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

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

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

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

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

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

Keywords: biopsychosocial, physiotherapist, training, competency, qualitative

INTRODUCTION

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

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

Participants

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

Intervention, training, and competency

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

Data collection

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

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

Data processing

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

Data analysis

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

1. Pre-training factors

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

1.1 Physiotherapists' attributes

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

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

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

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

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

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

1.2 Previous beliefs, practice, and skills

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

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

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

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

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

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

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

CONCLUSION

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

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Author contributions

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

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

39 Figure 2. Learner driver analogy