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**Title:** Becoming confidently competent : a qualitative investigation of training in cognitive functional therapy for persistent low back pain

**Year:** 2024

**Version:** Accepted version (Final draft)

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**Please cite the original version:**

Simpson, P., Holopainen, R., Schütze, R., O'Sullivan, P., Smith, A., & Kent, P. (2024). Becoming confidently competent : a qualitative investigation of training in cognitive functional therapy for persistent low back pain. *Physiotherapy Theory and Practice*, 40(4), 804-816.

<https://doi.org/10.1080/09593985.2022.2151333>

1 **Becoming confidently competent: a qualitative investigation of training**  
2 **in Cognitive Functional Therapy for persistent low back pain**

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1 **Becoming confidently competent: a qualitative investigation of training**  
2 **in Cognitive Functional Therapy for persistent low back pain**

3 **Background:** Physiotherapists trained to deliver biopsychosocial interventions  
4 for complex musculoskeletal pain problems often report difficulties in confidence  
5 and competency at the end of training. Cognitive Functional Therapy is an  
6 individualized biopsychosocial intervention initially developed for people with  
7 persistent disabling low back pain. Understanding the facilitators and barriers to  
8 learning and behavior change for physiotherapists undergoing training to  
9 competency in Cognitive Functional Therapy, is important to help inform future  
10 training programs. This study aimed to explore the physiotherapists and trainers  
11 perceptions of the process of learning to develop competency in Cognitive  
12 Functional Therapy.

13 **Methods:** A cross-sectional qualitative design was used to investigate the  
14 training and competency in Cognitive Functional Therapy for persistent low back  
15 pain. Eighteen physiotherapists who achieved competency and the two trainers  
16 were interviewed. Reflexive thematic analysis was used to analyze the data.

17 **Results:** Physiotherapists reported undergoing a complex behavior change  
18 process during training. Four themes emerged: Pre-training factors, Behavior  
19 change process, Physiotherapy culture and context, and Confident competence  
20 and beyond. Key components included graduated practice exposure linked to  
21 experiential learning with feedback and clear competency guidelines. Pre-training  
22 and contextual factors were seen as individual facilitators or barriers.  
23 Physiotherapists described learning as an ongoing process, even after  
24 competency.

25 **Conclusions:** This study provides insight into the processes of change  
26 physiotherapists undergo to achieve competency in Cognitive Functional  
27 Therapy. It highlights facilitators and barriers to competency including  
28 physiotherapy culture and the clinical environment. The study also describes  
29 important educational components including experiential learning and clinical  
30 integration which may be used to inform future post-graduate training.

31 **Keywords:** biopsychosocial, physiotherapist, training, competency, qualitative

## INTRODUCTION

1  
2 Disability and associated healthcare costs caused by persistent lower back pain (LBP)  
3 have dramatically increased over the past 30 years (Dagenais, Caro and Haldeman, 2008;  
4 Vos et al, 2015). Purely biomedical approaches have failed to adequately address  
5 persistent LBP, so current guidelines recommend a multidimensional biopsychosocial  
6 approach due to the significant influence of psychological, social, and behavioral factors  
7 on an individual's pain and disability (Bekkering et al, 2003; Glattacker, Heyduck and  
8 Meffert, 2012; Keefe et al, 2004; Koes et al, 2010; Nicholas and George, 2011; Nijs et al,  
9 2013). Cognitive Functional Therapy (CFT) is an emerging physiotherapist-led  
10 biopsychosocial treatment that has shown promising results in the treatment of  
11 musculoskeletal pain conditions compared to other biopsychosocial physiotherapy  
12 approaches (Guerrero, Maujean, Campbell and Sterling, 2018). As an individualized  
13 treatment approach, CFT aims to coach patients with persistent LBP towards self-  
14 management of their condition through: reconceptualizing their pain towards a  
15 biopsychosocial perspective, developing confidence to engage in valued functional  
16 activities, and adopting healthy lifestyle behaviors (Caneiro et al, 2017; O'Sullivan et al,  
17 2018; Vibe Fersum et al, 2013).

18

19 Competency to deliver CFT effectively requires person-centered communication,  
20 exploring and addressing physical, lifestyle, psychological, and social barriers to recovery  
21 (O'Sullivan et al, 2018). Physiotherapists traditionally have been trained in a biomedical  
22 approach to healthcare with a focus on physical impairments (Driver, Oprescu and Lovell,  
23 2020; Foster and Delitto, 2011; Synnott et al, 2015; Zangoni and Thomson, 2017).  
24 Reviews highlighted physiotherapists often feel insecure and unconfident addressing the  
25 psychological domain of an individual's pain experience (Synnott et al, 2015), even after

1 a biopsychosocial training program (Holopainen et al, 2020). Training physiotherapists  
2 to deliver CFT requires a significant change in clinical behaviors and professional identity  
3 (Cowell et al, 2019). Training in CFT was constructed as a process involving  
4 transformative learning mechanisms, with exposure to new experiences and clinical  
5 situations which transform skills, behavior, and the way physiotherapists view themselves  
6 and the world (Daley and Cervero, 2016; Holopainen et al, 2020). No previous studies  
7 have explored processes of learning in a comprehensive CFT training program that also  
8 included a formal competency assessment.

9 Understanding the pathway, processes, barriers, and facilitators involved to developing  
10 competency in delivering biopsychosocial interventions such as CFT, in a range of  
11 physiotherapists, is important to inform future training (Baker et al, 2010; Grimshaw et  
12 al, 2012). This study aimed to explore the physiotherapists and trainers perceptions of the  
13 facilitators and barriers to learning and behavior change for physiotherapists undergoing  
14 training to competency in Cognitive Functional Therapy.

## 15 METHODS

### 16 Design

17 A phenomenologically oriented qualitative study design was used. Our ontological  
18 approach was critical realist (Bhaskar, 2004; Gorski, 2013) and epistemological  
19 underpinning was contextualism (Tebes, 2005). A qualitative research approach allows  
20 for rich exploration of experiences and meaning, thereby making visible the workings of  
21 the world in which the observer and observed are situated (Denzin and Lincoln, 2017;  
22 Tong, Sainsbury and Craig, 2007). The study was nested within a multi-center  
23 randomized controlled trial (RESTORE) across Perth and Sydney (Australia) (Kent et al,  
24 2019). This study was approved by Curtin University Ethics Committee (HRE2018-  
25 0062).

1 Participants

2 Physiotherapists ranged from 3 to 25 years of clinical experience. Eleven of the  
3 physiotherapists were male and seven females. Before training, all physiotherapists stated  
4 that they tried to incorporate a biopsychosocial approach to treat patients with disabling  
5 low back pain. However, they felt they lacked skills, which motivated them to join the  
6 training program. All 18 physiotherapists who achieved competency to deliver CFT were  
7 invited to participate over email, agreed to participate, and provided written informed  
8 consent. Trainers were both Specialist Musculoskeletal Physiotherapists with 34 and 17  
9 years of clinical experience.

10 Intervention, training, and competency

11 The CFT intervention is a physiotherapist-led individualized biopsychosocial approach  
12 to people with persistent disabling lower back pain that aims to identify and target  
13 unhelpful beliefs, emotions, and behaviors that act as a barrier to recovery and train  
14 people towards self-management. This training program has evolved through an iterative  
15 process of trialing different ways of creating behavior change in physiotherapists in other  
16 CFT training, focusing on transformative and experiential learning processes through  
17 workshops and practice (Bérubé et al, 2017). The training is described in Figure 1.

18 Data collection

19 The first author, a clinical physiotherapist and PhD candidate, conducted all the  
20 interviews. The first author had no training or prior exposure to CFT. No relationship was  
21 established before the study commencement or interviews, between the first author and  
22 any of the participant physiotherapists. A semi-structured interview guide  
23 (Supplementary Material 2) was developed , based on previous research of difficulties  
24 physiotherapists had reported with learning and using a biopsychosocial approach  
25 (Kallio, Pietilä, Johnson and Kangasniemi, 2016). Interviews were held in person for the

1 Perth-based physiotherapists and the trainers. For the Sydney physiotherapists, interviews  
2 were performed via Skype (Microsoft, 2018) to ensure conversational nuances could still  
3 be relayed and rapport built (Gray, Wong-Wylie, Rempel and Cook, 2020). Interviews  
4 were conducted in an iterative approach; whereby new findings were investigated further  
5 in subsequent interviews. No repeat interviews were carried out. Being a physiotherapist,  
6 the interviewer had a level of shared meaning with the participants, which was evident in  
7 non-verbal communication, such as nodding or not needing explanations for common  
8 acronyms during interviews. However, the physiotherapist did not have exposure to or  
9 training in CFT and was not part of the training team, which allowed the participants to  
10 open up about their experiences. Audio data was recorded using an electronic voice  
11 recorder. Interviews ranged from 45 minutes to 1 hour 48 minutes. Eighteen  
12 physiotherapists were interviewed. Interviews were conducted within 1 month after  
13 achieving competency. Trainers were interviewed immediately after all physiotherapists.

#### 14 Data processing

15 Audio files were transcribed verbatim using Temi (Rev.com, Austin TX, USA) and  
16 NVIVO Transcription (QSR International Pty Ltd, 2019). Data was entered into  
17 MAXQDA (VERBI Software, 2020), anonymized, and stored on a password-protected  
18 university server.

#### 19 Data analysis

20 To gain insights into the learning process from both trainer and physiotherapist  
21 perspectives, their experiences were studied using reflexive thematic analysis (Clarke and  
22 Braun, 2016). This approach allows for a rich description and analysis of patterns of  
23 meaning within the data (Braun and Clarke, 2006, 2019). An inductive approach was  
24 used, with no prior themes or frameworks being applied to the data (Braun and Clarke,  
25 2006, 2019). MAXQDA, was used to manage the data analysis.

1 Initial data familiarization via reading and making notes on the content of the data, key  
2 metaphors and language used was performed (Braun and Clarke, 2006). The data were  
3 subsequently coded, grouped into categories and initial themes generated (Braun and  
4 Clarke, 2006). Refinement and naming of themes occurred in an iterative approach as  
5 new patterns in the data emerged. The first author coded the entire dataset, as reflexive  
6 thematic analysis foregrounds researcher subjectivity. Therefore, understanding and  
7 meaning-making can be interpreted within the reflexive lens of a single author (Braun  
8 and Clarke, 2019). Another author (RH) collaborated on two transcripts at the beginning  
9 of coding to expand the lens of the meaning-making of the coding, rather than confirm  
10 coding. All research team members read the themes, subthemes, codes and associated  
11 quotes before discussing and finalizing the themes (Connelly, 2016).

## 12 RESULTS

13 The overarching theme was that of 'learning as a process', which was likened to that of a  
14 learner driver (Fig. 2). Physiotherapists first gained foundational knowledge and skills of  
15 CFT supported by a driver's manual. This was followed by tandem driver learning  
16 process where the trainer stepped in as needed. As the physiotherapists' skill and  
17 confidence progressed, the trainers support was removed until the learner driver was  
18 confidently driving independently.

19 *PT5: You start off, [trainer] just treating patients and then you treat them and then you*  
20 *sort of get [trainer] to jump in when you're stuck and that slowly becomes less and less*  
21 *and less.*

22 Themes and subthemes are explained below and depicted in Fig. 2 Quotes have been  
23 anonymized (PT for physiotherapist and T for trainer). Supplementary Material 3  
24 contains further quotes to illustrate the results.

25



1 1. Pre-training factors

2 Reflections on the training process highlighted pre-training factors that the  
3 physiotherapists brought to the training, which formed the foundation of their learning  
4 journey.

5 1.1 Physiotherapists' attributes

6 Physiotherapist attributes were considered significant in facilitating the change in mindset  
7 and behavior toward competency. Willingness to shift beliefs was seen as an important  
8 factor to learning CFT by both trainers and physiotherapists alike. Shifting beliefs was  
9 seen to require cognitive flexibility and a growth mindset to self-evaluate and change.

10 *PT7: There were definitely different levels of growth and I think that it really*  
11 *depends on your own beliefs, and your own willingness to learn and change and*  
12 *confront your own beliefs.*

13 Physiotherapists and trainers felt those who were able to self-reflect and accept feedback  
14 were quicker to competency. Being empathetic, understanding, and compassionate  
15 towards patients were seen as fundamental and many physiotherapists felt that these  
16 factors determined whether someone could learn CFT. Ability to communicate, curiosity  
17 and openness were seen as attributes that also helped physiotherapists to learn CFT.

18 The trainers felt that the older physiotherapists had a more difficult journey trying to rely  
19 less on a 'toolbox' they had used for many years and approach patients from a  
20 biopsychosocial perspective.

21 *T2: I think unlearning is harder than learning... Because it's almost like they had*  
22 *a toolbox, which they couldn't use, and they were asked to develop a new skillset.*  
23 *And when you have been practicing for many years doing one thing it's pretty*  
24 *hard to then adapt that.*

1 The more experienced physiotherapists highlighted life experiences as helpful to  
2 understand patient's psychosocial issues authentically. In contrast to most  
3 physiotherapists, one physiotherapist felt that clinical context determined who could learn  
4 CFT, not physiotherapist attributes. In their view, given time, anyone can learn CFT.

#### 5 1.2 Previous beliefs, practice, and skills

6 The physiotherapists all reported a lack of confidence in dealing with individuals'  
7 psychosocial factors prior to the training. Previously they felt stressed, uncomfortable,  
8 overwhelmed, and worried about time, when psychosocial issues had arisen and therefore,  
9 they avoided asking about them.

10 *PT11: Stress or anxiety external to their back, I didn't know how to synthesize that*  
11 *information into their pain story. So, it made me uncomfortable. And because I*  
12 *didn't see the use of it, I probably wouldn't ask it. And then if I did get it, I wouldn't*  
13 *know what to do with it anyway.*

14 Physiotherapists felt that their previous training did not equip them to be able to  
15 successfully integrate a biopsychosocial approach with patients. Younger/recent graduate  
16 physiotherapists were aware of the biopsychosocial model from their training but felt they  
17 did not know how to integrate and individualize the model into a structured treatment  
18 approach. Some of the more experienced physiotherapists had been taught from a  
19 biomedical approach during their training and felt CFT was a contrasting perspective.  
20 Physiotherapists who had completed post-graduate training courses felt these had not  
21 taught them to treat using a holistic biopsychosocial approach.

22 Upon reflection at the end of training, many physiotherapists felt they had been  
23 reinforcing fear beliefs by encouraging patients to 'back off' whenever they experienced  
24 pain.

1            *PT12: I would have always been like, “Oh, I don't want to make you sore. Let's*  
2            *back off.” And the issue with that... is that by buying into that and pulling them*  
3            *out, you're reinforcing that idea that bending is bad. You buy into their fear, buy*  
4            *into that notion that things are delicate and need to be protected, and shouldn't*  
5            *be loaded. And then when you try to later on down the track, to get them to do*  
6            *those things, the fear is there.*

## 7    2. Behavior change process

8    The physiotherapists felt they were undergoing a challenging behavior change process  
9    towards competency, that mirrored the exposure and behavior change their patients  
10   underwent with CFT.

11           *PT6: I basically spoke to [trainer], and I was like, I get that you're CFT-ing us. I*  
12           *understand that I just need to expose myself to it, get confident with it, tell myself*  
13           *it's a good thing and then I know it's OK. I literally would apply those principles*  
14           *to me being like, well, what do I do with people? I make them keep doing it, dive*  
15           *in, keep going.*

### 16   2.1 Understand, watch, practice

17   Training was framed by the trainers as a process of understand, watch, and then practice.  
18   This process was seen as necessary for progression and to develop adequate skills towards  
19   competency.

20           *T2: Understanding, watching, doing, are the three things. You've got to*  
21           *understand it, you've got to watch it and you've got to practice it.*

22   Many physiotherapists felt initial training focused on teaching the structure of CFT in a  
23   flexible way which allowed for understanding of its theoretical underpinnings. All  
24   physiotherapists felt they learnt a greater depth of biological factors than they had before,  
25   and for some, this fostered further self-learning.

1            *PT4: They [patients] come in armed with, you know, several scans usually and*  
2            *they say “I’ve got a disc bulge”... I’ll say, “Oh, do you know that a lot of this*  
3            *relates to your inflammatory levels around the disc as opposed to the actual disc*  
4            *bulge more often than not, which is why it varies with x, y, z?”... That’s what*  
5            *[trainer] said. He said it relates to your TNF Alpha levels around the disc bulge,*  
6            *as opposed to the actual disc bulge. I thought that was really cool. I actually*  
7            *looked up a study on that and read it afterwards.*

## 8    2.2 Graduated practice exposure and feedback

9    The physiotherapists and trainers felt training focused on the practical skills and delivery  
10 of the approach. This involved many hours of ‘exposure’ of treating real patients in front  
11 of the group for feedback. This was reported to be intimidating but very important to  
12 challenging their practice.

13            *PT16: Exposure. The only way to learn is through exposure. That’s what we teach*  
14            *our patients and it’s what we’ve got to do as clinicians. You’ve got to put yourself*  
15            *in a scary situation.*

16 Being observed by trainers whilst delivering CFT during workshops was seen by  
17 physiotherapists as fundamental for developing and fine-tuning skills, and facilitating a  
18 shift from biomedical beliefs towards a deep belief in the biopsychosocial model of pain.  
19 Receiving feedback was considered imperative to that process. Physiotherapists and  
20 trainers felt that graduated practice exposure forced the physiotherapists to acknowledge  
21 their own personalities, fears, strengths, and weaknesses, dismantling their previous  
22 framework of care and empowering them to change through building on their strengths.  
23 Both physiotherapists and trainers felt the feedback individualized to each  
24 physiotherapists’ strengths and weaknesses using the competency checklist was very  
25 useful to developing competency.

1            *PT11: [trainer] has been hard on me to really tap into emotions a lot more and I*  
2            *was really slow to pick that up. So, him constantly keeping on me about that I*  
3            *think probably did force more change than me just thinking about it.*

4 Most of the physiotherapists felt feedback was thorough and appreciated that as they  
5 improved, the feedback tapered off. However, feedback was not always received well.  
6 Some physiotherapists felt feedback delivered via the whole group was insensitive.  
7 Others wanted harsher feedback, and others felt feedback was incongruent with how they  
8 had performed. As a result, some physiotherapists disregarded feedback they did not  
9 agree with.

10           *PT7: [Trainer] was like 'you need to be more reflective', so then I was so*  
11           *reflective to the point I pissed the patient off. So, then I was like stuff this, I'm just*  
12           *gonna do it my way.*

### 13 2.3 Observation and group dynamics

14 Observing other physiotherapists deliver CFT during workshop sessions and on the  
15 recorded videos of workshop sessions was considered a helpful learning experience for  
16 most physiotherapists. They felt they learnt new ways of approaching patients, reflected  
17 on their own approach, and there was a 'collective absorption' of phrases and expressions  
18 that helped improve communication. By observing so many real patients,  
19 physiotherapists felt they could see patterns of patient presentations emerge and they  
20 learnt how to individualize their approach to a broad range of patients.

21           *PT6: We've had the whole variety, we've had the really high functioning, but this*  
22           *pain is getting them down but they're still being really active, and we've had the*  
23           *ones that aren't moving. So that's what's given all of us in the trial, a good range*  
24           *of things to work with because we've seen a lot.*

1 For most of the physiotherapists, the group was felt to be a place of safety and support.  
2 The shared journey created a new community and network of physiotherapists which  
3 were perceived by most physiotherapists to be valuable for future support and help.

4 *PT12: Now I feel like I've got a bit of a network of other physios who I could refer*  
5 *to... And because you've seen them treat, you've got confidence to say to that*  
6 *patient 'I've seen this guy treat, he's really good.'*

7 Some physiotherapists felt the group was not a positive space for critical thinking as  
8 'group think' mentality prevailed. Establishing a contract of engagement at the beginning  
9 of training was considered important for future training by one trainer. They felt this  
10 would avoid arguments and unhelpful communications.

11 *T2: One of the things I should have done right at the beginning, is to have ground*  
12 *rules, to say these are the rules of engagement. This is how we're going to run this*  
13 *in a way that's safe for everybody.*

#### 14 2.4 Trainer's influence

15 Trainers were seen by the physiotherapists as masters in the field, and this meant the  
16 physiotherapists were willing to take on their feedback and learn from them.

17 *PT13: I am OK with being scrutinized by someone who has mastered something*  
18 *I would like to master.*

19 Observing the trainers was viewed as impressive and gave a goal of exemplary  
20 management to work towards. The physiotherapists were impressed and surprised by how  
21 far the trainers pushed patients during exposure and behavioral experiments in workshop  
22 sessions, and observing dramatic patient change was reported to have instilled confidence  
23 in the approach. Observing the trainers communicate with patients in ways the  
24 physiotherapists had not seen and did not expect helped model how to adapt the approach.

1           *PT4: There was a patient who said that they had a teleconference with a psychic,*  
2           *and they felt really good afterwards. And I was thinking that is the most ridiculous*  
3           *thing. And then [trainer] goes, “OK, so you felt better. Why do you think that*  
4           *helped?” As opposed to just saying “You're an idiot.” I would have laughed at*  
5           *that normally to be honest. But I learnt from [trainer], he would go, “What were*  
6           *you feeling? What were you focusing on? What were you doing?” He went, why*  
7           *did that work?... I learned a lot from seeing that.*

8   Many of the physiotherapists reported a sense of safety that throughout the training  
9   workshops and beyond, the trainers were highly accessible through Facebook, phone  
10   calls, or email. The trainers being practicing physiotherapists was perceived as valuable  
11   by the physiotherapists.

## 12   2.5 Structured and resourced

13   Training to a structure and checklist was reported as helpful for skill development,  
14   particularly during the early learning phase.

15           *PT14: It is a whole model which is nice. I know the big dogs don't like the whole*  
16           *structured, they like free flowing and that kind of stuff, but it's nice when you're*  
17           *learning a new skill to have some structure and format.*

18   Physiotherapists valued being able to return to the resources as needed, which encouraged  
19   a level of self-learning. Resources were also sent to patients to help encourage self-  
20   management, generate a conversation about a potentially uncomfortable topic, or  
21   reinforce new messages and learnings from the session.

22           *PT10: Sending people resources and giving them stuff, rather than just me saying*  
23           *it, is very powerful as well. Kind of the way [the trainers] are like, send them on*  
24           *something relevant that they can kind of reflect on. So, you're kind of getting the*

1           *ball into their court so that they can start on that journey of getting to the point*  
2           *where they can start self-managing.*

3     There were mixed reviews about the Facebook group. Some physiotherapists found it  
4     very positive for accessing resources, as well as sharing and reading other’s reflections  
5     on clinical implementation. Others s felt self-reflections were disingenuous.

6     2.6 Clinical integration

7     Practice in their clinical environment between workshop sessions was conveyed by most  
8     physiotherapists as helpful to developing communication skills, knowing how hard to  
9     push during exposure and behavioral experiments, and reinforcing learnings.

10           *PT11: You learn a new skill and then you need time to practice it. Then you come*  
11           *back and then you implement it half as good as you should, and then you need*  
12           *time to practice it. I don't think 96 hours could be done in two months say or a*  
13           *month or as a really intensive course because you need time to develop.*

14     Time to practice implementing CFT between workshops was felt to allow for a gradual  
15     enculturation of ideas and new beliefs, which was viewed as important by  
16     physiotherapists that had come from a biomedical beliefs system. Treating real patients  
17     was also viewed as very important to building confidence, as it was through being part of  
18     patient transformations that physiotherapists believed in the process and became  
19     confident in the process of CFT to improve patient outcomes.

20     As physiotherapists’ confidence in CFT developed, they reported implementing it with  
21     patients beyond just those with LBP, which the trainers felt indicated a shift in thinking  
22     of musculoskeletal care towards a biopsychosocial approach. Physiotherapists felt that  
23     clinical ‘failures’ or interactions that did not go as well as planned were also part of the  
24     learning process and helped them to improve their practice.



1            *PT14: You've got to make mistakes and then go from there. Because it's the*  
2            *mistakes that you learn the most. Like the little things that you miss or things*  
3            *you're not that happy with.*

### 4    3. Physiotherapy culture and context

5    The learning was situated within physiotherapy culture and the clinical environment in  
6    which the physiotherapists worked. Each culture and context provided challenges to  
7    their learning journey.

#### 8    3.1 Clinical environment

9    The physiotherapists felt that a supportive clinical environment with opportunities to  
10   discuss ideas with colleagues and autonomy to book extra time with patients was an  
11   important facilitator to learning.

12            *PT16: Part of the learning process is you probably do need a little bit more time*  
13            *because you're going to make mistakes. When you pick the wrong behavioral*  
14            *experiments or you push your patient slightly too far or whatever the case may be*  
15            *and then their pain escalates, then you've got to spend time de-escalating their*  
16            *pain and things like that.*

17   Privacy in the clinical environment was felt to be very important for exploring  
18   psychosocial issues with their clinical patients. Remuneration for time spent with a patient  
19   was an unresolved issue for many physiotherapists. As they were generally treating for  
20   an hour or more during their learning period (the trial did not pay for non-trial patients),  
21   it was difficult to charge patients adequately.

#### 22   3.2 Physiotherapy culture

1 CFT was described by the physiotherapists as contrasting with the current culture in  
2 health settings which needs fast, simple treatments, operating on dependency and  
3 financial driven models.

4 *PT9: A lot of clinics practice in a way that you are making clients a little bit more*  
5 *dependent on you then they need to be, rather than encouraging self-efficacy. I*  
6 *think that that fits the financial model of running a physio, a health business.*

7 The physiotherapists had received or were anticipating resistance from other  
8 physiotherapists and health professionals, on the ideas underpinning CFT. The  
9 physiotherapists also described a lack of consistency across physiotherapy, whereby  
10 patients received changing messages, varying appointment durations, and conflicting  
11 approaches. Physiotherapy ideas which had permeated into other realms of fitness and  
12 health presented clinical challenges in educating other health workers.

13 *PT2: It's quite similar with a lot of health professionals, they don't believe it. I've*  
14 *spoken to them. They're like, "What are you talking about, no core! What are you*  
15 *talking about, rounded back!" I say, "Wait in five years, you'll see what I'm*  
16 *saying."*

#### 17 4. Confident competence and beyond

18 Achieving competency was viewed as an assessment of a landmark on a continuing  
19 journey, not a final destination.

##### 20 4.1 Achieving competency

21 Competency was based on each physiotherapist achieving the required competencies at  
22 their pace. The physiotherapists felt at the end of the training that they were now person-  
23 centered in their whole approach. They no longer conduct subjective assessments from a  
24 rigid deductive approach, and now spend time understanding each patient. They felt they

1 had learnt how to integrate the biopsychosocial elements of a person's pain experience  
2 into their management.

3 *PT11: I feel like you connect a lot more with the patient and can actually make*  
4 *meaningful change helping them through their life problems rather than it just*  
5 *being a back pain problem, it's like how it impacts a whole life.*

6 Physiotherapists felt they now took time to listen and reflectively question their patient's  
7 narratives. Previously, many had given patients the answers or lectured them. At  
8 competency, they encouraged patients to find their own solutions with guidance and they  
9 realized this was a more effective strategy to change beliefs and behaviors. 'Rolling with  
10 resistance'(Rollnick and Miller, 1995) was considered a new skill attained through  
11 training, whereby physiotherapists did not directly contradict what a patient said, rather  
12 they investigated further the underlying reason or belief for what the patient had said.

13 The physiotherapists felt they had become confident asking psychosocial questions,  
14 providing validation of their patient's experiences, and calming patients who expressed  
15 emotional distress. Creating behavior change in patients was also a fundamental element  
16 to competency. The physiotherapists felt that resistant patients need less explanations and  
17 more doing. When the 'doing' of behavioral experiments did not bring change within a  
18 session, the physiotherapists relied on their therapeutic alliance to get patients to stick  
19 with the new ways of moving and lifestyle change for long enough that they improved.  
20 At competency, physiotherapists were able to plan and structure the management of their  
21 patients, were writing significant aspects of patient views and elements of their narrative  
22 in their notes and had a clear end point for their patients.

23 Many of the physiotherapists reported a shift to a judicious approach to manual therapy.  
24 Within the trial they were not able to use manual therapy. When they did use it outside of  
25 the trial, they reported being clear to patients that they were not creating a mechanical

1 change in symptoms, rather modulating the patient's nervous system. The  
2 physiotherapists felt competent to deliver simple psychosocial advice from a  
3 physiotherapy perspective, such as lifestyle change, advice on stress, sleep, and mood.  
4 However, they recognized they were not psychologists and would refer onwards if  
5 patients needed further help managing psychological issues.

6 *PT16: I'm not trying to be a psychologist. I'm just listening to my patient hearing*  
7 *that some of these things are factors... related to their condition or a factor.*  
8 *Therefore, why shouldn't I address it? I wouldn't expect a psychologist to treat a*  
9 *musculoskeletal condition in the way that the physio would. But I would expect*  
10 *them to be able to understand that exercise is a healthy living strategy and can*  
11 *help with their psychological concerns.*

#### 12 4.2 Improved professional confidence

13 The physiotherapists felt a greater sense of professional confidence after achieving  
14 competency. Physiotherapists reported a sense of excitement now when dealing with  
15 complex patients. As a result, they were being referred more patients within their  
16 practices, and felt more able to confidently communicate their clinical findings and  
17 management with other healthcare professionals.

18 *PT9: It's kind of strengthened my capacity to be kind of a referral source for*  
19 *difficult back pain clients of my colleagues.*

#### 20 4.3 Ongoing challenges

21 Although the physiotherapists achieved competency, they felt that practicing CFT would  
22 be a continual learning process towards mastery.

23 *PT16: When you master something, it happens without you having to think too*  
24 *hard. I wouldn't say that I've mastered it. I would say that I'm competent. There's*  
25 *a big difference between competence and mastery.*

1 The physiotherapists reported that challenging resistant patients to make  
2 behavioral/lifestyle change was still difficult. One physiotherapist felt tactfully referring  
3 patients to psychologists was challenging. Managing your own emotions during patient  
4 interactions was also reported by some physiotherapists as needing conscious attention.

5 *PT7: Managing your own emotions... You need to tune into your own internal*  
6 *dialogue and I think that's a skill that physios are not naturally good at because*  
7 *we are used to doing, not thinking like that.*

## 8 DISCUSSION

9 Physiotherapists described the process of learning and achieving competency in CFT as  
10 one of complex behavior change. Barriers and facilitators were individual for each  
11 physiotherapist based on their personal attributes, previous beliefs, practice and skills,  
12 and contextual factors, including time and support within their clinical environment.  
13 Despite significant barriers to the learning process, all physiotherapists achieved  
14 competency and a sense of confidence to work with patients with persistent disabling  
15 back pain. This occurred at different time points, highlighting the individual nature of this  
16 process.

17 Physiotherapists highlighted the importance of transformative learning through the  
18 experiential learning components of training, feedback, self-reflection, and time for  
19 practice within the clinical environment. They recognized that shifting practice to a CFT  
20 approach required a paradigm shift in how they conceptualized and worked with  
21 patients with persistent low back pain. A 'paradigm shift' may be both an outcome and  
22 a process of transformative learning, and has been expressed similarly by other  
23 physiotherapists training in CFT (Holopainen et al, 2020), stratified care (Hsu et al,  
24 2019), and person-centered practice (Lawford et al, 2018). Further demonstrating the  
25 paradigm shift, these studies reported clinicians applying this approach to other patient

1 groups with psychosocial presentations (Cowell et al, 2018; Sanders, Ong, Sowden and  
2 Foster, 2014), as in our study. In contrast, implementation post-training for other  
3 biopsychosocial interventions has been described by physiotherapists as a ‘tool in the  
4 toolbox’ (Kelly et al, 2018), ‘mix and match’ approach (Nielsen, Keefe, Bennell and  
5 Jull, 2014), or ‘instinctive’ without use of the complete approach (Hsu et al, 2019).  
6 Selective use of components of a new approach is problematic, particularly as often  
7 physiotherapists perceive they employ biopsychosocial approaches more than they do  
8 (Fritz, Söderbäck, Söderlund and Sandborgh, 2018; Hsu et al, 2019).

9  
10 The most influential component in transforming clinical behavior was reported to be  
11 experiential learning. This involved ‘graduated practice exposure’ with feedback,  
12 involving a physiotherapist undergoing trainer-supervised delivery of CFT care working  
13 with a real person with back pain, in a group setting. Physiotherapists have widely  
14 reported experiential learning to be fundamental to clinical behavior change (Cowell et  
15 al, 2018, 2019; Driver, Lovell and Oprescu, 2020; Lawford et al, 2018; Nielsen, Keefe,  
16 Bennell and Jull, 2014; Simpson et al, 2021; Synnott et al, 2016). This was echoed by  
17 our physiotherapists, who likened the process of transformative learning to that of their  
18 patients, whose thoughts, emotions, and behaviors are challenged through gradual  
19 exposure to feared movements during CFT intervention (Caneiro, Bunzli and  
20 O’Sullivan, 2021; Caneiro et al, 2017). The physiotherapists and trainers reported this  
21 process occurred as the physiotherapists began to identify their own underlying pain  
22 beliefs, and challenge their previous behavioral responses (such as getting a patient to  
23 lie down when pain escalated), and emotional responses (including stress and fear if a  
24 patient’s pain increased). Individualized feedback and self-reflection allowed further  
25 transformation of beliefs and skills, as highlighted in other training and behavior change

1 literature (Donaghy and Morss, 2000; Eva et al, 2012; Fritz, Söderbäck, Söderlund and  
2 Sandborgh, 2018; Lefroy, Watling, Teunissen and Brand, 2015; Winstone, Nash, Parker  
3 and Rowntree, 2017). Working with patients with low back pain in front of colleagues  
4 and trainers was described by the physiotherapists as important but also unique. It  
5 elicited some discomfort, suggesting that the paradigm shift towards a biopsychosocial  
6 approach was so great that the physiotherapists felt exposed and vulnerable.

7  
8 Other learning components, including resources and observation, were considered  
9 valuable, but did not hold the same behavior change effect. This affirms the literature  
10 that resources or observation alone are insufficient for the transformation of  
11 biopsychosocial knowledge and skills into practice (Holopainen et al, 2020; Nielsen,  
12 Keefe, Bennell and Jull, 2014; Richmond et al, 2016; van der Wees et al, 2008).

13 Similarly, while observing trainers delivering care was considered useful,  
14 physiotherapists did not feel this alone transformed their learning. In line with other  
15 research, physiotherapists valued learning from physiotherapy experts, who were aware  
16 how psychosocial issues relate from a physiotherapy perspective, within the constraints  
17 of clinical practice (Driver, Lovell and Opreescu, 2020; Monaghan, Adams and  
18 Fothergill, 2018).

19  
20 Time for clinical integration between the workshops was considered an important  
21 facilitator towards competency to allow gradual enculturation of knowledge and beliefs  
22 for the physiotherapists. Literature on learning a biopsychosocial approach  
23 demonstrates that although shorter training programs may elicit changes in  
24 physiotherapist's attitudes (Domenech et al, 2011; Jacobs et al, 2016; O'Sullivan,  
25 O'Sullivan, O'Sullivan and Dankaerts, 2013), whether they change practice behaviors,

1 and patient outcomes is unclear (Overmeer, Boersma, Denison and Linton, 2011;  
2 Overmeer, Boersma, Main and Linton, 2009; Sandborgh, Asenlof, Lindberg and  
3 Denison, 2010; Stevenson, Lewis and Hay, 2006). After 2-day biopsychosocial training  
4 programs, physiotherapists have reported feeling overwhelmed with “too much content  
5 to digest” (Lawford et al, 2018), and ongoing difficulty with individualizing care (Kelly  
6 et al, 2018). Time for clinical integration with transformative learning experiences is an  
7 important consideration for any future training aiming to develop competency and  
8 successful clinical application of CFT.

9

10 The clinical environment and personal circumstances can inhibit physiotherapists from  
11 embedding learnings from a training program (Synnott et al, 2015; Webster-Wright,  
12 2009). In our study, physiotherapists perceived time, support from employers and  
13 colleagues, difficulties with pushback or conflicting ideas from other clinicians, privacy,  
14 autonomy, reimbursement to be barriers. Individually, each physiotherapist in our study  
15 had their own personal barriers to overcome to achieve competency, including personal  
16 attributes, and previous beliefs. Despite these barriers, our study demonstrates that, with  
17 adequate training, physiotherapists from various clinical and personal backgrounds can  
18 become competent to deliver CFT.

19

20 The desired outcome of CFT training is to upskill physiotherapists with critical  
21 competencies to successfully work with people with chronic pain in the real world  
22 (Gruppen, Mangrulkar and Kolars, 2012). Competency-based education has been  
23 acknowledged as more effective for skills acquisition in undergraduate physiotherapy  
24 (Hush, Nicholas and Dean, 2018) and medicine (Frank et al, 2010; Ten Cate and Billett,  
25 2014). However, literature on employing competency-based education in post-graduate



1 physiotherapy is limited, where time-based models of training dominate (Devonshire  
2 and Nicholas, 2018; Foster and Delitto, 2011; Simpson et al, 2021). Our results show  
3 that the physiotherapists and trainers felt training towards competency using a  
4 competency checklist to be fundamental to the learning process and assessment.

#### 5 Practical implications

6 It is important that future training supports the paradigm shift and behavior change  
7 required for physiotherapists to deliver CFT successfully. Training programs must be  
8 multifaceted including didactic, observational, and experiential learning components  
9 with mentoring. Competency assessment to ensure behavior change is imperative. Our  
10 study's findings on important training factors may help inform other training programs  
11 of complex biopsychosocial approaches.

#### 12 Strengths and Limitations

13 Significant reflexive journaling throughout data collection and analysis was undertaken,  
14 enhancing trustworthiness of results (Connelly, 2016). This was informed by Braun and  
15 Clark's reflexive thematic analysis (Braun and Clarke, 2019, 2021) and included self-  
16 reflection on the researcher's position and beliefs. Subsequently the researcher aimed to  
17 immerse in the data through reading each transcript in full, reflecting on deeper meaning  
18 within the text, questioning and making memos, before imagining, wondering, and  
19 reflecting again (Braun and Clarke, 2019, 2021). The cross-sectional design with data  
20 collection only at the end of the training was a limitation of the study as physiotherapists  
21 may have had difficulty remembering early components of the learning process. Social  
22 desirability bias may have been present as physiotherapists may not have wanted to report  
23 negative findings (Collins, Shattell and Thomas, 2005). To mitigate potential bias, the  
24 interviewer was not involved in the training process and made reassurances of  
25 confidentiality and impartiality clear to the physiotherapists. The trainers being highly

1 experienced in CFT may limit the transferability of these findings to other training  
2 programs without the same level of trainer skill and experience.

### 3 CONCLUSION

4 The CFT learning journey was perceived as a complex and individual behavioral  
5 change process by physiotherapists and trainers. Physiotherapists felt graduated practice  
6 exposure with feedback, self-reflection, and time for clinical implementation between  
7 training sessions were key elements of the training. The multifactorial nature of  
8 training, encompassing resources and structure, underpinned by the learning alliance  
9 between physiotherapist–trainer and group dynamics were influential on the journey  
10 towards competency. Although individual and contextual factors posed barriers to the  
11 training, these were overcome by all physiotherapists. This study provides insight into  
12 high-quality training for physiotherapists in CFT and important factors in achieving  
13 physiotherapist competency. These insights may help inform future training to improve  
14 delivery of biopsychosocial interventions and patient outcomes.

### 15 Acknowledgements

16 The authors would like to acknowledge the 18 physiotherapists and trainer Dr JP Caneiro  
17 for their insights.

### 18 Author contributions

19 All authors provided concept/idea/research design. All authors developed the interview  
20 schedule, discussed the results, provided writing, and commented on the manuscript. The  
21 authors included a Specialist musculoskeletal physiotherapist, four physiotherapists and  
22 a psychologist, all with research and education backgrounds.

23 Funding details: This research did not receive any specific grant.

1 Disclosure statement: Prof Peter O’Sullivan and Dr Riikka Holopainen receive payment  
2 for delivering workshops and speaking at conferences on management of  
3 musculoskeletal pain. The remaining authors have no conflict of interest to declare.

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38 Figure 1. Training of the physiotherapists in Cognitive Functional Therapy

39 Figure 2. Learner driver analogy