manu e kai ana i te mātauranga, nōna te ao."
(The bird who feeds on the berries, the forest is his. The bird who feeds on knowledge, the world is his.)

THE PRIMARY AND COMMUNITY CARE WAKA – HOW CAN PHYSIOTHERAPY HOEHOE TOGETHER WITHIN TEAMS?

[1]Higgs, C., [2]Gallagher, R., [1]Silcock, C., [3]Walker, S., & [4]Walker, K.

[1]Centre for Health, Activity and Rehabilitation Research, School of Physiotherapy, University of Otago; [2]Whanganui Regional Health Network; [3]Central Otago Health Services Ltd; [4]Health New Zealand, Te Manawa Taki, New Zealand

In an increasingly pressured primary and community care landscape, strategic focus is shifting toward interprofessional care models that can provide patient-centred care, strengthen collaborative working relationships within local communities and work toward Pae Ora (healthy futures). The scope of practice of physiotherapists mean they have potential to provide broad and timely quality care, and examples can already be seen of physiotherapists providing care in novel primary and community care spaces supporting high needs populations. There are further growth opportunities, the Comprehensive Primary Community and Rural Role Descriptions for Physiotherapists being a recent example, so how prepared are we as a profession to respond? The new government continues to indicate support to reform the health system and funding models in primary care continue to be in the spotlight alongside equitable health outcomes. To address this potential, this symposium focuses on two critical challenges: One, how can physiotherapists best engage with health funders and the public to clearly explain what services we could and should be offering to help tackle our current inequitable health service delivery and create robust proposals and business cases to support the argument? Two, physiotherapists working in these spaces require support to sustain and maintain their roles, skills and experience. How is this best achieved to grow the skills and capacity of these important primary care physiotherapy roles to provide best practice care for the communities that need it the most?

BEYOND THE BASICS: DUAL TASKING FOR PHYSIOTHERAPISTS

[1]Taylor, D., [1]Saywell, N., [2]Adams, T., [1]Shaikh, N., [1]McLaren, R., [1]Chaudhary, S., & [1]Olsen, S.

[1]Rehabilitation Innovation Centre, Health and Rehabilitation Research Institute, School of Clinical Science, Auckland University of Technology, Auckland; [2]Active Living and Rehabilitation: Aotearoa New Zealand, School of Clinical Sciences, Auckland University of Technology, Auckland, New Zealand

Dual-task paradigms, which involve concurrently engaging in challenging motor and cognitive tasks, are an approach to functional assessment and training that aligns with real-world task requirements. This approach has relevance to many areas of physiotherapy including sports injuries, orthopaedic and neurological rehabilitation, and healthy aging. Dual-task paradigms recognise the interconnected nature of neurological, musculoskeletal, and cardiovascular systems, allowing practitioners to simultaneously challenge motor and cognitive domains. Literature has highlighted the potential role of dual-task paradigms in anterior cruciate ligament (ACL) injured populations, lower limb injury prevention strategies, and for assessing concussion-related gait deficits and falls risk in older adults. To successfully apply this approach in physiotherapy practice, it is important to understand which tasks should be incorporated into dual-tasking scenarios, and the appropriate challenge level. This decision-making process involves a comprehensive evaluation of how selected tasks will influence the patient's overall performance and motor learning capabilities as well as considering their impact at a functional level. This symposium will explore essential aspects of integrating dual-task paradigms into physiotherapy practice. By delving into the complexities of dual tasking, this symposium aims to contribute valuable insights to the field, guiding the formulation of more effective and tailored training regimens for diverse populations.

COUGH ASSIST DEVICES IN 2024

[1]O'Sullivan, R., [2,3]Seller, D., [4,5,6]Mooney, S., [7]Scoones, R., & [8]Wetherston, E.

[1]Christchurch Hospital, Te Whatu Ora – Health New Zealand; [2]Wellington Hospital, Te Whatu Ora – Health New Zealand; [3]School of Physiotherapy, University of Otago, Wellington; [4]Health New Zealand – Te Whatu Ora Counties Manukau; [5]Auckland University of Technology, Auckland; [6]New Zealand Respiratory and Sleep Institute; [7]Health New Zealand – Te Whatu Ora Te Toka Tumai Auckland; [8]Dunedin Hospital, Te Whatu Ora – Health New Zealand, New Zealand

Cough assist devices have been a key part of physiotherapy practice for over 15 years in New Zealand. Since then, demand for use from physiotherapists and consumers has significantly increased. Maintaining pace with this change in New Zealand has proven challenging in terms of technology, application, equity, training, and accessibility. More recently, this challenge accelerated in 2023 with the withdrawal of the primary E70 Cough assist device and the introduction of 3–4 alternative devices with varied functions and settings.

This symposium aims to explore the breath of eligibility, access, and application of the cough assist devices across community and acute settings, and across the lifespan, i.e., infants to the older adult. Furthermore, recent research relating to clinical guidelines, recommended algorithms, and device functionality will be presented and discussed. Cough assist eligibility and application will be explored across the clinical continuum including community, acute, and intensive care perspectives, contextualised by relevant clinical guidelines. Standard algorithms as useful reference points in paediatric and adult groups will be discussed as key "starting points", especially for the less experienced. Community application considers the challenges around device access, user experience, and monitoring outside the hospital environment. Device application in intensive care will consider the device's role beyond neuromuscular diseases.

Though focused on different patient/client groups and health environments, key learnings from each of these areas will be discussed and include "tips and tricks" for optimising device application. The panel represents adult and paediatric services, intensive care, acute, and community care and diverse geographical locations.

OVERCOMING SYSTEMS FAILURE IN CONCUSSION MANAGEMENT: LOOKING FORWARD TO FUTURE INNOVATIONS

[1]Galea, O. A., [2]Reid, D., [2,3]Forch, K., & [1]Sole, G.

[1]Centre for Health, Activity and Rehabilitation Research, School of Physiotherapy, University of Otago, Dunedin; [2]Active Living and Rehabilitation Aotearoa, Clinical Sciences, Auckland University of Technology, Auckland, [3]Axis Sports Medicine, Auckland, New Zealand

Concussion or mild traumatic brain injury is an increasingly prevalent health concern across age groups, activity levels, and ethnicities in Aotearoa New Zealand. Clinical recovery is delayed for 50% of concussions, and increased time to initial medical consultation is a significant risk factor for such delay. Post-injury barriers to medical access, siloed and generic treatment approaches, and premature return to school can confound recovery. Despite substantial evidence in support of acute multi-system triage to direct management, these methods are not always employed or are unavailable. Health system failures and challenges within school and some sport code injury management pathways mean vulnerable populations are at risk of being overlooked entirely. Combined, these issues have significant implications for recovery rates, determination of recovery, and safe return to daily activities, learning, work, and sport. Change is needed urgently; it is coming, and physiotherapists are potentially at its core.

INVITED SPEAKER ABSTRACTS

INCIDENCE OF COMPLICATIONS AFTER EMERGENCY ABDOMINAL SURGERY – GET EXERCISING (ICEAGE): A MULTI-CENTRE RANDOMISED CONTROLLED TRIAL

[1,2]Boden, I., [2,3]Hackett, C., & [1,4]Sullivan, K.

[1]Physiotherapy Department, Launceston General Hospital, Launceston, Tasmania, Australia; [2]University of Melbourne, Melbourne, Australia; [3]Princess Alexandra Hospital, Brisbane, Australia; [4]Monash University, Melbourne, Australia

Aim: We hypothesised that an enhanced physiotherapy care package of education, breathing exercises, and early rehabilitation would prevent respiratory complications and improve physical recovery after emergency laparotomy compared to standard care alone.

Design: ICEAGE was a prospective multicentre, parallel-group, double-blinded, active-placebo, randomised controlled trial powered for superiority.

Methods: From 2016 to 2018, 288 consenting patients admitted for emergency laparotomy at three hospitals in Australia were randomised via concealed allocation to either "standard-care physiotherapy" (15 min daily ambulation and a single session of coached breathing exercises) or "enhanced-care physiotherapy" (30 min daily rehabilitation and twice daily coached breathing exercises). The primary outcome was a respiratory complication within 14 postoperative days.

Results: Compared to standard-care, enhanced-care physiotherapy halved respiratory complications: 27% v 13% (ARR 15% (95% CI [5, 24%]), NNT 7 (95% CI [4, 19], $p = 0.002$)) and referrals for sub-acute rehabilitation (20% v 8%, $p = 0.02$). Participants receiving enhanced postoperative physiotherapy had a shorter hospital stay (13.4 days v 10.8 days, $p = 0.05$) and reported better quality of life and physical function (WHODAS 30 (9) v .33 (10)) on hospital discharge and at 3 months post-surgery.

Key practice points: ICEAGE is the world's first multicentre trial testing physiotherapy to improve outcomes following emergency laparotomy. Twice daily chest physiotherapy and 30 min of daily exercise therapy delivered in the first seven postoperative days following emergency laparotomy prevented respiratory complications and improved physical function and quality of life up to three months after surgery. Further research is required to determine the dosage threshold for benefit and the cost–benefit of service implementation.

TRAUMA PHYSIOTHERAPY – A STEP IN THE RIGHT DIRECTION

Webb, M.

Allied Health, The Alfred Hospital, Melbourne, Victoria, Australia

Trauma is the leading cause of lost years of life and productivity in young adults and numerous studies including meta-analysis have confirmed a significant reduction in mortality when care is provided at a Level 1 Trauma Centre. It is estimated that for every trauma fatality, there are between three and four survivors who are permanently impaired and so interventions, therapies, and models of care that selectively improve the quality of life in survivors could be as valuable as those that decrease mortality.

The profile and care of the trauma patient is evolving. An increase in elderly trauma, changes in patient assessment, imaging capabilities, pre-hospital processes, management systems, human resources, and infrastructure are all leading to improved care for the injured patient. However, alongside this is increasing pressure from organisations to maintain capacity by reducing length of stay, while still maintaining standards and consistency of care and improving patient outcomes.

From acute inpatient phases through to community reintegration, physiotherapists work to improve physical function and quality of life post injury. They possess a diverse range of skills and knowledge across all physiologic systems, perfectly placed to address the multi-faceted sequalae of traumatic injuries. With complex injuries, increases in elderly presentations, multi system morbidity, and recovery needs, trauma provides the perfect environment for physiotherapists to demonstrate their expertise, skill, and utility. This presentation will explore how the changes in trauma care have driven the development of a clinical sub specialty for physiotherapy expertise and how we are uniquely positioned to address the diverse needs and challenges of the injured patient.

RECOGNISING NEURODIVERSITY

Breen, T.

Consultant Clinical Psychologist, Hamilton, New Zealand

Have you ever had the feeling that you just haven't "clicked" with a client? That despite your best efforts, you didn't understand each other? Or that regardless of the care you took, their experience of physiotherapy was painful and unpleasant? If you've answered yes to any of these questions, you've probably worked with a neurodiverse person. In this presentation, Dr Tanya Breen will define neurodiversity, describe two common neurodiversities (autism and ADHD), and show how recognising and accommodating neurodiversity will help you become a more effective practitioner.

SHOULDERING THE BURDEN: 10 YEARS OF ORTHOPAEDIC SHOULDER TRIAGE IN CANTERBURY

Cadogan, A., & Malone, A.

Orthopaedic Outpatient Department, Burwood Hospital, Christchurch, New Zealand

Musculoskeletal conditions present a significant and growing burden worldwide, often resulting in prolonged waiting times for orthopaedic assessment and care. To address this challenge, physiotherapists with advanced training are playing an increasing role in orthopaedic triage and management, both in New Zealand and abroad. This presentation will overview the varied roles for physiotherapists in the orthopaedic setting, and present in more detail the innovative approach taken in Christchurch to establish a physiotherapy-led shoulder triage role in 2014, which has now been running for 10 years.

The structure of the physio-led triage service within the orthopaedic service will be explored, highlighting its role in managing referrals, guiding patients towards appropriate treatment pathways and freeing up surgeon clinic time. Insights into the Non-Surgical Shoulder Service will be provided, including access, clinical governance, outcomes, and succession planning considerations.

Central to the success of these initiatives has been the development of clear role descriptions and competency frameworks for physiotherapists in orthopaedic triage roles. This presentation will overview these and other existing frameworks, including the Entrustable Professional Activities framework developed in collaboration with other physiotherapists working in orthopaedic departments in triage roles.

Through a combination of collaboration with orthopaedic specialists, innovative service structures, and evolving competency frameworks, advanced physiotherapists are driving positive change in musculoskeletal care delivery. This presentation will provide insights into the transformative potential of physiotherapist-led initiatives in improving access to non-surgical treatment for people with non-ACC musculoskeletal conditions, thereby contributing to enhanced orthopaedic access and care delivery models in New Zealand.

EXPLORING A PACIFIC WORLDVIEW THROUGH "TIME"

Areli, E.

Centre for Health, Activity and Rehabilitation Research, School of Physiotherapy, University of Otago, Dunedin, New Zealand

Embedded within the Physiotherapy Standards Framework are standards and principles directed at ensuring physiotherapists are culturally safe/competent. The importance of recognising and respecting culture, to treat accordingly, guarantee that the principles of the physiotherapy code of ethics and professional conduct are not undermined.

As a person with Pacific origins, and a physiotherapist, there are commonalities and similarities that are shared between traditional Pacific values and the principles of our profession. However, does that then mean that an in-depth understanding of Pacific values for me correlates directly with an in-depth understanding of the principles of the code of ethics? Is the relationship then between value and principle reciprocal for every Pacific person?

Culture in clinical spaces is something that we work towards identifying, so that we can find some commonality, some similarity between us and patients. Akin to the point of Pacific value and physiotherapy principle, we may share comparable traits, beliefs, and values with our patients but fundamentally very different "truths" and "propositions". As physiotherapists working with an increasingly diverse population, the onus is put on us to be more culturally respectful, more culturally safe, and more accountable. We can see the significance of this when it is expected that we “practise with due care and respect for a patient’s culture, needs, values, worldviews and beliefs, including Te Ao Māori” (Code of Ethics and Professional Conduct).

How do you “practise with due care and respect” for a patient’s worldview that is inherently different from your own? Through a better understanding of one’s worldview. So, join me on a journey as we navigate through an Indigenous space and explore the concept of time from an Indigenous lens. From a Pacific perspective, we will see contrasting ideologies with Westernised views regarding time and why it is important for clinical practice.

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WHY SHOULD I GIVE A HELL ABOUT PELVIC HEALTH?

Davidson, M.

Pelvic Health Training, Kinloch, Waikato, New Zealand

No one talks about pelvic health – they feel it’s not relevant to them, it shouldn’t be talked about in public, and it’s only women who have had babies and now hitting menopause that have issues. Physiotherapists think “none of my patients want me to talk about it, it’s not going to affect my treatment of them, so I don’t need to worry about it”. YOU COULDN’T BE MORE WRONG.

Pelvic health effects your manly rugby players (hello groin injuries), your middle aged blokes who can’t get it up as often as they would like to (hello initial sign of cardiovascular issues), your young, fit, high-impact sports player (hello bladder and bowel leakage), your diabetic or mental health folks who you want to get moving (hello not doing exercise because things are falling out the bottom holes), and those people of all ages who would like to have some rumpy pumpy fun the bedroom but can’t (hello pain).

Instead of ignoring this part of being a human, how about you take your head out of the sand, take a concrete pill, and step up to the next level of care. It won’t be boring, you might learn something, and you might even have some fun. It’s time for change – let’s remove the taboo together and navigate physiotherapy into the 21st century.

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HE KAWA WHAKARURUHAU Ā MATATAU MĀORI: MĀORI CULTURAL SAFETY AND COMPETENCE STANDARD

Davis, M.

Te Poari Tiaki Tinana o Aotearoa – Physiotherapy Board of New Zealand, Wellington, New Zealand

He kawa whakaruruhau ā matatau Māori: Māori cultural safety and competence standard places particular emphasis on tangata whenua (Māori) and our unique Treaty relationship. Māori culturally competent physiotherapists contribute to improved and equitable outcomes for ngā kiritaki hauora and all those working in the health sector.

This will be an interactive session, acknowledging that there may be challenges, and exploring how we can reflect and learn from these challenges. The intention is to have a safe space for open dialogue and to build confidence when working with ngā kiritaki haurora.

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NAVIGATING NEURO PLASTIC PRINCIPLES

Davy, G.

MS Get a Head Start, Sydney, Australia

The power of “exercise as medicine” is well known by physiotherapists. There is increasing evidence that suggests that exercise enhances neuroplasticity. However, in neurological rehabilitation ensuring that the principles of neuroplasticity are being met alongside the delivery of a client-centred programme can be overwhelming. This presentation is aimed at providing clinicians with practical strategies to drive neuroplastic change and enhance patient outcomes. It encourages clinicians to reflect on their current neurorehabilitation delivery and where there may be opportunities to implement new strategies straight away.

This talk will use Multiple Sclerosis as an example to highlight the need for increasing rehabilitation access at diagnosis. It discusses the latest evidence-based exercise guidelines and what therapists need to know to be promoting a gold standard level in New Zealand, as well as illustrating strategies to optimise neurorehabilitation.

INSIGHTS AND SUPPORT FOR PUBLISHING WITH THE NZJP

[1,2]Ellis, R., [1,3]Perry M, & [1,2]Shaikh, N.

[1]Editorial Committee, New Zealand Journal of Physiotherapy; [1]Clinical Sciences, Auckland University of Technology, Auckland; [3]Centre for Health, Activity and Rehabilitation Research, School of Physiotherapy, University of Otago, Wellington, New Zealand

The *New Zealand Journal of Physiotherapy* (NZJP) is the official academic journal of Physiotherapy New Zealand. Its Honorary Editorial Committee is formed by a group of experienced physiotherapists who work clinically and/or in research and education. These committee members ensure the journal meets high publishing standards in line with other international academic journals, with the journal currently listed on SCOPUS. Published papers present contemporary research related to the science and practice of physiotherapy relevant to physiotherapists working within and outside of New Zealand.

This presentation aims to connect with clinicians, and emerging or experienced researchers who are considering submitting a manuscript to the journal for publication. We will showcase our new online platform (https://nzjp.org.nz/nzjp), discuss how dissemination of knowledge can contribute to advancing physiotherapy careers (e.g., advanced and specialist scope of practice), and provide an overview of key considerations (and tips) regarding content the editorial committee look for when evaluating an article. We welcome anyone with an interest in advancing physiotherapy knowledge and research in Aotearoa New Zealand, including those who would like to get involved as a reviewer.

THE EXHAUSTING, THE BREATHTAKING, AND THE DIZZYING

George, C.

The Lung Mechanic, Christchurch, New Zealand

The last 4 years have led me on a journey of discovery and understanding as well as some good old scrambling to try and keep up with research in the space of ongoing symptoms post-COVID-19. COVID-19 may now be considered “not an issue” and fading into the background but for many, the ongoing effects are devastating and still very much current. Individuals are still being gaslit despite good evidence to prove causes for ongoing post-viral fatigue. This fatigue is still being approached inappropriately by many and potentially causing further harm to them. Quick fixes are being peddled to the desperate. Breathlessness is mainly due to breathing pattern dysfunction but as to why this is so high post-COVID we still don’t know. However, it can be helped, and this is transformative for many. Dysautonomia is more common than ever, and physiotherapy can really help! It is part of the first line of management, before medications.

Thirty minutes cannot do justice to this topic but there are key points from research and my experience I would love to share to ensure you can help your patients, no matter the setting. Learn to be curious, ask the right questions, and set these people up for a journey of empowerment and management of their symptoms, enabling them to get back on track to live their lives as best they can. I would like to acknowledge the amazing work the cardiorespiratory SIG has done in the long COVID space.

A SPACE TO TALANOA AND SHARE A PACIFIC PERSPECTIVE ON PHYSIOTHERAPY MATTERS

Gibson, R. J.

Chair, Pasifika Physiotherapy Association, New Zealand

An interactive session to build our confidence in working in a culturally responsive way with Pacific people. Gain and share knowledge on how connections can be made and lost. Active engagement required!

MAKING YOUR PHYSIO PRACTICE ACCESSIBLE FOR GENDER DIVERSITY

Shields, J.

Professional Association for Transgender Health Aotearoa; Qtopia, Christchurch, New Zealand

Aotearoa's trans and non-binary communities face additional barriers to accessing healthcare, and have additional physical and mental health needs that often aren't equitably met by the healthcare system. In this workshop, learn about these barriers to accessing care, what they might mean for physiotherapy, and ways we can reduce those barriers to care and contribute to trans and non-binary people in Aotearoa living excellent lives. This session will briefly cover background and context, touch on language and terminology, and look at practical tools and tips we can put into practice to improve the quality of the lives our clients live.

SPORTS AND CONCUSSIONS: THE ACC APPROACH TO CONCUSSION AND HOW PHYSIOTHERAPY CAN GET INVOLVED

Westhead, S.

Accident Compensation Corporation, New Zealand

Concussion is a serious injury. Each year in Aotearoa New Zealand, over 7000 concussions occur while participating in sport. Due to the lack of a consistent, readily available resource for treatment providers, whānau, and patients, the National Concussion Guidelines have been formed to address the gap in treatment provision and active management of concussion. Through this work, we know that if concussion is missed or not managed, people can experience long-term negative effects, including prolonged time away from school, work and sport, poor mental health, decreased quality of life, ongoing symptoms, and loss of independence.

In this presentation we will discuss:

- how the guideline was developed and why
- the 21-day stand down and medical clearance
- small but significant changes since the guidelines’ launch
- practical examples of how the guidelines can be applied in a clinical setting.

We will finish off by looking at what ACC is currently testing in the primary care space and the outcomes from our Concussion Services’ proof of concept.

WORKSHOP ABSTRACTS

TARGETING PAEDIATRIC MUSCULOSKELETAL PHYSIOTHERAPY: GETTING IT RIGHT FOR EVERY CHILD

[1]O'Hara, A., [2]Radford, E., & [3]Meys, A.

[1]Active Plus, New Plymouth; [2]Reach Rehabilitation, Tauranga; [3]Nuture Physiotherapy, Tauranga, New Zealand

As musculoskeletal physiotherapists, our approach to assessing and treating children differs significantly from that of adults. Approximately 19% of New Zealand's population falls within the 0–14 years age group, emphasising the need for physiotherapists to understand children's cognitive, physical, psychological, and social changes. Supporting physiotherapists in assessing and managing musculoskeletal conditions in children is crucial for achieving optimal outcomes, client and whānau satisfaction, identifying red flags, limiting chronicity trajectories, and avoiding pathologising normal development.

A comprehensive paediatric musculoskeletal workshop is proposed for the Physiotherapy New Zealand Conference 2024 to address these challenges. This workshop, supported by a musculoskeletal paediatric working group, aims to equip physiotherapists with the necessary skills and knowledge for working effectively with children, including:

- outlining key differences in musculoskeletal examination in children
- normal and abnormal musculoskeletal development
- paediatric musculoskeletal anatomy 101
- youth sports injuries: what are we missing?
- common musculoskeletal conditions in children
- creating a child-friendly clinical environment
- identifying red flags and referral requirements
- whānau-centred care, care and working with intermediaries
- incorporating play into rehabilitation
- consent processes
- PGALs musculoskeletal screening and assessment confidence.

The workshop aims to enhance physiotherapists' skills and promote practical assessment and management of musculoskeletal paediatric conditions. Understanding children's anatomical considerations and growth patterns is crucial for effective diagnosis, treatment, and rehabilitation. Incorporating play and ensuring a child-friendly clinic environment is not just a bonus but an essential part of effective assessment and treatment.

This workshop will provide physiotherapists with diverse skills and knowledge and offer ongoing support, access to resources, and educational opportunities when working with children. By attending, they can ensure they can provide the best possible care to their young patients.

NEURODIVERSITY AFFIRMING PHYSIOTHERAPY

Breen, T.

Consultant Clinical Psychologist, Hamilton, New Zealand

Although they try to do their best, many health professionals are challenged when working with neurodiverse clients. They struggle to establish rapport, understand their clients, be understood, and achieve therapeutic goals. In this workshop, Dr Tanya Breen will identify neurodiversity-affirming strategies that will help overcome these problems. By combining Tanya’s psychological knowledge with your physiotherapy expertise, you’ll leave the session with practical strategies and easy-to-implement accommodations that will prepare you for more positive outcomes when you next encounter a neurodiverse client.

PEER MENTORING WORKSHOP

[1]Potter, M., & [2]Cadogan, A.

[1]TELL Centre, Nedlands, Western Australia; [2]Physio Academy, Christchurch, New Zealand

Dr Margaret Potter and Dr Angela Cadogan will run a dynamic and interactive workshop designed for physiotherapists who are looking to improve their mentoring skills. They will cover essential insights and practical tools to help you guide the next generation of physiotherapists. Angela and Margaret will also share the results of their recent mentoring research study, highlighting key findings and implications for workplace mentoring.

The key topics include:

- definition of mentoring
- the role of a mentor
- the difference between mentoring and clinical supervision
- key mentoring skills
- new graduate experiences of mentoring
- mentoring challenges
- question and answer session.

This workshop is an excellent opportunity for experienced physiotherapists to enhance their mentoring capabilities and make a meaningful impact on the future of the profession.

FUNCTIONAL NEUROLOGICAL DISORDER (FND) AND PHYSIOTHERAPY – SUCCESS, RELAPSES AND PITFALLS

Stone, J.

University of Edinburgh, United Kingdom

In this talk, I will discuss where we've been, where we are, and where we are going with clinical and research aspects of functional neurological disorder (FND). I will do so with particular relevance to physiotherapy.

How things were. FND was previously Conversion Disorder in DSM-IV. It was a diagnosis of exclusion that couldn't be made unless there was a recent stressful event. Neurologists who generally made the diagnosis were typically disinterested or ambivalent about whether FND was similar to feigned illness. The treatment was considered purely psychological.

How things are. FND is now firmly a diagnosis of inclusion with positive signs like Hoover's sign, the tremor entrainment test, and typical features of seizures. Entities like Persistent Postural Perceptual Dizziness and Functional Cognitive Disorder have pushed the boundaries of how we define FND. Positive diagnosis also allows us to approach communication with the patient in the same way as any other condition and has helped us recognise a high frequency of FND comorbidity in patients with other neurological conditions. FND is a disorder that challenges dualistic ideas about the brain and mind. Studies of the neural underpinnings of the disorder don't negate the importance of a psychological perspective, but do help rebalance it as a multidisciplinary condition, and not just the domain of psychiatry. Predictive processing models are especially promising. I will describe how the evidence base for physiotherapy, occupational therapy, psychological, and other therapies has emerged from this new way of thinking about the disorder.

Where things are going. The FND Society (fndsociety.org) is a new international society with around 1000 members and a meeting in Verona 2024 that highlights new vigour in the field. We are discovering new things about comorbidity, especially with Autism/ADHD and joint hypermobility as well as developing novel approaches to treatment, especially for patients where treatment has failed. Data from the largest trial of physio, Physio4FND, should be available for presentation. The FND field has been particularly successful at working with patient-led organisations such as fndhope.org and fndaction.org.uk and I think future success lies in strengthening these collaborations.

DATA PROVEN TRAUMA REHABILITATION

[1]Webb, M., & [2]Quick, C.

[1]Trauma Allied Health Team Leader, The Alfred Hospital, Melbourne, Victoria, Australia; [2]Clinical Lead Trauma Rehabilitation, Te Tāhū Hauora Health Quality and Safety Commission, New Zealand

Rehabilitation now forms a key component of trauma systems and pathways, yet its implementation remains fragmented and lacks the standardisation of other aspects of trauma care. Rehabilitation can be delivered in various frameworks and the data supporting rehabilitation interventions and services in trauma care remains scarce. In this workshop different approaches to building the evidence base and quality improvement opportunities for trauma rehabilitation will be presented. It includes data and outcomes from acute, post discharge, and broader system-wide phases of care.

PODIUM SPEAKER ABSTRACTS

THE PHYSIOTHERAPY CONUNDRUM FOR NON-AMBULANT CHILDREN WITH CEREBRAL PALSY AND INTELLECTUAL DISABILITY: AN INTEGRATIVE REVIEW

[1]Adams, K. L., [2]Blamires, J., & [3]Hill, J.

[1]Faculty of Health and Environment Sciences, Auckland University of Technology; [2]Child and Youth Health Research Centre, Auckland University of Technology; [3]Active Living and Rehabilitation: Aotearoa New Zealand, Auckland University of Technology, Auckland, New Zealand

Background: Physiotherapists in Aotearoa have a responsibility to base interventions on best available evidence. Despite many systematic reviews on cerebral palsy (CP) reporting "best evidence" for physiotherapy interventions, there is a paucity of evidence focused on non-ambulant children with CP combined with intellectual disability (NACCP-ID). This is mainly due to the heterogeneity of the population, making research challenging, and the hierarchy of evidence favours research suitable for ambulant children with the intellectual capacity to participate in tasks.

Purpose: To identify and provide a comprehensive synthesis of physiotherapy interventions for NACCP-ID using an integrative review of the literature.

Methods: An integrative review was conducted between March and April 2023 using CINAHL, Medline, Scopus, PEDRO, Google Scholar, and Tu Whera databases. Articles were appraised using the Mixed Methods Appraisal Tool. Conventional content analysis ensured results were acceptable for both the primarily positivist physiotherapy profession and the interpretive nature of disability in which these children are situated.

Results: Twenty-four studies on physiotherapy interventions for school-aged NACCP-ID were reviewed. Six intervention types were identified: functional exercise, gaming, power wheelchair training, sleep systems, static standing frames, and dynamic standing frames. The outcomes and considerations of interventions were discussed within the Te Whare Tapa Whā model.

Conclusion: The complexity of NACCP-ID is the dominant finding that affects researchers' ability to conduct studies with this population. This, in turn, limits the value placed on the available research and provides a limited scope of interventions for physiotherapists to evaluate within evidence-based practice (EBP).

Impact: For children with complex needs, such as NACCP-ID, the outcome of interventions is the sum of all the parts, not a series of predictable reactions with reliable outcomes, making EBP challenging for physiotherapists. Research must pivot to embrace the population's heterogeneity and practice requires a more holistic framework of EBP to encompass the complexity.

EFFECT OF MANUAL THERAPY ON GAIT BIOMECHANICS IN PEOPLE WITH KNEE OSTEOARTHRITIS – A PROTOCOL

[1]Alam, S., [1]Hargest, C., [2]Ribeiro, D.C., [1]Mani, R., & [1]Chapple, C.

[1]Centre for Health, Activity and Rehabilitation Research, School of Physiotherapy, University of Otago, Dunedin, New Zealand; [2]Curtin School of Allied Health, Curtin University, Perth, Australia

Background: Knee osteoarthritis (OA) is associated with changes in walking biomechanics such as altered excursion or change in joint load. Manual therapy (MT) may modulate pain via the enhancement of descending pain mechanisms that could influence neuromuscular activity and subsequently lead to changes in the mechanical behaviour of the joint such as modification of joint load. There is limited research, and an opportunity exists to further explore whether MT can influence biomechanics during walking.

Objective: The primary aim of this study is to explore whether MT intervention influences the biomechanical outcomes of gait in people with knee OA. The secondary aim is to explore the relationship between biomechanical outcomes of gait and clinical outcomes (pain and function), following MT intervention.

Methods: Prospective registration no. ACTRN12624000157572p. Study design: single-arm pre-test-post-test design. The participants will be included as per defined inclusion and exclusion criteria. Primary outcome: Peak knee adduction moment (KAM) measured by biomechanical gait analysis. Secondary outcomes: knee range of motion, pain while walking, fear and avoidance, recommended core set of patient-reported outcomes, and 2° biomechanical outcome measures of gait. Time-points: Baseline I, baseline II at 4-week, post-intervention at 8-week, and follow-up at 6-month. Knee-focused tailored MT will be provided with the frequency of 2 sessions/week x 45–60 mins x 3 consecutive weeks.

Results: We will report descriptive statistics of each outcome measure. To evaluate our 1° aim, we will use repeated measures ANOVA and a Tukey HSD post hoc test. We will perform repeated measure correlation tests to assess our 2° aim.

Conclusion: It is an exploratory study that will provide preliminary evidence on whether MT could influence biomechanical outcomes of gait.

Implications: This study will advance the knowledge of MT mechanisms. It may provide further support for the role of MT in the management of people with knee OA.

OUTCOMES AFTER TOTAL KNEE JOINT REPLACEMENT WITH OR WITHOUT SUPERVISED GROUP PHYSIOTHERAPY

[1]Bastkjaer, S., [2]Paterson, G., [3,4]Rice, D., & [3]McNair, P.

[1]Physiotherapy Department, Health New Zealand – Te Whata Ora Waitematā; [2]Physiotherapy Department, Health New Zealand – Te Whata Ora Te Toka Tumai Auckland; [3]School of Clinical Sciences, Faculty of Health and Environmental Sciences, Auckland University of Technology, Auckland; [4]Waitemāta Pain Services, Department of Anaesthesia and Perioperative Medicine, Health New Zealand – Te Whata Ora Waitematā, New Zealand

Background: Typically, all patients who have a total knee joint replacement (TKJR) at Te Whatu Ora Waitematā are referred to physiotherapy for a period of in-person postoperative rehabilitation including group-based knee class. During the COVID-19 pandemic, this wasn't possible, and a cohort of patients did not receive any formal, supervised postoperative rehabilitation (no knee class).

Purpose: To assess pain, disability, and patient satisfaction ≥ 6 months after surgery in the no knee class cohort compared to a historical cohort of patients who had attended knee classes and had the same outcome measures available.

Methods: Propensity score matching was used to select patients from the historical TKJR cohort that were most similar to patients in the no knee class cohort in terms of age, sex, BMI, and number of additional pain sites. Non-parametric ANCOVAs were used to compare WOMAC pain (0–100), WOMAC disability (0–100), and patient satisfaction (1 = very dissatisfied to 5 = very satisfied), between cohorts, with time since surgery (in months) as a covariate.

Results: Thirty-six patients (no knee pain class) were matched 1-to-1 ($n = 36$) from a pool of 74 patients from the historical cohort who completed a minimum of two supervised group rehabilitation sessions (*Mdn* 6, range 2–10). All matching variables had standardised mean differences of < 0.1 and p-values > 0.05, suggesting successful balancing of potential confounding variables between groups. There were no significant differences in WOMAC pain, WOMAC disability, or patient satisfaction between the two groups ≥ 6 months after surgery (all $p \geq 0.851$).

Conclusion: These findings provide preliminary evidence that failing to attend supervised in-hospital group rehabilitation classes did not adversely affect long-term outcomes after TKJR.

Implications: Existing (p)rehabilitation resources may be better targeted to patients at high risk of poor outcome or who are not following expected recovery trajectories.

EXPLORING KAUMĀTUA PERSPECTIVES OF LIVING A HEALTHY LIFESTYLE FOR OPTIMISED BRAIN HEALTH

Beet, B., Dudley, M., Ashby, L., Pou, K., & Olsen, S.

Auckland University of Technology, Auckland, New Zealand

Background: Longstanding inequities in the Aotearoa New Zealand healthcare system have contributed to a higher prevalence of risk factors for mate wareware (dementia) among Māori. There is a need for improved health literacy for Māori around healthy lifestyle activities that can reduce this risk and optimise brain health. In addition, physiotherapists need to consider culturally appropriate ways of delivering education to inspire healthy lifestyle changes and ensure equitable practice.

Purpose: This research explored the perspectives of Māori kaumātua (Māori elders) regarding heathy lifestyle activities and how these could be encouraged within a digital health literacy application called the Mate Wareware app.

Methods: The study used a qualitative, Māori-centred approach, underpinned by kaupapa Māori principles. The participants were 11 Māori kaumātua (*M* age 70 years) living in rural and urban areas of Northland. The kaumātua attended a wānanga and shared their experiences and views during small focus-group discussions. The audio data collected were thematically analysed.

Results: Two overarching themes were identified: (1) "Actively connecting to wairua" emphasised wairua (spirit, soul) as the foundation of a healthy lifestyle and a key supporting feature of hauora (health and wellbeing); (2) "Mahi through the generations" highlighted the central and dynamic role of mahi (work) in the lives of Māori, particularly mahi through life roles, kai (food), and whānau (family) and community activities.

Conclusion: The findings emphasised the importance of returning to ancestral and cultural activities for Māori to live a healthy lifestyle. Kaumātua suggested a range of features to be implemented within the Mate Wareware app to support wairua and draw Māori back to mahi that encourages healthy lifestyle activities.

Implications: The findings provide a foundation for healthy lifestyle advice directed towards the needs of Māori and encourage physiotherapists to reflect on holistic and whānau-centred activities that could be encouraged with Māori patients and whānau.

UNDERSTANDING FEMALE FOOTBALL (SOCCER) PLAYERS' PERCEPTION OF HEADING THE BALL, CONCUSSION KNOWLEDGE, AND ATTITUDES

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Background: Football is the only sport where players intentionally use their head to shoot, redirect, or pass the ball. This has sparked debate in the literature regarding the safety and potential long-term effects on brain health from cumulative ball heading. Yet there is limited understanding of the players' perspectives on health and heading.

Purpose: To explore female football players' perceptions of heading the ball and their knowledge and attitudes towards concussion.

Methods: This qualitative study used semi-structured focus groups and individual interviews. Reflexive thematic analysis was used for analysis and theme development.

Results: Seventeen players (aged 18–40 years, minimum 5 years' playing experience) participated in six focus groups and one individual interview. Thirteen of these had incurred at least one concussion. Three themes were developed: (1) The battle of "risk vs reward": views around the importance of heading for the game but also the perceived injury risks; (2) "Spare the brain" vs "train the skill": players often avoided heading the ball in training rather than practising the skill; (3) Changes in perspectives following concussion: players reported being more apprehensive to head the ball post-concussion, preferring to use other body parts (e.g., the chest) and coaches/family influenced attitudes towards heading and concussion.

Conclusion: In contrast with other injury prevention strategies and skills, the task of heading is often avoided in training rather than practised as a skill, limiting the number of head impacts to "reduce injury risk". Various factors influence perspectives of heading, particularly following concussion, with some players constantly having to choose whether to avoid heading at the cost of decreased performance.

Implications: The outcome of this study highlights many players' apprehension to head the ball in training/repetitively and how concussion changes their views on heading. These player perspectives may help to inform return to play protocols and heading guidelines.

EQUITY OF NEW ZEALAND PHYSIOTHERAPY WORKFORCE DISTRIBUTION: A SPATIAL ANALYSIS OF ACCESSIBILITY

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Background: Disparities in care access and outcomes for health conditions where physiotherapy is poised to play a major role (such as musculoskeletal diseases, cardiovascular illnesses, and neurological disorders) excessively burden rural populations, Māori and Pacific peoples, and those with higher socioeconomic deprivation. However, the distribution of the physiotherapy workforce relative to these populations is not known.

Purpose: To evaluate the accessibility of the physiotherapy workforce in Aotearoa New Zealand relative to Māori, Pacific, rural, and high socioeconomic deprivation populations.

Methods: This cross-sectional population-based study geocoded physiotherapy workforce data for 5582 physiotherapists (92% of the 6038 registered physiotherapists at March 2022) and integrated these with 2018 NZ Census data to generate "accessibility scores" for each Statistical Area 2 (SA2) using the distance-based 3-step floating catchment area method. Demographic characteristics of rurality, Māori ethnicity, Pacific ethnicity, and socioeconomic deprivation were categorised, cross tabulated with accessibility scores, and thematically mapped using geospatial software.

Results: The mean practitioner: population ratio was 11.88 per 10,000. Wānaka/Queenstown, inland central Canterbury, and Tauranga were the areas of highest accessibility (up to 26/10,000). North Island areas in the Mid-central, west, and northern Northland, and the East Coast were the major areas of low accessibility (< 0.94 to 9.06 per 10,000) and higher proportion rural, Māori, Pacific, or high deprivation.

Conclusion: New Zealand has an above-average physiotherapy-to-population ratio compared with other OECD countries; however, this workforce is maldistributed. This study identified specific areas of physiotherapy workforce shortage, and potential over supply.

Implications: Available levers should be used to mobilise the physiotherapy workforce to meet population health needs more equitably. A minimum workforce data set, linked to location of care delivery is necessary to gain more than a snapshot and to include important aspatial variables such as type of care, and affordability.

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EMPOWERING MĀORI SUCCESS IN PHYSIOTHERAPY EDUCATION: RECOMMENDATIONS TO STRENGTHEN PRAXIS FOR ASPIRATIONAL OUTCOMES

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Background: Health inequity for Māori is a longstanding issue in Aotearoa. The low numbers of Māori physiotherapists pose a challenge for achieving health equity.

Purpose: This research aimed to explore strategies to empower Māori student success in physiotherapy education. Improving Māori undergraduate physiotherapy students' retention and success rates may enhance the Māori physiotherapy workforce.

Methodology and methods: A Māori-centred approach utilising the principles of kaupapa Māori research and appreciative inquiry (a strength-based approach to organisational change) were adopted. One-to-one kōrero and hui were employed to understand the experiences of 15 Māori physiotherapy graduates (roopu rangahau). Through this process we sought to understand what supported Māori undergoing physiotherapy education to thrive, and co-design solutions to culturally transform physiotherapy education. A shared process of analysis was applied to the data.

Results: Five themes were generated that represent factors that empower Māori success in physiotherapy education. These were: the significance of whānau (extended family), connection to place, promoting cultural affirmation, incorporating cultural pedagogy, and the provision of aspirational opportunities.

Conclusion: Physiotherapy education requires significant cultural transformation to create an optimal environment that promotes Māori student retention and success. Relationality, grounded in the principle of whanaungatanga (a concept encompassing kinship and connectedness) is key to enhancing Māori students' sense of belonging in physiotherapy education and supporting their transition into the workforce. Incorporating Indigenous knowledges, perspectives, and values within physiotherapy education and creating educational and clinical spaces that foster Māori identity and encourage self-determination of Māori are critical to this outcome.

Implications: While specific to physiotherapy education, these research findings have broader implications for physiotherapy workplace environments, Physiotherapy New Zealand, and the Physiotherapy Board. During this presentation insights will be shared that may support the creation of culturally responsive educational and workplace spaces for Māori students and new graduates employed within the physiotherapy profession.

LEARNING FROM FAMILIES: DISABLED YOUTH AND THEIR FAMILIES' EXPERIENCES OF FAMILY-CENTRED CARE

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Background: Young people living with a disability can experience barriers to societal participation and limited opportunities for play. Every child has the right to play, and play influences children's cognition, physical, mental, and social growth. To develop engaging interventions for young people with disabilities, physiotherapists require an understanding of what is meaningful and important to the young people and their families/whānau.

Purpose: To explore the experiences and perceptions of young people with disabilities and their families/whānau on family/whānau-centred care and play as a therapeutic intervention.

Methods: Qualitative semi-structured interviews with 23 caregivers and three children/adolescents with a disability aged ≤ 21 years, living across New Zealand. Data were interpreted using latent reflexive themes.

Results: Concepts of whānau identity, valued service/therapist attributes, and participatory outcomes were identified. Both challenges and positive experiences to family/whānau-centred care were dependent on family/whānau capacity and collaborative relationships. Experiences of play in therapy were connected to positive family/whānau perceptions of family/whānau-centred care and relationships.

Conclusion: The lives of young people with disabilities and their family/whānau are complex. To understand the family/whānau's capacity, therapists must form trusting relationships, share knowledge, and hold space to hear the families' voice. Capacity of both the family/whānau and the service influence the delivery and engagement with family/whānau-centred care. Families/whānau value the expertise of therapists to guide and scaffold fun interventions towards long-term participatory focused outcomes.

Implications: Physiotherapists can support young people with disabilities and their families/whānau through provision of scaffolded, play-focused therapies alongside delivery of timely information with consideration of family/whānau capacity. Incorporating optional play-based activities into everyday routines may provide an opportunity to support young people with disabilities in their home environment. Awareness of challenges to family/whānau-centred care may aid discussion between physiotherapists and families/whānau of young people with disabilities to facilitate the co-creation of meaningful play-based interventions.

REVIEWING PRE-EXTUBATION P0.1 VALUES IN A PAEDIATRIC ICU AND THEIR IMPACT ON POST-EXTUBATION RESPIRATORY OUTCOMES

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Background: Evidence surrounding extubation markers in a paediatric population is sparse. P0.1 is defined as the negative pressure measured 100 ms after the initiation of an inspiratory effort performed against a closed respiratory circuit and correlates with central respiratory drive and effort. A literature review surrounding its use in this population was completed, retrieving two papers, one of which was discarded due to age. The remaining paper, published in 2023 by Charernjiratragul et al., investigated indices to guide if respiratory support was required post-extubation (PE). The study found a P0.1 figure > 0.9 showed higher sensitivity for predicting respiratory support escalation PE.

Purpose: To determine if a relationship existed between pre-extubation P0.1 values and repository support post extubation, in the paediatric intensive care unit (PICU) population, at the Evelina Children's Hospital.

Methods: Data was collected over a 30-day period. Patients suitable for extubation were identified by the physiotherapy team. Three pre-extubation P0.1 measurements were collected before subsequent treatment, if required. At 48 hours post-extubation, notes were reviewed to identify the maximum respiratory support required.

Results: Twenty-seven patients met the inclusion criteria; however, one was unsuccessfully extubated, and their data was excluded. Eighteen patients in total required respiratory support within 48 hours PE; eight required high-flow oxygen. The median P0.1 value for these eight patients was 0.9. This was thus used as a threshold value, providing binary data to determine if a significant relationship existed. A chi-squared distribution test identified that a statistically significant relationship ($p = 0.0011$) existed between P0.1 > 0.9 and the subsequent need for high-flow oxygen PE.

Conclusion: These results reinforce the potential utility of P0.1 as a reliable marker for predicting respiratory support post-extubation in paediatric cases.

Implications: A proportion of our participants were extubated post cardiac surgery, which may differ from those in less specialised PICUs.

NAVIGATING NEW TECHNOLOGIES IN PHYSICAL REHABILITATION: THE IMPACT OF VIRTUAL REALITY ON THE PATIENT–THERAPIST BOND

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Background: Virtual reality (VR) holds promise in physical rehabilitation, yet concerns persist regarding its influence on the patient–therapist relationship, known as the therapeutic alliance. The therapeutic alliance, crucial for rehabilitative success, relies on patient–therapist agreement on tasks, goals, and interpersonal bonds.

Purpose: To understand the impact of immersive VR on patient–therapist dynamics in acquired brain injury rehabilitation, offering design insights for in-person rehabilitative VR systems. The key objectives were to uncover essential elements for rehabilitative VR systems in physiotherapy that foster therapeutic alliance, and to create applicable design guidelines.

Method: Observations were employed, coupled with semi-structured interviews. Patients were observed in a VR setting wearing a VR headset that obscured the therapist from their view, and in a traditional non-VR rehabilitation setting. Focus was placed on discerning shifts in patient–therapist interactions and alliance dynamics between settings. Discourse analysis techniques, including conversational analysis, were used to explore interaction patterns and challenges concerning the therapeutic alliance.

Results: Findings indicate shifts in patient–therapist interaction with VR introduction. Despite visual barriers, therapists maintained engagement through gestural and attempted eye contact. VR usage correlated with reduced informal conversation, increased shared laughter, and enhanced therapist verbal feedback. Findings highlighted the need for precisely controllable virtual environments to support the patient–therapist relationship in in-person rehabilitation, breaking down visual barriers impacting gestural cues and utilising the aspect of shared laughter.

Conclusion: This research underscores the importance of understanding VR's impact on patient–therapist relationships and interaction in acquired brain injury rehabilitation and physiotherapy more generally. Despite challenges, VR offers opportunities to strengthen patient–therapist bonds.

Implications: This research informs ways in which designers and physiotherapists can ensure seamless integration of VR, with a focus on leveraging VR design innovations that foster stronger patient relationships, ultimately facilitating improved rehabilitation outcomes in physiotherapy clinical practice.

AOTEAROA PHYSIOTHERAPISTS' PERSPECTIVES OF POTENTIAL EXPANDED ROLES FOR SPORTS-RELATED CONCUSSION MANAGEMENT: A QUALITATIVE STUDY

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Background: Early concussion diagnosis is critical for initiating rehabilitation, and delayed diagnosis can lead to delayed recovery. Physiotherapists are at the front-line of identifying potential concussions and ensuring that sportspeople are ready to return to training. Yet only medical doctors can diagnose and provide clearance for return-to-sports.

Purpose: To explore physiotherapists' perspectives of their scope of practice and current actual clinical practice within sports-related concussion diagnosis and return to sports.

Methods: We recruited 18 physiotherapists working in sports physiotherapy for this qualitative study, using semi-structured individual interviews and focus groups, and Interpretive Description.

Results: Three themes were derived: (i) Delayed access to concussion-trained medical doctors; (ii) Navigating concussion care in a strained healthcare system, and (iii) Proposed expanded role for physiotherapists. Delayed access to medical doctors often delayed formal concussion diagnosis, initiation of concussion care, or medical sports clearance. Yet participants were regularly identifying and managing concussions, feeling confident to do so. Participants working with high-performance athletes or in multidisciplinary teams suggested that concussion diagnosis and clearance for return-to-work or -play should remain the medical doctors' responsibilities. Yet participants working at community level suggested that, with relevant training and mentored experience, diagnosis, triaging, and clearance for sport could be within their scope of practice.

Conclusion: Participants suggested that current constraints about timely access to medical doctors impeded initiation of concussion care for many individuals. At high-performance sport level, medical doctor consultation appears to be considered critical. At community level, many participants were already providing interim diagnoses and clearance for return to sports, advising GPs thereof for formal coding or sign-off.

Implications: The scope of practice for physiotherapists for concussion diagnosis, triaging, and return to sports clearance should be reconsidered. Physiotherapists could decrease the burden of medical doctors yet improve efficient and effective initiation of concussion care in the community.

FROM PAPER TO E-REFERRALS: A REVIEW OF SYSTEM RE-DESIGN FOR THE PHYSIOTHERAPY SERVICE

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Background: All inpatient services as Christchurch Hospital traditionally faxed paper referrals when referring to Allied Health services, including to Physiotherapy. Due to Health New Zealand initiatives such as "axe the fax", there was an opportunity to shift towards paper-lite methods, optimise data collection, and utilise existing systems.

Purpose: As a response to change, there was a need to coordinate a standardised method of referring to Allied Health services, taking into account service-specific needs, without compromising or changing other forms of referral processes.

Methods: The new system re-design integrated the use of electronic clinical notes for referrals and reflected a "closed-loop" system. Visibility of referrals to services were emphasised and a method of indicating the anticipated response time for assessment was subsequently developed.

Results: Data captured from the new system informs a PowerBI dashboard that provides operational insight to managers on the acute demands in the inpatient setting. Data over a 12-month period includes the time and inpatient location of referrals made, and the referral acknowledgement by the clinician. This includes the types of referrals made, the anticipated response time, and priority of referral.

Conclusion: This re-design system has enabled data capture and visibility – providing context of the current pressures and demands on the Physiotherapy and Allied Health services on the frontline. Patient care has been enhanced as referring services are more informed in clinical notes and decision makers have data to guide change.

Implications: The clinical implications lead to redefining what a referral is and decision making has been transferred back to clinicians to indicate how soon an assessment or intervention is needed, according to nationally agreed Care Capacity and Demand Management (CCDM) priority guidelines. This scope of work supports the current national initiatives Safe Staffing Healthy Workplace (SSHW), which is informed by the CCDM programme reporting processes.

UNDERSTANDING MUSCULOSKELETAL PHYSIOTHERAPY PRACTICE IN AOTEAROA: AN EXPLORATION OF MUSCULOSKELETAL PHYSIOTHERAPISTS' PERSPECTIVES OF PRACTICE

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Background: A contemporary musculoskeletal physiotherapy curriculum taught in Aotearoa must be responsive to the unique contexts of Aotearoa that shape healthcare and clinical practice. However, more needs to be formally known about what it means to be a musculoskeletal physiotherapist in Aotearoa, to influence physiotherapy education.

Purpose: Inquiry into contemporary perspectives and the physiotherapy landscape in Aotearoa is needed to inform the newest generations of physiotherapists and guide future curriculum development. We sought to understand what clinicians perceive as shaping musculoskeletal physiotherapy practice in Aotearoa.

Methods: Fifteen musculoskeletal physiotherapists practising across the country were purposely recruited and interviewed. We used a qualitative Interpretive Descriptive approach alongside a reflexive thematic analysis framework. TN and RE coded data, and the research team contributed to the theme structure

Results: Four themes were constructed. Theme 1, "Musculoskeletal physiotherapy is much more", described a narrow public view of musculoskeletal physiotherapy. In Theme 2, "Evidence versus (patient) expectations", participants shared tensions between patient expectations and best practice, alongside value being placed in the privilege of therapeutic touch. Theme 3, "Being conflicted", referred to professional conflicts shaped by bespoke Aotearoa conditions. Theme 4, "My navigator", explored the need for patient support to navigate the health system, alongside professional mentorship and career support.

Conclusion: The participants shared valuable insights that influenced their musculoskeletal physiotherapy practice alongside their views of contemporary education development in Aotearoa. Challenges identified by the participants centred around the perception of physiotherapy, balancing research evidence and professional expectation, maintaining professional identity, and the need for advocacy and mentoring.

Implications: Physiotherapy is a global profession, with similarities in practice internationally. However, Aotearoa is a unique country that shapes many aspects of our lives, including our professional identity. Future generations of musculoskeletal physiotherapists need to appreciate and embrace the unique cultural influences that shape their practice.

INTEGRATING PHYSIOTHERAPY INTO A PRIMARY CARE PRACTICE IMPROVES EQUITY

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Background: A 12-month pilot for physiotherapy in primary care ran at Te Nīkau Health Centre, Greymouth, in 2022/2023. The physiotherapist worked as an integrated member of the primary care team, as the first point of contact for patients with musculoskeletal conditions.

Purpose: The purpose of the pilot was to reduce wait times for musculoskeletal care and to free up other clinicians' time to enable better long-term condition management. These objectives were underpinned by an equity focus to improve access and outcomes for Māori.

Methods: Equity measures piloted included holding clinics at a Māori health provider and a rural satellite clinic. The primary care physiotherapist (PCP) worked to top of scope in an assessment, diagnosis, referral, and self-management role. Most patients who required rehabilitation were referred to another provider, but Māori and rural clinics could have rehabilitation with the PCP.

Results: Patients seen by the PCP had an average wait time of 5.1 days, compared to pre-pilot average wait of 9.8 days for musculoskeletal conditions. Staff reported they had more time for long-term condition management. The percentage of Māori seen with musculoskeletal conditions was 9% pre-pilot, with 14% of patients seen by the PCP identifying as Māori. A patient survey revealed that they were impressed with the prompt service and appreciated seeing a clinician with the best musculoskeletal knowledge and skills.

Conclusion: Integrating physiotherapy into primary care, in a first contact role for musculoskeletal conditions, can improve equity for Māori and rural patients and ensure that patients receive timely, high-quality care.

Implications: There is potential for this role to have a significant impact in primary care, and with flow-on effects to secondary care. The role can improve equity for Māori and rural patients; however, for the full impact to be realised, some legislation changes will be required.

EFFECT OF WEIGHT BEARING ON FUNCTIONAL OUTCOMES POST NON-SURGICALLY MANAGED ACHILLES TENDON RUPTURE

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Background: Achilles tendon rupture is a traumatic injury and ongoing deficits in plantar flexor endurance and strength are seen 12 months post injury. There is poor consensus regarding the optimal acute conservative management strategy to date.

Purpose: To assess the effects of immediate weight bearing vs delayed weight bearing standard care post Achilles tendon rupture on perceived function, Achilles tendon length, and plantar flexor muscle performance at 12 months post injury.

Methods: This study was a cross-sectional design assessing participants 12 months post conservatively managed Achilles tendon rupture in an immediate weight bearing (VACOped) group compared to a standard care group. Thirty-four participants were recruited (VACOped group, $n = 20$; Standard Care group, $n = 14$). Perceived function was measured using the Achilles Tendon Rupture Score (ATRS) and the Injury-Psychological Readiness to Return to Sport (I-PRRS). Functional outcomes were measured using the total heel raise work test, maximum voluntary contraction of the plantar flexors (MVC), single leg hop for distance and height, and a lateral continuous hop test. Achilles tendon length was measured using the resting angle method.

Results: There was no significant difference between groups for all outcome measures ($p > 0.05$). Across groups the mean score for the ATRS and I-PRRS was 76 and 42 respectively. A significant difference between limbs was seen in the total heel raise work test (33%), MVC (18%), hop for distance (12%), and hop for height (19%). Hanging angle was increased by a mean of 32% across groups.

Conclusion: The main findings of this study demonstrate that there are still ongoing deficits in self-perceived function, plantar flexor muscle performance, and tendon elongation across limbs post rupture, irrespective of initial weight bearing capacity.

Implications: These findings should provide patients and clinicians with confidence around loading the Achilles tendon early post rupture but raises questions regarding the expectations of recovery.

EXPLORING EXERTIONAL TESTING TO IMPROVE THE SENSITIVITY OF ASSESSMENT TOOLS FOR MTBI: A SYSTEMATIC REVIEW

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Background: Assessment of recovery from mild traumatic brain injury (mTBI, also known as concussion) is complex, and challenging. People returning to participate in sports after a mTBI have double the risk of a subsequent injury. This may suggest that they may have ongoing unidentified impairments. Exertional testing, where individuals are tested for mTBI impairments following physical exercise, has shown promise in the research setting through the identification of deficits that cannot be provoked under standard testing conditions performed at rest.

Purpose: To conduct a systematic literature review to determine if the effect of exertion on objective outcome measures differs in people with mTBI compared to healthy individuals.

Methods: A systematic search was carried out according to a pre-defined protocol (PROSPERO Registration CRD42023411681). Studies were eligible for inclusion if they: i) compared people aged 12–65 years with a recent history of mTBI with healthy controls, ii) investigated the effects of a single session of physical exertion, and iii) collected pre- and post-intervention measures of physiological or sensorimotor function.

Results: Descriptive analysis of 24 papers was completed. Meta-analysis was precluded due to the methodological variations and diverse outcome measures across the included papers. The literature demonstrated significant differences in the immediate effect of physical exertion on mTBI versus control participants in sensorimotor measures, including the King-Devick test, and physiological measures, including heart rate variability, autoregulation and haemodynamics, respiration, and perceived exertion.

Conclusion: The majority of the studies confirmed that post-exertion objective assessments can differ in mTBI compared with healthy, and these differences were less apparent at rest.

Implications: Exertional testing could therefore play a role in the assessment of recovery following mTBI. Physiotherapists have the skills and expertise to be an integral part of this process. The review findings will be used to inform the development of a return-to-play protocol that incorporates exertion.

STRENGTH, PERCEIVED FUNCTION AND PHYSICAL PERFORMANCE IN SURGICALLY STABILISED SHOULDERS FOLLOWING TRAUMATIC ANTERIOR SHOULDER DISLOCATIONS

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Background: Dynamic glenohumeral stability is influenced by muscle strength. Decreased dynamic stability at the shoulder may contribute to a decrease in sports performance post-surgery.

Purpose: To examine bilateral glenohumeral external and internal rotator muscle strength after anterior stabilisation surgery and investigate the relationships between strength deficits and function.

Methods: Twenty-five participants participated (aged 24 ± 6 years), 6–12 months post-surgery and cleared for return-to-sports. Bilateral maximal isometric internal and external rotator strength (iMVC) was examined using a Biodex dynamometer in sitting (arm in 90-degree abduction). Limb symmetry indices (LSI) were calculated for the iMVCs. The Shoulder Instability-Return-to-Sport Injury (SIRSI) was administered. Physical performance was assessed using the Shoulder Arm Return to Sports battery of tests (SARTS).

Results: Eighty percent of the participants had returned to sports. There were significant deficits ($p < 0.05$) for iMVC of external rotators between the affected ($M \pm SD = 16.3 \pm 5.5$ Nm) and unaffected shoulder ($M \pm SD = 21.3 \pm 7.0$ Nm, LSI = 78.5% ± 21.6). Similarly, a significant deficit was observed in internal rotators iMVC (*M* ± *SD* affected = 37.0 Nm v. unaffected: 43.0 Nm, LSI = 83.5% ± 15.3). Participants with higher internal rotator LSI had higher confidence in return to sports (SI-RSI; $r = 0.403$, $p < 0.05$, $r^2 = 0.162$). No significant associations were observed between iMVC and SARTS tests.

Conclusion: Participants had not met return-to-sports criteria for iMVC at a time of clearance for return to sports.

Implications: Isometric muscle strength recovery can take longer than 6 months after anterior stabilisation surgery. The SARTS tests assess different constructs (muscle power, endurance, control/coordination) and involve larger muscle groups, which may explain the lack of association between iMVC and the SARTS. The internal rotator LSI contributed a small proportion of change in self-confidence, accounting for 16% of the variance of the SIRSI.

UNDERSTANDING TASK “CHALLENGE” IN STROKE REHABILITATION: AN INTERDISCIPLINARY CONCEPT ANALYSIS

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Background: The significant and growing impact of stroke disability has prompted researchers and clinicians to re-think the core components of rehabilitation. While the concept of “task challenge” is often described as influencing individuals’ experiences and outcomes of stroke rehabilitation, it is poorly understood. Challenge holds various meanings, including overlap with descriptions of task difficulty, physiological intensity, cognitive load, and perceived effort, which can lead to suboptimal implementation of challenge in clinical practice.

Purpose: To explore how challenge is conceptualised in stroke rehabilitation from the perspectives of people with stroke, physiotherapists, occupational therapists, and speech-language therapists.

Methods: Principle-based concept analysis was used to explore challenge within the stroke rehabilitation literature. A systematic search and screening process was used to select literature with high informational value. Included papers were analysed to elicit understandings of the range of purposes, meanings, and uses of challenge, within and across rehabilitation perspectives.

Results: A total of 42 papers were included. Challenge appeared to be a multidimensional and dynamic concept, which was understood through three facets: nominal, functional, and perceived challenge. Nominal challenge was understood as the task difficulty based solely on characteristics of the task. Functional challenge was defined as an interaction between the task difficulty and the person’s ability. Perceived challenge emerged as the person’s subjective experience of challenge. In practice, functional and perceived challenge were predominantly used to create optimal challenge.

Conclusion: Challenge is an important concept that, when carefully optimised to the person’s ability and perception, may positively influence their engagement with and outcomes from stroke rehabilitation.

Implications: Challenge involves a multifaceted, multidimensional, and dynamic interaction between the task, the person’s ability, and their subjective experience. Therapists should consider both functional and perceived approaches to the operationalisation of optimal challenge with the person.

UNCOVERING CLINICAL COMPLEXITY: THE USE OF VIDEO-REFLEXIVE ETHNOGRAPHY AS A METHODOLOGY FOR EXPLORING PHYSIOTHERAPY PRACTICE

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Background: Physiotherapy involves a complex interplay of clinical and relational skills. The profession advocates for a person-centred approach, emphasising the importance of tailoring treatments to individual needs and circumstances, and actively involving patients in their own care. Traditional qualitative research methods provide insight into therapist and patient experiences of rehabilitation, but often lack a full and nuanced exploration of the complexities that underpin practice. Video-reflexive ethnography is a novel methodology that centres on participants’ “insider knowledge” to unpack the taken-for-granted assumptions, implicit interactions, and contextual dynamics that are integral to clinical practice.

Purpose: To explore the applicability and use of video-reflexive ethnography as a qualitative methodology for understanding physiotherapy practice from the perspective of physiotherapists and their patients.

Methods: We outline the purpose and principles of video-reflexive ethnography and discuss its relevance to physiotherapy. We describe three phases of data collection: a) observing a usual rehabilitation session between therapist and patient, b) videoing a usual rehabilitation session, and c) reflexive interviewing where the therapist and patient (individually or jointly) watch video clips of their session to support the exploration of their thoughts and experiences in that moment. We discuss how this methodology can be used through an iterative, collaborative, and robust qualitative process.

Results: Drawing on our own experiences, we present an example of video-reflexive ethnography that explored therapist and patient understandings, uses, and experiences of “task challenge” in stroke rehabilitation.

Conclusion: Video-reflexive ethnography offers a valuable approach to gaining insider knowledge of the complexities of physiotherapy practice, facilitating a deeper exploration of concepts and contexts that may otherwise be overlooked, but are integral to understanding and transforming physiotherapy education, research, and clinical practice.

Implications: The use of video-reflexive ethnography in the physiotherapy profession holds significant implications for professional development, research advancement, and meaningful change in clinical practice.

CLINICAL AND COST-EFFECTIVENESS OF AN ONLINE-DELIVERED GROUP-BASED PAIN MANAGEMENT PROGRAMME NON-INFERIORITY RCT – (ISELF-HELP)

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Background: Current best practice recommends group-based pain management programmes (PMPs) for long-term improvements in persistent pain-related disability.

Purpose: This non-inferiority trial aims to evaluate the clinical and cost-effectiveness of a group-based, online-delivered PMP (iSelf-help) compared to in-person PMP in reducing pain-related disability.

Methods: The iSelf-help non-inferiority randomised controlled trial is a pragmatic, assessor-blinded, two-arm RCT. Adults (age ≥ 18 years) with persistent non-cancer pain referred to a tertiary pain service deemed eligible for a PMP were recruited and block randomised to intervention (iSelf-help) and control groups (in-person PMP). The iSelf-help group participated in two 60-min video-conferencing sessions weekly for 12 weeks (first session led by a peer-support facilitator with lived experience of pain; second session led by clinicians) with access to resources via smartphone application and a password-protected website. Control participants received 12-week group-based, in-person PMP.

Results: We recruited 113 participants (56 iSelf-help and 57 in person) with a *M* (*SD*) age of 38.2 (13.7) years. The participants were 75% (*n* = 85) female, 8% (*n* = 9 gender diverse), 16% (*n* = 18) Māori. Based on an Intention to treat analysis on the primary outcome (Modified Roland Morris Disability Questionnaire) at six months (*n* = 73), iSelf-help was non-inferior to the in-person group with a point estimate of –0.4 (∞ = 1.5). It was also non-inferior for the secondary outcomes of Anxiety, Depression, Stress, Activity interference, Quality of life and Self-efficacy. Programme delivery cost per patient was lower for iSelf-help participants. No serious adverse events were reported.

Conclusion: This is the first online delivered group-based PMP with comparable clinical effectiveness in improving pain-related disability in people with persistent pain.

Implications: iSelf-help provides an economic and safe alternative group-based pain management option with increased geographical reach. Theoretically, it could enable choice between their preference for in-person or online health service delivery, providing a more person-centred approach to pain management.

A STRENGTHS-BASED RESILIENCE INTERVENTION FOR INFORMAL CARERS OF STROKE SURVIVORS: A FEASIBILITY STUDY

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Background: Informal carers play a significant role in stroke recovery, but care provision can be challenging, including emotional distress, anxiety, and social isolation. With the abruptness of stroke presentation and the psychological stress of suddenly supporting a person with stroke, interventions that enhance carers' ability to cope with and build resilience are required.

Purpose: To report the feasibility and benefits of a strengths-based resilience intervention (SBRI) for carers of stroke survivors.

Methods: Based on systematic review and qualitative findings along with experts' advice, a recognised strengths-based resilience intervention was modified and evaluated using a randomised controlled trial comparing SBRI with usual care. SBRI was group delivered once a week for 8 weeks by a researcher with a psychology background and a trained Stroke Foundation advisor. SBRI focused on resilience skills, growth, flexible thinking, and identifying and cultivating character strengths. Qualitative interviews explored benefits and acceptability, and sought improvement suggestions. Data were analysed with the General Inductive Approach. Quantitative measures (Connor-Davidson Resilience Scale (CD-RISC)) and Psychological General Well-Being Index (PGWBI) scores were compared between groups using Cohen's *d*.

Results: Of 27 participants (New Zealand European = 23, Māori = 2, Asian = 2, male carer = 1; age *M* (*SD*) = 61(7), range 52–77 years), 13 were randomised to the SBRI group. SBRI was feasible to deliver, acceptable, and potentially beneficial, but more suitable to carers two years post-stroke. A significant between-group difference was found for CD-RISC ($p = 0.01$, $d = 1.01$) post-intervention.

Conclusion: SBRI was found potentially beneficial and acceptable, and worthy of further investigation. Additional input is required for new carers. Future trials must broaden recruitment diversity.

Implications: Interventions focusing on carers' resilience should be integrated into stroke rehabilitation to ensure sustainability of care provided to stroke survivors, thus enhancing stroke recovery. Physiotherapists can be trained to deliver SBRI to develop their role of supporting carers.

POSTURAL CONTROL IN CHILDREN WITH STRABISMUS: A LONGITUDINAL INVESTIGATION ON SENSORY WEIGHTING

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Background and purpose: Appropriate visual input is crucial in the early years of life to develop effective postural control, by coordinating the body's three sensory systems: visual, vestibular, and somatosensory systems. Strabismus (misalignment of eyes) is a relatively common childhood ophthalmic disorder that can impact on the development of effective postural control. This longitudinal study aimed to investigate changes in sensory weighting for postural control over time in children with and without strabismus.

Methods: Twenty-four children with strabismus (study group) and 22 matched control participants (control group) completed the Sensory Organization Test (SOT), BOT® Balance subscale, and Paediatric Balance Scale at three time points (baseline, 6, and 12 months). SOT of the NeuroCom Smart Equitest® was the primary outcome measure that systematically manipulated the available sensory information on six sensory testing conditions. The key variables of interest were the percentage measure of balance (Equilibrium Score) for each of the six conditions and a weighted summary score of all the six conditions (Composite Score). The BOT (0–24) and PBS (0–54) consist of a series of balance assessment tasks that were scored numerically on the items and reduced to a summary score.

Results: A significant group effect (between-participants, $p < 0.001$; *F* statistic ranging between 71.83 and 2701.76) was found for ES of the SOT condition 3 (sway-referenced surround – manipulating the visual information) and condition 4 (sway-referenced support – manipulating peripheral somatosensory information) and composite score when adjusted for age and baseline measures.

Conclusion: The sensory weighting for postural control changes over time in children as they develop, and this reweighting phenomenon is different between children with and without strabismus.

Implications: Findings highlight the importance of considering the difference in sensory weighting in children with strabismus and incorporate sensory reorganisation exercises in any part of rehabilitation when working with people with strabismus.

STROKE SURVIVOR EXPERIENCES OF TELEHEALTH DELIVERY OF CONSTRAINT INDUCED MOVEMENT THERAPY: THE RECITE STUDY

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Background: Constraint-induced movement therapy (CIMT) is recommended in the Australian and New Zealand Clinical Guidelines for Stroke Management, however only 11% of eligible stroke survivors receive CIMT. Difficulties attending face-to-face therapy is a key barrier to accessing CIMT for stroke survivors. The remote constraint induced therapy of the upper extremity (ReCITE) study explored the feasibility and acceptability of delivering CIMT via telehealth (TeleCIMT).

Purpose: To explore the experiences of stroke survivors who have completed a three-week TeleCIMT programme.

Methods: Qualitative design using semi-structured interviews. Stroke survivors who had completed a three-week TeleCIMT programme as part of usual rehabilitation were interviewed individually one month post programme completion. Interviews were conducted by an independent researcher. Interviews were audio-recorded, transcribed, and imported into Nvivo for thematic analysis using inductive coding.

Results: Sixteen participants agreed to be interviewed following their TeleCIMT programme. While participants reported seeing improvements in their arm function from TeleCIMT, there were several challenges to programme adherence. Challenges to the programme included the reduced level of direct therapist input and the use of technology when conducting a programme online. Participants also reported a high time burden for programme preparation and recording of practice as well as challenges tolerating six hours of mitt wear per day within the home. Most participants completed their programmes without a supporter; however, they reported having a support person would have been beneficial for programme adherence, assisting with paperwork and to provide encouragement. The programme was acceptable to stroke survivors with all participants stating they would recommend the programme to others.

Conclusion: Stroke survivors describe TeleCIMT as an acceptable intervention. Additional support is required for technology use and recording practice.

Implications: CIMT delivery via telehealth creates an opportunity to reduce inequity in healthcare access and enhance delivery of stroke services within Aotearoa for stroke survivors.

ON THE FACE OF IT: IMPLEMENTING NEW ZEALAND’S FIRST MULTI-DISCIPLINARY FACIAL PALSY SERVICE

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Background: Multi-disciplinary facial palsy clinics are considered best practice internationally for the management of peripheral facial palsy. There is increasing evidence that specialised facial physiotherapy improves facial function and quality of life, and decreases synkinesis. Synkinesis is abnormal regrowth of the facial nerve leading to unwanted co-contractions of muscles during attempted movement.

Purpose: To establish New Zealand’s first multi-disciplinary clinic for facial palsy patients initially within the greater Wellington area and provide evidence-based facial therapy for patients living with facial palsy.

Methods: A three-monthly facial palsy clinic with a physiotherapist, plastic and craniofacial surgeon, and close contact with an opthalmologist was established in August 2023. Referrals are accepted for patients with a peripheral facial palsy that has not resolved within four months of onset. An initial joint assessment covers eye care, functional problems, psychological impact, previous therapy, and patient goals. Photos, video, and outcome measures are recorded including the Sunnybrook Facial Grading System

(FGS). Appropriate therapeutic management is started depending on the stage of recovery. This may include education, soft tissue mobilisation, taping, and facial neuromuscular retraining. The team discusses chemical dennervation for synkinetic muscles or surgical intervention where appropriate.

Results: Seventeen referrals have been received. One patient declined treatment and two patients have only had initial assessments. The remaining 14 patients show an average improvement in FGS between initial assessment and first follow up (approximately one month) of 12 points. Thirteen out of 14 patients showed an improvement with one remaining the same. The mean time since onset of palsy was 21 months.

Conclusion: Early results show a positive impact in symmetry, function, and synkinesis from access to specialised multi-disciplinary facial palsy care.

Implications: Facial palsy patients should have access to the benefits of specialist multi-disciplinary care in New Zealand. This could be delivered through tele-health to improve access.

CHANGES IN PHYSICAL IMPAIRMENTS IN FEMOROACETABULAR IMPINGEMENT SYNDROME FOLLOWING ARTHROSCOPIC SURGERY: SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Femoroacetabular impingement syndrome (FAIS) is a motion-related condition that can cause hip pain in active young adults. Evidence supports an association with chondral pathology and a 2.2–2.4 times increased risk of hip osteoarthritis. Arthroscopic surgery is a technique performed to normalise hip morphology associated with FAIS. Knowledge regarding physical impairments associated with the condition is limited to inform rehabilitation requirements and optimise patients' outcomes.

Purpose: The purpose of this systematic review was to investigate changes in physical impairments in those with FAIS pre- and post-arthroscopic surgery.

Methods: Six databases (CINAHL, EMBASE, MEDLINE, PubMed, SportsDiscus, and Web of Science) were searched for English-language studies reporting on pre- and post-operative physical impairments using physical outcome measures. Reporting quality was assessed using the Grading of Recommendations Assessment, Development and Evaluations (GRADE) framework, the Cochrane Risk of Bias tools, and for pooled data (standardised mean difference (*SMD*), and 95% confidence intervals (CI)).

Results: Seventeen studies were included (two randomised controlled trials; 15 pre-/post-intervention studies), varying from low-critical risk of bias and very low reporting quality on the GRADE. Post-operatively, in the meta-analysis, participants with FAIS walked with a higher peak hip flexion moment (SMD 0.5, 95% CI [0.1–0.88]; heterogeneity $I^2 = 0\%$, $p = 0.82$). Effects of surgery on hip strength are inconsistent, but suggest improved flexion, extension, abduction, adduction, and external rotation. Additionally, post-operative FAIS patients demonstrated decreased peak hip extension moments during walking and squatting, decreased gluteus maximus contraction time, and motor-control alterations.

Conclusion: The review suggests that people with FAIS displayed changes in their physical impairments pre to post surgery. Further research is required to understand the effect of arthroscopic surgery on physical impairments in specific subgroups of FAIS (cam v. pincer v. combined morphology).

POST-EXERTIONAL MALAISE IS THE PROBLEM, NOT ME

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Background: There is limited research into safe exercise prescription in post viral conditions such as myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and post-acute COVID-19 syndrome (PACS), reflecting the lack of financial investment. Post exertional malaise (PEM) describes exhaustion from physical, cognitive, and sensory activities. The onset of fatigue experienced can be delayed and the impact can last for days or longer and exceeds the level of activity that preceded it. PEM is a key feature of post-viral conditions. Results from 2-day cardio-pulmonary exercise testing (2dCPET) demonstrate a dysfunction of the aerobic energy system; however, there are strong ethical considerations and challenges accessing 2dCPET. PEM is poorly understood by health care practitioners leading to unsafe exercise prescription.

Purpose: An assessment flowchart was created to show considerations to guide exercise prescription for individuals with PEM, to ensure a symptom-led approach to return to activities and exercise.

Methods: Existing recommendations for exercise after COVID-19 were reviewed and juxtaposed with current recommendations for the management of PEM. Insights were gathered from physiotherapists experienced in treating such conditions, leading to the development of screening questions. The flowchart delineates three primary pathways: further assessment by a GP, PEM evaluation, and a symptom-led return to exercise, detailed in the accompanying table. The flowchart was disseminated to physiotherapists and stakeholders knowledgeable in PEM and the flowchart was refined based on their feedback.

Results: The flow chart has been disseminated to physiotherapists and medical staff working in with people with post-viral conditions.

Conclusion: The lack of understanding regarding PEM and the issues surrounding 2dCPET hinder the safe rehabilitation of individuals with PEM. The practical tool provides a systematic approach to safely assess and prescribe symptom-guided exercise.

Implications: Individuals experiencing PEM can be assessed and guided through a symptom-led approach to exercise prescription to avoid exacerbating symptoms.

GUIDING OCCUPATIONAL HEALTH PHYSIOTHERAPY INTO THE FUTURE: AOTEAROA NEW ZEALAND'S PRACTICE GUIDELINES (2023)

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Background: Occupational health (OH) physiotherapists contribute to health and wellbeing through prevention and management of work-related injuries and illnesses. They collaborate with individuals and organisations to identify and eliminate occupational hazards while meeting the needs of workplaces and stakeholders.

Purpose: These guidelines define what an OH physiotherapist in New Zealand does, the core skills, roles, and competencies. This innovative guide is a first in New Zealand Physiotherapy, providing both clear practice and career development guidance. It also aims to elevate the quality of OH practice and promote its value in business and education sectors.

Methods: Seven experienced OH physiotherapists recruited from the OHPG SIG collaborated over 18 months. The group extensively researched and consulted with international and local industry experts including the Physiotherapy Board of New Zealand, Tae Ora Tinana, the International Federation of Physiotherapists working in Occupational Health and Ergonomics (IFPOHE) to maximise credibility to support our profession's growth both nationally and internationally.

Results: The guideline document produced outlines the core skills of an OH physiotherapist progressions through one's career. Different areas of OH physiotherapy are highlighted including ethical and professional practice, communication, collaboration, education, and leadership. Case studies are used to illustrate these skills in practice. The guidelines link with relevant legislation, standards, and acts, also outlining essential knowledge and working relationships within OH physiotherapy.

Conclusion: OH physiotherapists offer unique expertise in understanding workplace context and the relationship with health and function. They play a vital role in injury prevention and rehabilitation, bridging clinical and workplace settings for informed and successful health outcomes.

Implications: These guidelines mark an innovative step in physiotherapy, defining OH physiotherapy in New Zealand for the first time. They serve as a valuable resource for professional development and position New Zealand as a leader in this field internationally.

WHAT PHYSIOTHERAPISTS BELIEVE ABOUT SELF-MANAGEMENT AND LOW BACK PAIN

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Background: Low back pain (LBP) places a burden on individuals, whānau, and health care systems. Self-management of LBP is critical due to high recurrence rates, and persistent disability. Self-management includes the person's decision-making ability, health behaviours, and knowing when and where to seek health care support, potentially reducing the burden on people with LBP and health care systems. Little is known about physiotherapists' attitudes and beliefs towards supporting self-management with people with LBP.

Purpose: We explored New Zealand physiotherapists' knowledge of self-management concepts, including attitudes and beliefs about supporting self-management with people with LBP.

Methods: Interpretive Description involving semi-structured interviews conducted via Zoom with in-depth data interpretation were conducted.

Results: Seventeen physiotherapists, ranging from 24 to 65 years and early graduate to 40+ years of experience, participated. Two defined themes were: (1) Apportioning responsibility; from the belief that an episode of LBP resolves within 12 weeks, participants suggested it was the person's fault if LBP either persisted or recurred, or something to do with the person's individual attributes; and (2) Understanding self-management; all participants considered self-management as important, but description of key elements, beyond education and exercises, and strategies to support acquirement of skills by the person with LBP were limited.

Conclusion: Participants had a good understanding about the complexity of LBP yet lacked contemporary knowledge of the natural history of LBP. Participants identified limited key concepts of what self-management entails. Encouraging decision making, behavioural change, problem solving, action planning, and seeking help when required may not be used by NZ physiotherapists to support self-management.

Implications: Physiotherapists should challenge their current biases and beliefs and assimilate more contemporary evidence into their expectations of recovery for LBP. Education and resources about the core components of effective self-management and strategies of how to implement self-management into clinical practice should be encouraged.

AN ONLINE ACTIVITY-FOCUSED COACHING PROGRAMME HELPS REDUCE FATIGUE IN PEOPLE AFTER GUILLAIN-BARRÉ SYNDROME

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Background: As many as 60–80% of people with Guillain-Barré Syndrome (GBS) report persistent fatigue that significantly limits everyday functioning despite motor recovery. In other neurological conditions, there is evidence regular physical activity can reduce fatigue and it is plausible this may also apply to people with GBS.

Purpose: We evaluated the effectiveness, feasibility, and acceptability of an online physiotherapist-led activity-focused coaching programme designed to decrease fatigue in people who had prior GBS.

Methods: We recruited eight people diagnosed with GBS more than two years previously with fatigue limiting daily activity. We used mixed methods with a single system design to evaluate the impact on fatigue, activity, wellbeing, and confidence to exercise through repeated measures of the outcomes across three phases (baseline, intervention, follow-up). We used qualitative interviews to explore participants' perspectives of the programme.

Results: The online activity-focused coaching programme was effective in reducing fatigue for most participants. Participants found the programme both feasible and acceptable. They perceived benefit from the online sessions, which were supplemented by reminders and other forms of feedback set up during the sessions. Participants liked the coaching style and found it useful to develop a personalised plan to manage fatigue through setting goals and making an action plan, reflecting on progress and trying out ways to keep themselves on track. Participants felt they learnt a lot about fatigue, themselves, and strategies to manage fatigue, which included graduated physical activity.

Conclusion: Graduated physical activity is an important part of managing fatigue after GBS. A coaching approach helped participants develop skills to set goals and make a personalised plan to manage fatigue.

Implications: Physiotherapists are well positioned to guide physical activity to manage fatigue. The incorporation of coaching with physiotherapeutic knowledge can give clients skills and confidence to manage their condition.

DEVELOPMENT OF AN ENTRUSTABLE PROFESSIONAL ACTIVITIES FRAMEWORK FOR ORTHOPAEDIC PHYSIOTHERAPY PRACTITIONER ROLES IN NEW ZEALAND

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Background: In New Zealand, an increasing number of physiotherapists have been engaged in orthopaedic triage and assessment roles within elective orthopaedic departments to help improve timely access to diagnostic assessment and treatment planning for people referred to orthopaedic services. To date, no framework has been available to guide physiotherapists and surgeons in developing these roles.

Purpose: To develop a framework for physiotherapists and trainers to support orthopaedic triage and assessment in New Zealand.

Methods: An informal scoping review on education and competencies for advanced practitioners was conducted. A focused discussion between physiotherapists with experience in these roles using ten Cates methodology resulted in the development of an Entrustable Professional Activity (EPA) framework.

Results: The EPA framework identifies five key clinical activities performed in these triage roles and defines the context, limitations, knowledge, skills, attributes, and behaviours needed for each. The EPAs are mapped to existing New Zealand physiotherapy competencies and key competencies identified that are needed before entrustment of these activities with minimal or no supervision.

Conclusion: This EPA framework is intended for use in Elective Orthopaedic Departments, to support the development of physiotherapists working in orthopaedic triage and assessment roles in clinical subspecialty areas.

Implications: This framework provides a tool for the physiotherapy profession to develop into orthopaedic practitioner roles. However, this can be tailored for any advanced subspeciality area.

EXPLORING THE LIVES OF KIWI WOMEN AFTER SERIOUS KNEE INJURY

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Background: Women are increasingly sustaining significant knee injuries, particularly young women. Last year, over 100,000 women experienced some form of significant knee trauma in Aotearoa New Zealand. After injury, women are 2 to 3 times more likely to be inactive and have an increased risk of developing post-traumatic osteoarthritis (PTOA) compared to uninjured women. PTOA makes up two-thirds of all female knee arthritis and can manifest from six years post injury. Consequently, women may be navigating impacts of PTOA for most of their adulthood. While there are concerted efforts to prevent knee injury for women, no research has yet explored the impact significant knee injury has on the lives of New Zealand women. A thorough understanding of this experience would help to enhance the long-term outcomes for women after significant knee injury.

Purpose: We aimed to explore how women in Aotearoa New Zealand navigate life after a significant knee injury.

Methods: This interpretive descriptive qualitative study purposively recruited 18 women from across Aotearoa New Zealand with experienced of significant knee injury to participate in semi-structured interviews. Data were analysed using Reflexive Thematic analysis.

Results: Key themes were created, including "The invisible burden", which highlights the constant consideration of their knee, long after their knee had healed; "Navigating without a map", which reflects the guesswork and confusion surrounding how to care for their knee(s) after acute treatment ends; and "Pain not taken seriously", which describes how women felt their pain was often not treated with respect and empathy.

Conclusion: This study provides valuable insight into the experiences, attitudes, and beliefs of a diverse group of 18 women after significant knee injury.

Implications: These findings help to understand the impact that significant knee injury has on women's lives. Subsequently this information will help inform future programmes and policies for long-term knee injury management.

CO-DESIGNING AN OA BOOKLET FOR AOTEAROA NEW ZEALAND

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Background: Osteoarthritis is prevalent in Aotearoa New Zealand, affecting 1 in 10 adults. However, people are not always equipped with the knowledge to self-manage their condition. Written resources can help to overcome this knowledge gap. Yet, existing educational resources can be fragmented, long-winded, not evidence-based, and lack cultural context.

Purpose: We aimed to co-design a short, evidence-based educational booklet for people with osteoarthritis in Aotearoa New Zealand.

Methods: We employed a co-design approach involving people with osteoarthritis and physiotherapists caring for them. We held a co-design workshop and online focus group, where an existing osteoarthritis guidebook was discussed to inform design and content preferences for the short booklet. Data was coded and analysed, and key recommendations were made. These recommendations informed the development of a prototype resource distributed to the participants for critical review. Participants provided written feedback on the prototype, which informed the refinement of the final resource.

Results: Five key themes were constructed from the data: the importance of design, maintaining simplicity, portraying osteoarthritis as more than just a joint condition, collaboration with healthcare professionals and organisations, and patient empowerment. These themes guided the content selection and design of the prototype resource. Prototype feedback focused primarily on the language used and the accuracy of the information for the Aotearoa New Zealand context.

Conclusion: The findings informed practical recommendations to guide the development of a prototype booklet; further refinement led to a short, contextually relevant OA resource for Aotearoa New Zealand.

Implications: This short, co-designed, evidence-based booklet research will provide people with osteoarthritis in Aotearoa New Zealand with accessible information and self-management strategies. The free-to-use resource will be available via hospitals, health clinics, and Arthritis New Zealand's website. This has the potential to improve patient knowledge and outcomes.

EXPLORING THE LONG-TERM WELLBEING OF PEOPLE WITH POST-TRAUMATIC KNEE OSTEOARTHRITIS FOLLOWING ACL REPAIR IN AOTEAROA

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Background: Anterior cruciate ligament (ACL) ruptures are common knee injuries that increase the risk for post-traumatic osteoarthritis. In Aotearoa, about 2500 people under 30 experience an ACL rupture and undergo ACL reconstruction surgery yearly. Due to the young age at the time of injury, many will experience radiological and symptomatic osteoarthritis before the age of 50 and have a higher likelihood of total knee replacement compared to the general population.

Purpose: This study aimed to gain insight into the long-term impacts of ACLR on people's well-being in Aotearoa by exploring their lived experiences five-plus years post-injury.

Methods: We conducted interviews with 12 people aged between 25 and 62 years who had an ACL rupture and had undergone surgical repair. We analysed the interview data using Reflexive Thematic analysis to identify themes.

Results: We constructed three themes from the data: (1) Nobody ever told me …, (2) The post-rehabilitation void, and (3) The elephant in the room: The psychosocial impact. Participants indicated feeling poorly informed of the long-term consequences of ACL rupture and indicated there appeared to be limited long-term rehabilitation and management options after they had recovered from the initial surgery. Participants commonly described fear, grief, and long-term psychological and social impacts, and most reported wanting to know more about the long-term management of their knee health.

Conclusion: The study highlights opportunities to provide better long-term support and management, improve outcomes and outcome expectations, and reduce the burden after an ACL rupture.

Implications: ACL injury profoundly impacts people's hauora (wellbeing). Better education, support services, and consideration of psychosocial factors are needed. Addressing identified barriers could reduce the individual and socioeconomic burden of post-traumatic osteoarthritis following ACL injury for New Zealanders. Future research involving stakeholders must establish acceptable long-term management programmes tailored to the local population.

EXPLORING PUBLICLY FUNDED PHYSIOTHERAPY SERVICES FOR PEOPLE WITH LOW BACK PAIN AND OSTEOARTHRITIS IN AOTEAROA

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Background: Osteoarthritis and low back pain (LBP) are the most common chronic musculoskeletal conditions in adults in Aotearoa, affecting approximately 13% and 9% of the population, respectively. Physiotherapists are commonly involved in managing both conditions. However, little is known about the range of publicly funded physiotherapy services available to people with osteoarthritis and LBP across Aotearoa.

Purpose: This study aimed to describe physiotherapy services and clinical pathways delivered across Aotearoa's 20 District Health Boards (DHBs[a]) for people with osteoarthritis and LBP.

Methods: Semi-structured interviews with fourteen DHB physiotherapists occurred between March 2022 and August 2023. Interview questions focused on describing clinical services for people with osteoarthritis, and LBP. Data were analysed using direct content analysis.

Results: Four main themes were identified: the ambiguity of primary, secondary, and tertiary care (overlap of services and different designations); organisational structure; getting into the system; and what is on offer. An overarching theme was the variation in service provision, organisational structure, and people's experiences navigating the system.

Conclusion: Our study shows significant inequities in healthcare services for people with osteoarthritis and LBP. It highlights the necessity of implementing systematic changes to ensure fair access to high-quality treatment, irrespective of payment status, ethnicity, or geographical location. This requires addressing these concerns at relevant forums and policy-making platforms.

Implications: Our findings demonstrate that while a diverse range of services are available for people with osteoarthritis or LBP, the lack of consistency may lead to inequities in patient experience, depending on location and ability to navigate the healthcare system. This inconsistency in service delivery could potentially cause confusion for patients, healthcare providers, and funders, resulting in gaps and overlaps in care. This is crucial for all stakeholders in the healthcare system.

[a] DHB used as Te Whatu Ora was yet to be established at the time of data collection.

LUNG VOLUME RECRUITMENT IN CHILDHOOD ONSET NEUROMUSCULAR DISEASE

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Background: Non-invasive ventilation has significantly increased life expectancy for individuals with neuromuscular diseases (NMDs). Research is now suggesting that tidal volume ventilation alone is insufficient to manage the vicious cycle of increasing load and progressive weakness that presents. In NMDs, muscle weakness renders ineffective spontaneous sigh breaths, yawns, and coughs. Proposed to maintain lung expansion, compliance, and secretion clearance, the absence of these supratidal inhalations leaves individuals at elevated risk of respiratory tract infections. This is especially evident in childhood-onset NMDs, in which progressive muscle weakness occurs in the context of both pulmonary and musculoskeletal development. Lung volume recruitment (LVR) is a simple inexpensive technique used to augment inspiration, either before a cough or on a regular basis to mimic lost spontaneous deep breathing activities. LVR has demonstrated effectiveness in improving assisted peak cough flow values across the spectrum of adult onset NMDs

Purpose: The focus of this systematic review was to consider whether LVR had an effect on pulmonary function test parameters in individuals with progressive childhood-onset NMDs.

Methods: A systematic search was undertaken in January 2019 considering LVR in the respiratory management of childhood-onset NMDs. Studies were critically appraised using tools from the Joanna Briggs Institute and data extracted using an adapted tool from the Cochrane effective practice and organisation of care group.

Results: Results were compiled using a narrative synthesis approach focused on peak cough flow, forced vital capacity, and maximum inspiratory capacity outcomes.

Conclusion: Though limited, evidence suggests an immediate positive effect of LVR on peak cough flow and a potential long-term effect on the rate of forced vital capacity decline.

Implications: Considering the accepted correlation between forced vital capacity and morbidity, this review suggests that LVR be considered for individuals with childhood-onset NMDs once forced vital capacity starts to deteriorate.

EFFECTIVENESS OF A BOWEL EDUCATION CLASS TO REDUCE PATIENT WAIT TIMES FOR PELVIC HEALTH PHYSIOTHERAPY

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Background: Increasing referrals to pelvic health physiotherapy service (PHPS) at Waitematā District Health Board (DHB) for bowel conditions contributed to extended wait times and inequities compared to referrals for bladder or pelvic floor conditions who attended an education class.

Purpose: To assess the feasibility of implementing a Bowel Education Class (BEC) to reduce waiting times for the PHPS at Waitematā DHB and seek feedback on patient experience.

Methods: The BEC was developed in consultation with the multidisciplinary team. Existing PHPS waiting list and incoming referrals were screened by a Senior Pelvic Health Physiotherapist. Inclusion: bowel-related conditions referred from colorectal service. Exclusion: required interpreter, multiple co-morbidities, or combined bowel and bladder issues, patient declined class. Patients were contacted by an administrator and invited to attend. BEC attendees were asked to complete a questionnaire following completion of the two-part class. Following BEC attendance patients were invited to book an individual PHPT appointment.

Results: BEC ran bimonthly between February and December 2019. Sixty-seven patients were invited to attend: 40 attended in-person, and seven attended via telehealth video appointment (70.1% attendance). Ninety-four percent of attendees agreed or somewhat agreed that class content was relevant and 89% reported their confidence in managing their symptoms as good, very good, or excellent. Eleven attendees booked 1:1 follow-up with the physiotherapist. Wait times to access physiotherapy service for bowel-related conditions reduced from > 9 months < 4 months over the trial period.

Conclusion: Implementation of the BEC by the PHPS at Waitematā DHB was feasible, well-attended, improved patient confidence in bowel symptom management, and improved waiting times.

Implications: Further investigation required on BEC cultural appropriateness, barriers to attendance, and when follow-up 1:1 physiotherapy was not requested. Consider providing access to BEC information earlier in the patient pathway. Opportunities for nationalising BEC in Health NZ including telehealth processes.

DEVELOPMENT OF EVIDENCE-BASED STANDARDS FOR INPATIENT PHYSIOTHERAPY SERVICES: A REVIEW OF CLINICAL PRACTICE GUIDELINES

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Background: High-quality clinical practice guidelines (CPGs) deliver recommendations based on systematic reviews of the literature and consensus methodology. This systematic review and content analysis of CPGs seeks to inform the establishment of evidence-based standards for inpatient physiotherapy services. Establishing standards that can be used to measure service performance is critical to service design and successful business cases.

Methods: Between July and September 2021 scholarly databases (Web of Science, CINAHL and Scopus, PEDro) and grey literature (Guideline databases (NICE, SIGN, ECRI guideline trust, Guidelines International Network (GIN)) were searched for CPGs related to conditions and therapy approaches commonly encountered by physiotherapists working in a secondary care setting. Inclusion: Conditions commonly encountered by physiotherapists in a secondary care setting or physiotherapy treatment approaches in a guideline or recommendation. Exclusion: Mental health conditions, paediatrics, COVID-19, and conditions common to tertiary care such as burns, spinal cord injury, and cardiothoracic surgery. A pragmatic approach was taken to group the guidelines aligned with common physiotherapy services and select only the most recent and comprehensive guidelines for final analysis. Thirty-two CPGs were selected, and quality was assessed using the Appraisal of Guidelines for Research and Evaluation Instrument (AGREEII). Content analysis of guideline recommendations grouped data into themes covering dosage and content. Statements were drafted to represent the data gathered for each group of guidelines.

Results: The recommendations of 32 CPGs yielded 27 statements.

Conclusion: Twenty-seven statements represent a distillation of the best evidence-based practice recommendations from CPGs in inpatient physiotherapy.

Implications: Recommendations for dosage (frequency, intensity, and duration) of physiotherapy are not available for many areas of practice; researchers and clinical practice guideline groups should consider the importance of these data for service commissioning.

PHYSICAL ACTIVITY LEVELS IN CHILDREN WITH BRONCHIECTASIS LIVING IN COUNTIES MANUKAU, NEW ZEALAND

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Background: Bronchiectasis guidelines encourage children to participate in regular physical activity, but there is minimal guidance supporting these recommendations and limited knowledge surrounding current physical activity participation.

Purpose: To investigate how physically active children with bronchiectasis living in Counties Manukau are compared to their healthy peers, and how often they achieved daily recommendations of at least 60 min of moderate to vigorous physical activity (MVPA) across the week. Secondary aims explored associations between MVPA and demographic or disease severity markers, and the mode of activity and time of day children with bronchiectasis engage in physical activity.

Methods: A quantitative, cross sectional, observational study was undertaken. Thirty-one children aged 7 to 12 years participated in the study: Bronchiectasis group, n = 18; Control group, n = 13. Time spent in MVPA was measured over seven consecutive days using wrist-based ActiGraph wGT3X+ accelerometers. Mode of activity and time of day children engaged in physical activity were measured using the Physical Activity Questionnaire for Children (PAQ-C).

Results: The Bronchiectasis group completed 31.6 (*p* = 0.034) less minutes of MVPA per day than the Control group, with both groups demonstrating significantly higher (*p* = 0.002) MVPA minutes on weekdays compared to weekend days. On average, 62.3% of the Bronchiectasis group and 86.4% of the Control group achieved daily MVPA recommendations. Weak to moderate associations were found between MVPA minutes and body mass index and socioeconomic hardship. Both groups were most active at school during the week, participating in more informal schoolyard games than organised activities.

Conclusion: Children with bronchiectasis are less active than their peers and achieve daily MVPA recommendations less often. Children are most active during the week at school.

Implications: In-depth physical activity assessment needs to be incorporated in routine bronchiectasis management to proactivity identify and manage inactivity and its associated comorbidities.

“DOORS KEEP CLOSING EVERYWHERE.” EXPERIENCES OF ACCESSING PRIMARY CARE BY PEOPLE LIVING WITH LONG COVID

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Background: Long COVID, or post-COVID condition, is the persistence of symptoms beyond 12 weeks following acute COVID-19 infection. It is estimated to affect one in 10 people, can present with wide-ranging symptoms, and, in some cases, is extremely debilitating. With few publicly funded long COVID clinics, most people rely on primary care providers as a first point of contact. There is currently limited understanding of the experience of accessing primary health care by adults living with long COVID in Aotearoa New Zealand.

Aim: To explore the experiences of accessing primary health care by adults living with long COVID.

Methods: A narrative inquiry approach was used to capture participants’ lived experiences of accessing primary health care. Zoom interviews were conducted with study participants either in groups or individually. The automatically generated transcripts were reviewed and corrected where necessary. The collated data were analysed using Braun and Clarke’s thematic analysis.

Results: Eighteen people participated in the interviews. Codes were identified and, through an iterative process, themes were generated, reviewed, defined, and named. Themes included lack of validation; limited knowledge and support; unmet needs; and self-advocacy.

Conclusion: The picture painted by participants was bleak with a sense that the world had moved on from COVID-19 and left them behind. Despite the existence of long COVID for over three years, and the parallels with existing post-viral conditions, there appears to a lack of support in primary healthcare for those living with the condition.

Implications: There is a need to provide support to those delivering primary care to ensure a better healthcare experience for people living with long COVID. This might be achieved through a public awareness campaign, shared educational content for health professionals, and health navigators to advocate for, and support, patients on their healthcare journey.

TRANS, NONBINARY, AND GENDER DIVERSE EXPERIENCES OF PHYSIOTHERAPY

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Background: This research explores the intersection of physiotherapy practice and the experiences of trans, non-binary, or gender diverse (TGNB) individuals in Aotearoa New Zealand.

Purpose: By exploring the experiences of the TGNB community accessing and utilising physiotherapy services, the aim of the study was to understand specific barriers and facilitators of positive physiotherapy experiences within the New Zealand context.

Methods: Semi-structured interviews were conducted with current or former clients of a physiotherapy clinic providing sex and gender-affirming services. Data collection occurred via online videoconferencing. Qualitative data were analysed using reflexive thematic analysis with key themes and subthemes mapped to the socioecological model.

Results: Seventeen participants aged between 15 and 64 years with diverse identities participated in the study. Most (88%) participants were of New Zealand European ethnicity and lived in metropolitan/urban areas. Participants described having poor experiences with physiotherapy prior to engaging with the sex and gender affirming clinic. Four key themes relating to affirming physiotherapy experiences were identified: safety and trust in care, understanding body discomfort or dysphoria, trans inclusive approaches, and challenging cisnormative contexts. Organisational factors contributing to positive experiences centred around the clinic's credibility, safety, visible inclusivity, and consistent sensitivity across the clinical encounter. Interpersonal factors linked to positive experiences included clinicians possessing higher levels of TGNB-specific health knowledge, culturally inclusive practice, and a client-led biopsychosocial approach to care.

Conclusion: While challenges persist for TGNB individuals in the context of physiotherapy, this study underscores achievable changes at organisational and interpersonal levels within physiotherapy clinics.

Implications: By prioritising safety, inclusivity, and TGNB-specific knowledge, physiotherapists can actively contribute to fostering positive experiences for the TGNB community.

PATIENT PREFERENCES FOR TELEREHABILITATION COMPARED TO IN-PERSON PHYSIOTHERAPY: A DISCRETE CHOICE EXPERIMENT

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Background: Telerehabilitation may improve accessibility and cost-effectiveness of rehabilitation services but patients' willingness to engage in telerehabilitation may be influenced by technical or personal factors.

Purpose: This study aims to explore how patient preferences for telerehabilitation or in-person consultations are influenced by attributes of physiotherapy consultations and patient demographics.

Methods: A binary discrete choice experiment was utilised. Participants chose between telerehabilitation and in-person consultations across 12 hypothetical scenarios, each with a different combination of attributes related to each choice. The primary outcome measures were attributes related to the choice between telerehabilitation and in-person consultations: appointment duration, cost, travel distance, purpose, therapist, time of day, and wait time. Statistical analysis used conditional logit models and demographic data were collected to analyse the impact of these factors on preferences.

Results: One hundred and fifty-two participants (76% women; *Mdn* age = 32 years) who had attended physiotherapy consultations were recruited for the study. Most (90%) participants were comfortable with technology and primarily used mobile or tablet devices. Patients preferred telerehabilitation when travel distance to the in-person alternative was 20 km or 35 km relative to 5 km, when the appointment was 15 minutes, scheduled in the afternoon, or when the wait time was shorter (1 day or 1 week relative to 1 month). Preference for telerehabilitation appointments increased among people in inner regional versus urban areas or with high-speed internet but was decreased among people with chronic health conditions.

Conclusion: Preferences for telerehabilitation consultations were higher for shorter sessions where the in-person alternative was some distance away, as well as among patients with high-speed internet, particularly from inner regional areas. Chronic health conditions decreased preference for telerehabilitation.

Implications: These findings offer potential insights for tailoring of physiotherapy service delivery to fit diverse patient preferences to better engage patients and improve care.

SO, YOU THINK YOU CAN DANCE? DANCING WITH SAMOAN CULTURAL SAFETY BETWEEN POWER AND VULNERABILITY

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Background: A culturally safe health workforce has the capability to remove or reduce the barriers that Pacific peoples face in accessing and receiving high-quality health services by translating Pacific cultural values, concepts, and world views into high-quality, evidence-informed health services. However, there is no specific guidance available on how the physiotherapy profession could plan, promote, and deliver culturally safe health services when working with and for Pacific peoples.

Purpose: This doctoral research aimed to explore the cultural knowledge of Samoan families and physiotherapists living in Aotearoa and Samoa with the view of illuminating how understandings of Samoan cultural philosophies and ways of being and knowing could enhance the rehabilitative role of physiotherapists.

Methods: This qualitative research utilised Talanoa and Fa'afaletui research methodologies as data collection and thematic analysis tools. Drawing from the Fa'afaletui methodology, participants were clustered into five groups: (1) Physiotherapists in New Zealand, (2) Families in New Zealand, (3) Physiotherapists in Samoa, (4) Families, Traditional healers, and Health officials in Samoa; (5) and, finally, a transnational group of Elders.

Results: The participants collectively emphasised the importance of the following thematic concepts in delivering culturally safe physiotherapy with Samoan families: Aiga and Tamaliiaga (Extended family and Genealogy), Teu le va (Tending to relational spaces), Holistic healthcare, Traditional healing practices, and Health systems. These concepts and notable comments from participants led to the utilisation of the traditional Samoan dance called "taualuga" as a conceptual framework to guide cultural safety in engagements with Samoan families.

Conclusion: Samoan families and physiotherapists have described the essential concepts required for best practice, evidence-informed, culturally safe physiotherapy when engaging Samoan families and communities.

Implications: These research findings and the conceptual framework drawing upon the taualuga provides guidance for physiotherapy clinicians, researchers, policy makers, and educators in delivering culturally safe services for and with Samoan families.

CAN PHYSIOTHERAPISTS PREDICT WALKING RECOVERY AFTER STROKE?

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Background: Regaining independent walking after a stroke is significant for patients and their families, as it affects both rehabilitation and discharge planning. Patients and families report wanting information about walking recovery. However, the degree to which physiotherapists can accurately provide predictions on walking recovery is unknown.

Purpose: The aim was to explore whether physiotherapists can accurately predict, at 1-week post-stroke, whether and when their patient will achieve independent walking after stroke.

Methods: Adults with lower-limb weakness and unable to walk independently were recruited within 5 days of stroke from two Aotearoa hospitals. Clinical assessments were completed at 1 week. At 1-week post-stroke, the treating physiotherapist was asked to predict whether their patient would walk independently by 4, 6, 9, 12, 16, or 26 weeks post-stroke. Physiotherapists rated their confidence in their predictions on a 6-point Likert scale. Functional Ambulation Category (FAC) assessment was completed at each timepoint to determine time by which independent walking was achieved, defined as FAC ≥ 4. Binary logistic regressions were conducted with physiotherapist accuracy as the dependent variable and confidence, years of stroke-specific experience, stroke severity, patient age, lower limb strength, and 1-week FAC as independent variables.

Results: We included 91 patients (*Mdn* age 71 years) and 37 physiotherapists (*Mdn* 2 years stroke-specific experience, range 0–14 years). Physiotherapists correctly predicted whether independent walking was achieved by 26 weeks for 80/91 (88%) participants. Predictions of time taken to achieve independent walking were accurate for 39/91 (43%), optimistic for 28/91 (31%), and pessimistic for 24/91 (26%). Prediction accuracy was not related to physiotherapist confidence in their predictions or years of experience (both $p > 0.4$).

Conclusion: Physiotherapists can accurately predict whether a patient will walk independently after stroke but not when they will achieve this.

Implications: Validated walking prediction tools may assist physiotherapists in rehabilitation and discharge planning.

THE TWIST TOOL PREDICTS TIME TO WALKING INDEPENDENTLY AFTER STROKE

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Background: The likelihood of regaining independent walking after stroke is important to patients and their families and influences rehabilitation and discharge planning.

Purpose: The aim of this study was to develop a tool that can be used early after stroke to predict whether and when a patient will regain the ability to walk independently.

Methods: Adults with stroke who had new lower limb weakness and were unable to walk independently were recruited from two large hospitals in Aotearoa. Clinical assessments and transcranial magnetic stimulation were completed 1-week post-stroke. Participants with a motor-evoked potential (MEP) in the tibialis anterior muscle were classified as MEP+. The primary outcome was time post-stroke by which independent walking (Functional Ambulation Category score ≥ 4) was achieved. Cox hazard regression identified predictors for achieving walking by 4, 6, 9, 16, or 26 weeks post-stroke. Predictors were assigned a weighted score and summed to form the TWIST score. MEP status and clinical predictors were combined in binary logistic regression analyses at each timepoint to identify whether MEP status adds value to clinical predictors.

Results: We included 93 patients (*Mdn* age 71 years). Age < 80 years, knee extension strength ≥ 3/5, and Berg balance test score < 6, 6–15, or ≥ 16 were combined to form the TWIST prediction tool. The TWIST tool was at least 83% accurate for each timepoint. MEP status at 1-week post-stroke did not survive analyses when combined with clinical measures.

Conclusion: The TWIST tool accurately predicts whether and when a patient will achieve independent walking after stroke using simple bedside measures 1-week post-stroke. Transcranial magnetic stimulation to determine MEP status is not needed for walking prediction.

Implications: Once validated, the TWIST tool will be an important addition to the physiotherapy toolbox that can advance stroke practice.

IMPLEMENTATION OUTCOMES OF A FRAMEWORK FOR MANAGEMENT OF CONCUSSION IN NEW ZEALAND SECONDARY SCHOOLS (FRANCS)

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Background: Concussions can lead to cognitive and behavioural changes, affecting school performance. We co-designed and implemented a Framework for managing Concussions in New Zealand Schools (FRANCS) to support return-to-learn and -activity.

Purpose: To describe attributes of students reporting their concussion across 12 schools, and to determine implementation outcomes, reported by school stakeholders.

Methods: The schools' concussion officer referred students with a concussion to the research fellows (RFs). The RFs met weekly with the students, assessing the mechanism of injury and concussion-related symptoms with the Symptom Score (SS) of the Child Sport Concussion Assessment Tool (SCAT5). At the end of each year, an implementation outcomes questionnaire with Likert-style (1 = best rating; 5 = worst rating) and open-ended questions was administered to school staff.

Results: Eighty-one students (71% Pākehā, 9% Māori, 5% Pasifika) participated. Eighty-seven percent of the concussions were sports-related. Fifty-six percent of the students met with the RFs once, and the remainder up to five times. The Symptom Scale (*Mdn* (range)) at the first and last meetings were 37.5 (0–74) and 28.0 (0–77, $n = 35$) respectively. Twenty-four school stakeholders completed the implementation questionnaire: 21 found that FRANCS was "mostly" or "completely" successfully implemented, and 22 would use FRANCS beyond project completion. Student and parent compliance had the least favourable scores (*Mdn* > 2). Support provided by the RFs, and the process of FRANCS were highly valued. Challenges included lack of time and inconsistent buy-in from some students, whānau, staff, and coaches.

Conclusion: Although the implementation process was mostly regarded as successful, strategies to manage administrative burden, and education to highlight the seriousness of concussion with all stakeholders, are needed to improve buy-in.

Implications: FRANCS can be for schools to provide concussion support, adapted to individual schools' contexts. Buy-in and good communication processes are needed from all members of the school community to sustain the processes.

A FRAMEWORK TO IMPROVE THE QUALITY OF HOSPITAL-BASED PHYSIOTHERAPY

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Background: A quality framework for hospital-based physiotherapy is lacking. This study aims to design a framework, building on the currently available literature, to improve the quality of hospital-based physiotherapy.

Purpose: To gain insight into which quality improvement methods (QI) could form the design of a QI framework, as a foundation to improve and steer the quality of Dutch hospital-based physiotherapy, by combining the insights of hospital-based physiotherapists and their key stakeholders.

Methods: A multidisciplinary panel of six representatives of hospital-based physiotherapy and their key stakeholders (patients, medical specialists, hospital management, and professional association) was set up. We used brainwriting to sample ideas and the "decision-matrix" to select the best ideas.

Results: The first round of brainwriting with an online panel of six experienced participants yielded consensus on seven possible methods for quality improvement of hospital-based physiotherapy: (1) continuing education, (2) feedback on patient-reported experience measures and patient-reported outcome measures, (3) a quality portfolio, (4) peer observation and feedback, (5) 360-degree feedback, (6) a management information system, and (7) intervision with intercollegiate evaluation. Placing these methods in a decision matrix against four criteria (measurability, acceptability, impact, accessibility) resulted in a slight preference for a management information system, with an almost equal preference for five other methods immediately thereafter. The least preference was given to a 360-degree feedback.

Conclusion: In the design of a framework for improving the quality of hospital-based physiotherapy, all seven suggested methods were perceived as relevant but differed in terms of advantages and disadvantages. This suggests that, within the framework, a mixture of these methods may be desirable to even out respective advantages and disadvantages.

Implications: The results of this study, summarised in a graphical model for a framework on quality of hospital-based physiotherapy provide a foundation to steer the quality of hospital-based physiotherapy to become more optimal.

FEELING GOOD VERSUS FEELING BETTER: ANALYSIS OF PATIENT REPORTED OUTCOMES AFTER ACLR IN NEW ZEALAND

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Background: Knee Injury and Osteoarthritis Outcome Score (KOOS) data can be interpreted using the minimal important change (MIC) and patient-acceptable symptom state (PASS). MIC is the minimal change over time patients perceive as important. PASS deals with remission of symptoms and identifies those who consider themselves well. MIC and the PASS complement each other and are used to identify patients who are (1) "feeling better" and (2) those "feeling good", respectively.

Purpose: To determine the proportion of New Zealand European, Māori, and Pasifika patients who are "feeling good" and "feeling better" from New Zealand ACL Registry KOOS data.

Methods: KOOS4 at pre-op, 6-, and 12-months post-ACLR was calculated from average score of pain, symptoms, sport, and quality of life subscales. KOOS4 > 80/100 defined an acceptable symptom state. MIC was 9 points. The proportion of individuals in an acceptable symptoms state and exceeding the MIC was explored 6- and 12-months post ACLR. Chi-square tests were used to explore differences between ethnicities in proportion of patients meeting the criteria.

Results: 4116 patients were included (48% female; 2472 New Zealand European; 548 Māori; 382 Pasifika). Sixty-one percent to 62% considered themselves at least minimally improved at 6 months, rising to 72% to 75% at 12 months. At 6 months, 25% New Zealand European and 25% Māori were in a satisfactory symptom state, versus 22% Pasifika ($p < 0.001$). At 12-months 42% of Māori ($p = 0.08$) and 42% of Pasifika ($p < 0.001$) were in a satisfactory symptom state, versus 46% for New Zealand European.

Conclusion: A lower proportion of Pasifika report an acceptable symptom state at key timepoints after ACLR. There is a statistical difference between the number who "feel better" versus "feel good" after ACLR in New Zealand but this may not be a clinical difference.

Implications: There are potential ethnic disparities in ACLR outcomes in New Zealand.

WRITE ON! STRATEGIES FOR IMPROVING CLINICAL DOCUMENTATION SKILLS IN PHYSIOTHERAPY STUDENTS USING SIMULATION AND WORKED EXAMPLES

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Background: Clinical documentation is a core component of physiotherapy practice, and educators are accordingly tasked with developing clinical documentation skills in physiotherapy students. Despite this, limited published evidence exists regarding effective teaching and learning strategies for clinical documentation in physiotherapy education programs. This may pose a challenge to physiotherapy educators and students alike, especially when ensuring students are equipped to successfully transition from curriculum-based learning to practice placements.

Purpose: To trial and evaluate the implementation of a standalone training module to enhance the clinical documentation skills of final year physiotherapy students and support their transition to clinical practice placements.

Methods: The 5-hour training module (split across two consecutive days) was implemented in a cohort of fourth year undergraduate physiotherapy students at The University of Queensland in Australia. The training module focused on developing skills specific to progress notes and referral letters in a musculoskeletal private practice setting and featured standardised documentation simulation and interactive worked example learning activities. The module was evaluated through pre-post comparison of student writing in domains of purpose, content, style, length, organisation, and language. A post-test survey measured student satisfaction with the module as a secondary outcome.

Results: A total of 112 students participated in the training module. Preliminary data suggests that writing performance improved in domains of "purpose", "content", "length", and "organisation". Students reflected that the module enhanced their learning and helped them identify strengths and weaknesses in their clinical documentation. Students also indicated that additional opportunities for feedback, revision, and practice of writing would have been helpful.

Conclusion: Simulation and worked examples are teaching tools that may assist physiotherapy students in honing their documentation skills prior to clinical practice placements.

Implications: The knowledge gained from trialling this training module may support physiotherapy educators in designing and implementing a curriculum to develop physiotherapy students' clinical documentation skills.

POSTER PRESENTATION ABSTRACTS

THE LONG COVID SYMPTOM MAP: OUR PATIENT'S VOICE. GUIDING PATIENT CARE TO APPROPRIATE HEALTH PRACTITIONERS

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Background: There is no national framework to identify and chart an individual's post COVID symptoms in New Zealand. The Long COVID Symptom Map (LCSM) was developed in March 2022. Cardiorespiratory physiotherapists treating patients at that time felt an increasing need to have something that made sense of overwhelming complex narratives, and they were unable to gain access to overseas tools.

Purpose: The LCSM streamlines the patient experience, identifying key symptoms and directing care to the right professional.

Methods: Developed by the author (July 2022) and tested for red flag identification. The LCSM was presented to the Cardiorespiratory Special Interest Group in a webinar, and they agreed to pilot and support its use. The LCSM was presented at The Otago Forum "Journey through the fog" and at the National conference in 2023. The LCSM has continued to be used by a growing number of practitioners as well as patients who chart their own symptoms. Newly revised and adopted into the Ministry of Health National Clinical Guidelines, it has been taken up by Queensland Health Australia. Future research is planned, commencing with evaluation of the LCSM.

Results: The LCSM is easy to use, and completion can be supported or independently managed. As predicted, it saves time, assessing and providing direction to the most appropriate Allied Health Professional when presented with a complex cluster of symptoms.

Conclusion: The LCSM Identifies primary symptoms and functional disabilities. It provides a body chart and narrative space to capture all symptoms, and it supports red flag recognition. It offers timely patient reporting of multiple symptoms and continues to evolve.

Implications: The LCSM has merit for all staff working with Long COVID patients, reducing the time needed to determine symptoms and offering a meaningful platform for the patient from which they can receive treatment, feel heard and demonstrate change.

EXPLORING HOW PHYSIOTHERAPISTS CONSIDER FALLS RISK DURING THE CLINICAL MANAGEMENT OF PEOPLE WITH OSTEOARTHRITIS

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Background: My research explores physiotherapists' understanding of falls risk in people with osteoarthritis. The number of people diagnosed with osteoarthritis is increasing, as is Aotearoa's aging population. There is a well-researched link between osteoarthritis and falls, with an increased risk of falls in this population. Physiotherapists have an important role in assessing and treating people with osteoarthritis, and in preventing falls and managing people after falling. It is therefore important to find out how physiotherapists consider falls in their treatment of people with osteoarthritis.

Purpose: Little is known about how physiotherapists perceive the connection between falls and osteoarthritis, and evidence from Australia shows the link may not be considered. This study's purpose was to explore if physiotherapists in Aotearoa New Zealand consider falls risk in people with osteoarthritis. This research is an important step to gain insight into current clinical practice.

Methods: I used a Qualitative Descriptive method for this study and semi-structured interviews to collect data from 10 physiotherapists; data were then analysed by qualitative content analysis.

Results: Three themes were conceptualised from the data: (1) What's the risk? (2) Making assumptions, and (3) The gatekeeper of treatment. We found factors such as age, co-morbidities, system restraints, roles, and assessment forms influenced participants' clinical decision making, and that physiotherapists do not appear to be routinely screening for falls risk in people with osteoarthritis.

Conclusion: The findings of this study suggest a benefit to patients with osteoarthritis of physiotherapists questioning about falls, regardless of other presenting clinical features.

Implications: The finding supports our understanding of how physiotherapists might effectively manage falls risk in the OA population, to shape future guidelines and recommendations. These findings, if acted upon, could result in reducing fall-related injuries, fatalities, and healthcare costs, benefitting people with OA and healthcare systems.

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THE ROLE AND IMPACT OF VOICE PHYSIOTHERAPY: A QUALITATIVE STUDY OF SERVICE USER PERSPECTIVES

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Background: Physiotherapy has the potential to benefit people with voice and throat problems, in conjunction with existing services. Yet as a niche area of practice, little is known about the impact or role of physiotherapy in voice and throat care.

Purpose: This study aims to explore the impact and role of physiotherapy in voice and throat care, from the perspective of people who have accessed such care. Gaining a better understanding of how physiotherapy contributes to care has the potential to improve services.

Methods: An interpretive description design was used to explore participants' perspectives of the impact and role of physiotherapy through individual semi-structured interviews with people who had accessed physiotherapy for voice or throat care through a single private practice. Transcripts were analysed with a general inductive approach suitable for qualitative evaluation data.

Results: Data were analysed from six interviews and four main themes emerged, with each theme further characterised by categories. Two themes related to the impact of physiotherapy in voice and throat care: Offers a deeper understanding of issues affecting their voice/throat; and Facilitates individualised specific management. Two themes related to the role of physiotherapy in voice and throat care: Complements existing services; and Valuable service.

Conclusion: This study indicates that physiotherapy for voice and throat problems can complement existing services while adding value, providing people with a deeper understanding of their problem, and facilitating specific management.

Implications: These findings help inform how physiotherapy can contribute to voice and throat care services.

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VOICE PHYSIOTHERAPY: CLINICAL CHARACTERISTICS OF INDIVIDUALS PRESENTING TO PHYSIOTHERAPY FOR VOICE AND THROAT CARE

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Background: Voice physiotherapy has the potential to benefit a wide range of people with voice and throat problems, in conjunction with existing services. Yet as a niche and novel area, little was known about the characteristics of individuals presenting for physiotherapy care with voice and throat problems.

Purpose: This study aimed to describe the demographic and clinical characteristics of individuals presenting to physiotherapy for voice and throat-related problems and to use this information to clarify the role of physiotherapy in the established voice care team.

Methods: A retrospective clinical case notes review was conducted of all clients who accessed physiotherapy for voice and throat problems at a private practice based in Christchurch, New Zealand, within a 12-month period from 1 October 2020 to 1 October 2021.

Results: Data were analysed from 53 patient charts. The typical profile of an individual accessing the service were female (*n* = 37), New Zealand European (*n* = 26), singer (*n* = 43), with chronic problems (*n* = 20), of a non-traumatic origin (*n* = 45). The *M* age was 35 (*SD* = 17.79, range 19–80) and five (10%) of the clients' issues had a relevant ACC claim. Voice problems were present in *n* = 39 and muscle-related problems were present in *n* = 42 of cases. Treatment primarily included laryngeal manual therapy and various modes of exercise therapy.

Conclusion: The clinical characteristics described offer insight into the demographic and clinical characteristics, such as age, ethnicity, origin, and chronicity of problems of individuals accessing physiotherapy services for voice and throat problems. A high prevalence of muscle-related problems and wider issues were identified, consistent with the physiotherapy skill set.

Implications: By identifying and managing muscle-related voice problems and addressing wider factors contributing to voice and throat problems, physiotherapy appears to complement existing ENT or SLT services, which tend to focus on other factors affecting the voice and throat.

GLOBAL HEALTH PHYSIOTHERAPY: IMPLICATIONS FOR EQUITY AND ADVOCACY

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Background: The world faces considerable challenges to health and wellbeing. Globally distributed determinants have a powerful influence on health outcomes with inequitable drivers of ill health distributed within and across population groups.

Purpose: To provide a summary of recent peer-reviewed and published literature in the field of Global Health and Physiotherapy from the past 10 years.

Methods: Literature review.

Results: Physiotherapists can and should play an active role in forming healthy policy for all. There are several identified global and local movements to which physiotherapists can contribute to ensure equitable access to the determinants of health, including the global drivers of health inequities, education, and clinical practice.

Conclusion: Healthcare workers can play an important role in providing equitable, accessible healthcare for all. The Sustainable Development Goals and the Environmental Physiotherapy Association are examples in which physiotherapists can contribute to global advocacy movements.

Implications: Physiotherapists can play a pivotal role within the field of Global Health to advocate for equitable, healthier environments, particularly for those who face inequities to the determinants of health.

"RESEARCH HAS FOUND …"!!! SO WHAT???: CO-DESIGNING FOR RESEARCH COMMUNICATION

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Background and purpose: Strabismus is an ophthalmic disorder that affects balance, function, and psychosocial aspects. The research stream on strabismus and balance in children started as a "coffee conversation" between research physiotherapists and ophthalmologists in 2014. Further discussions on collaborative research led to a series of investigations in children with strabismus. Collectively, these research findings suggest that children with strabismus rely on their visual input even when they are inaccurate. The findings also imply that children with strabismus have issues with their sensory integration that affect their balance control as well as their physical function (detailed scientific information on these can be found elsewhere). However, the question of "What do these research findings mean to children with strabismus, their whānau, or healthcare practitioners?" was the primary driving purpose of this innovative research practice.

Methods: Drawing upon the importance of co-design for meaningful research impact, we set out to think differently about a way of communicating findings that is meaningful. The team included science communication and physiotherapy students working together with the research team and physiotherapists, which brought perspectives of science communication, research impact, and physiotherapy research and practice. A strategy was developed to communicate a "statistically significant finding" to a wider audience that is meaningful.

Results: The activity generated a set of animation resources, infographics, activities, and events targeted at better communicating how balance systems worked in individuals and how the current research contributed new knowledge to the existing body of knowledge.

Conclusion and implications: The co-designing activity supported the development of resources for communicating specialist knowledge to a wider audience in a meaningful way. Researchers can explore alternative ways to communicate the findings for better research impact. The resources themselves will be useful in clinical practice to support people living with long-term conditions that require sensory-motor reorganisation.

BALANCE AND COORDINATION IN MYOTONIC DYSTROPHY TYPE 1

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Background: Myotonic dystrophy type 1 (DM1) is a genetic disorder affecting multiple organ systems causing progressive disability and shortened life expectancy. It is characterised by myotonia and progressive muscle weakness, primarily affecting the distal leg and arm muscles, craniofacial muscles, and neck flexors before impacting more proximal musculature. Falls are 10 times more common in DM1 than in aged-matched healthy volunteers. This has been attributed to muscle weakness, but more recently other facets of balance have been considered.

Purpose: To assess the extent of balance issues in patients with DM1 and determine which components of balance may be impaired and to what extent.

Methods: We aim to recruit 20 adult participants with DM1 who can walk 10 m independently without a walking aid. Physiotherapy assessment will include visual acuity, pinprick, light touch, vibration, proprioception, 2-point discrimination, Scale for Assessment and Rating of Ataxia (SARA), and postural sway in standing and walking using the Gait and Balance app (G&B app). Strength data for these participants is being collected in a concurrently running study. An audiologist will conduct the vestibular assessment, which includes 3D video Head Impulse Test (high velocity vestibulo-ocular reflex function) and Vestibular-Evoked Myogenic Potentials (function of the otolithic organs of the inner ear and their neural pathways). Oculomotor function (ability to accurately fixate and track a visual target) and Caloric testing (low velocity horizontal vestibulo-ocular reflex function). Descriptive statistics will determine the rates of abnormalities for each assessment.

Results: The two participants recruited so far have both shown abnormalities in their vestibulo-ocular reflexes, impaired standing balance on a compliant surface with eyes open, and closed and impaired sensation and joint position sense.

Conclusion: Conclusions will be drawn upon study completion.

Implications: Understanding the impaired systems of patients with DM1 will guide future physiotherapy practice and research.

FREQUENCY OF PAEDIATRIC RED FLAGS IDENTIFIED BY PAEDIATRIC PHYSIOTHERAPY AT ACTIVE PLUS TARANAKI

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Background: Physiotherapy is a mainstay treatment for paediatric musculoskeletal concerns; however, many serious paediatric medical conditions present with musculoskeletal symptoms. Historically, children living in Taranaki with musculoskeletal concerns were seen by physiotherapists, with limited paediatric experience, in private practice clinics. In 2022 Active Plus Taranaki started providing paediatric specific services from an experienced paediatric physiotherapist.

Purpose: This study reviews the patterns of onward referral from paediatric physiotherapy to paediatrics and ultimately the number of children diagnosed with red flags/requiring medical treatment since opening the paediatric physiotherapy services at Active Plus.

Methods: A retrospective audit of medical records between February 2022 to July 2022 and August 2023 to January 2024 (this was due to maternity leave) was completed on all patients referred to Active Plus Taranaki for paediatric assessment.

Results: A total of 34 patients were seen by the paediatric physiotherapist. Fifteen of these were referred with diagnosis from orthopaedic surgeons. Nineteen were self-referred or from general practitioners; of these 19, 6 (31.5%) were referred by the paediatric physiotherapist for further investigations (either to paediatricians, paediatric neurologists, or orthopaedic surgeons). All 6 of these children received medical diagnosis. Mild cerebral palsy (GFCS1) was the most common diagnosis with 2 patients; the remainder of patients were diagnosed with chronic recurrent multifocal osteomyelitis, Perthes disease, infantile scoliosis, thoracic spine syrinx, and structural brain abnormality.

Conclusion: Although we acknowledge the small sample size of this study, this indicates a high percentage of children presenting at physiotherapy may have underlying conditions or red flags.

Implications: Children who present at paediatric clinics via self-referral or GP referral should be assessed with the knowledge that paediatric red flags can and will present in children and these are different to adults. An understanding of local paediatric networks and referral criteria is essential to all physiotherapists working with children.

A DEDICATED LONG COVID CLINIC – THE CHRISTCHURCH EXPERIENCE

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Background: The term "Long COVID" describes those with ongoing symptomatic COVID-19 (< 12 weeks) and those with post-COVID-19 syndrome (PACS) (> 12 weeks post infection). New Zealand's unique experience of COVID-19 presents challenges in defining an accurate incidence of Long COVID locally. Observational research suggests approximately 4.0–4.5% incidence in a triple vaccinated, Omicron-focused cohort.

Purpose: PACS presents with a range of symptoms with fatigue, brain fog, breathlessness, and impaired exercise tolerance being some of the most common. Allied health input has been shown to be effective internationally in treating PACS. However, few individuals with PACS fit existing criteria for Allied Health services in Canterbury.

Methods: Funding was identified to run a 6-month MDT pilot service to support individuals with PACS. A broad range of allied health professions were involved. Input was through clinics, home visits, telehealth, and education sessions.

Results: The service opened for referrals from 1 May–9 June only due to volume of referrals and indications that funding would cease at the end of the 6-month term. Despite limited interventions for the over 100 referrals received, 60% had improved post-COVID Functional Scale scores, 58% improved Long COVID Symptom severity scores, and 81% improved in Breathing Pattern Assessment Scale scores. Participant feedback was overwhelmingly positive.

Conclusion: MDT intervention for those with PACS can be effective at improving functional, symptom severity, and breathing pattern scores. The service was well received by participants. The incidence of PACS in the Canterbury population remains unclear due to the brief period during which referrals were able to be accepted.

Implications: Individuals experiencing PACS are likely to benefit from an individualised MDT approach to managing their symptoms. With the closure of the service, many people with PACS continue to struggle to get support with managing their symptoms.

DOES MY PATIENT WITH LBP REALLY NEED IMAGING? FACTORS INFLUENCING CLINICAL DECISION-MAKING

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Background: The use of diagnostic imaging in low back pain (LBP) management is often inappropriate despite recommendations from clinical practice guidelines. There is limited understanding of factors that influence the imaging clinical decision-making process.

Purpose: The aim of this scoping review was to explore literature on factors that influence clinicians' decision to refer people with LBP for imaging. How these factors could be addressed to influence imaging referral behaviour was also considered.

Methods: A scoping review was conducted following the PRISMA-ScR guidelines using the following databases: Medline, CINAHL, EBSCO, Scopus, and Cochrane Reviews. Full-text English language peer-reviewed articles published between 2010 and February 2023 were included. Data were analysed through an inductive process to categorise the factors that influence clinical decision-making.

Results: Thirty-five studies were included in the review. A variety of clinical and non-clinical factors were found that influence imaging clinical decision-making. Three categories were developed: clinical features, non-modifiable factors, and modifiable factors. The focus was on modifiable factors, which were further divided into patient beliefs and clinician beliefs.

Conclusion: This is the first scoping review of factors that influence imaging clinical decision-making in LBP management. There are patient and clinician beliefs that could be targeted to effect a change in clinical practice.

Implications: Few studies have investigated how patient beliefs affect the decision to refer for imaging. The decision to use imaging is often perceived to be based on objective findings; this research suggests that the beliefs of both clinician and patients play a role in decision making. These beliefs are not always acknowledged and may result in inequitable and harmful overuse of imaging. Supporting clinicians to confront their beliefs and co-design strategies to improve public knowledge and clinical practice would reduce wasteful expenditure and potential clinical harm.

THE PATIENT JOURNEY THROUGH LOW BACK PAIN: A SCOPING REVIEW OF THE INTANGIBLE COSTS

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Background: Low back pain (LBP) is the leading cause of disability worldwide. For most people, episodes of acute LBP will resolve quickly; however, recurrence is common, and for some, the pain will become chronic. Low back pain research traditionally reports direct and indirect monetary costs and focuses less on the intangible costs on a person's life. The effects of LBP on activity and quality of life have been widely reported; however, the specifics of these effects remain unclear.

Purpose: Health-related low back pain costs can be direct, indirect, or intangible. The purpose of this review was to identify the intangible, non-monetary costs of LBP from the perspective of the individual.

Methods: A scoping review of literature was undertaken. Four databases were searched up to 6 March 2023. Data from the included studies were coded and analysed using directed content analysis.

Results: Forty-five studies met the inclusion criteria. Six categories were derived from the data, all of which express the experience of the person with LBP: Perceptions of Pain, Patient Experience of Healthcare, Becoming Defined by Low Back Pain, Life on Hold, My Social Self, and Disrupted Work Life.

Conclusion: This review highlights the profound effect of LBP on people's lives and their sense of self. The findings illustrate the perceptions of pain, experiences with health services, interference in daily living and work, and psychological and social disruptions.

Implications: There is a need for healthcare practitioners to recognise and validate the lived experience of people with LBP. Patients should be reassured that invisible pain does not suggest that their pain is imagined; they should experience empathy for its impact on their lives. Acknowledging the effect of pain can help to ease suffering and give their experience the legitimacy it deserves.

TOWARDS PERSONALISED ORTHOPAEDIC CARE: USER EXPERIENCE OF A SMART KNEE BRACE

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Background: Wearable technologies may offer additional benefits over current rehabilitation strategies for orthopaedic care, including remote monitoring. Best practice following knee injuries involves objective assessment to determine rehabilitation progress and functional ability. Despite the potential, no inertial sensor devices have been successfully integrated for assessing knee movement and gait in and out of clinical settings. A custom-built inertial sensor was developed and embedded into a commercially available knee brace paired with a mobile application.

Purpose: To investigate usability of the instrumented knee brace for individuals with anterior cruciate ligament reconstruction (ACLR) or meniscal injury.

Methods: In this cross-sectional study 16 participants (*M* age 28.44, *SD* 9.2 years) were fitted with the brace on their affected limb and 34 healthy participants (*M* age 26.2, *SD* 6.8 years) were fitted with the device on their dominant limb. User experience and device usability was assessed using the System Usability Scale (SUS). Participants completed a 10 m walk test and 6-minute walk test while wearing the brace.

Results: The average overall SUS score was 79.46 which is deemed as "good", and individual items were scored as relatively positive (average = 2.90). Significantly higher SUS scores were observed in participants with a knee condition (81.13) compared to healthy participants (77.38; $F = 4.23$, $p = 0.02$).

Conclusion: Overall, good usability was reported among participants. Participants did find the instrumented knee brace to be cumbersome and complex, but most also reported they would use the device frequently. The device was rated higher by those with a knee condition, suggesting individuals affected by health conditions may view wearables more positively than healthy individuals.

Implications: The findings highlight the opportunity of using wearable technologies as a rehabilitation tool to collect patient-reported outcome measures and functional assessments away from the constraints of the clinic. We have yet to establish all potential end-user requirements in real-world settings, including healthcare providers.

MOTOR FUNCTION CHARACTERISTICS OF ADULTS WITH SPINAL MUSCULAR ATROPHY (SMA) IN AOTEAROA NEW ZEALAND

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Background: Spinal muscular atrophy (SMA) refers to a group of autosomal recessive neuromuscular diseases characterised by progressive degeneration of alpha motor neurons in the spinal cord and brainstem. There are 44 adults with SMA throughout Aotearoa, with an additional five residing overseas where they have access to disease modifying therapies (DMTs) that aren't accessible in Aotearoa. Importantly, many of these patients are not engaged with healthcare services.

Purpose: To describe what is already known about motor function characteristics of adults with SMA in Aotearoa and our intention to assess and support these patients prospectively.

Methods: Current data being presented is available from Pūnaha Io – New Zealand's NeuroGenetic Registry and Biobank. We have established a multi-disciplinary SMA clinic at the University of Auckland Centre for Brain Research Neurogenetics Clinic. Patients throughout Aotearoa will be supported to travel to Auckland for the clinic where they will be reviewed by a neurologist and a physiotherapist who will complete a variety of functional measures relevant to their type of SMA. The combined information will be reported back to the patient and their GP with recommendations for management and referrals for local allied health and support services. We have developed ambulatory and non-ambulatory assessment protocols for these patients, including motor, respiratory, timed function, and patient-reported outcomes.

Results: Of the adults with SMA residing in Aotearoa, 15 have type 2, 12 have type 3A, 11 have type 3B, and 4 have adult onset. Twenty are ambulatory and 24 are full-time wheelchair users.

Conclusion: Data from the clinic will inform Pharmac of the need for reimbursement of DMTs in Aotearoa. Additionally, participants will be supported to access healthcare services.

Implications: This clinic will assist in ensuring that Aotearoa meets best practice standards of care for SMA and benefitting our participants to live well across the lifespan.