

Patient Perspectives on Participation in Cognitive Functional Therapy for Chronic Low Back Pain

Samantha Bunzli, Sarah McEvoy, Wim Dankaerts, Peter O'Sullivan, Kieran O'Sullivan

Background. Cognitive functional therapy (CFT) has been shown to reduce pain and disability in people with chronic low back pain.

Objectives. The purpose of this study was to investigate participants' experience of CFT by comparing participants who reported differing levels of improvement after participation in CFT, potentially yielding insight into the implementation of this approach.

Design. This was a noninterventional, cross-sectional, qualitative study with an interpretive description framework.

Methods. Individuals who had participated in CFT in 2 physical therapy settings (in Ireland and Australia) were recruited through purposive sampling based on disability outcomes postintervention (n=9), and theoretical sampling (n=5). This sampling strategy was used to capture a range of participant experiences but was not used to define the final qualitative groupings. Semistructured interviews were conducted 3 to 6 months postintervention.

Results. Three groups emerged from the qualitative analysis: large improvers, small improvers, and unchanged. Two themes encapsulating the key requirements in achieving a successful outcome through CFT were identified: (1) changing pain beliefs and (2) achieving independence. Changing pain beliefs to a more biopsychosocial perspective required a strong therapeutic alliance, development of body awareness, and the experience of control over pain. Independence was achieved by large improvers through newly cultivated problem-solving skills, self-efficacy, decreased fear of pain, and improved stress coping. Residual fear and poor stress coping meant that small improvers were easily distressed and lacked independence. Those who were unchanged continued to feel defined by their pain and retained a biomedical perspective.

Conclusions. A successful outcome after CFT is dependent on instilling biopsychosocial pain beliefs and developing independence among participants. Small improvers may require ongoing support to maintain results. Further study is needed to elucidate the optimal approach for those who were unchanged.

S. Bunzli, PhD, Department of Surgery, University of Melbourne, St Vincent's Hospital, Melbourne, Clinical Sciences Building, 29 Regent St, Fitzroy 3065, Victoria, Australia. Address all correspondence to Dr Bunzli at: sbunzli@unimelb.edu.au.

S. McEvoy, BSc(Hons), Department of Clinical Therapies, University of Limerick, Limerick, Ireland.

W. Dankaerts, PhD, Department of Rehabilitation Sciences, Musculoskeletal Unit, Faculty of Kinesiology and Rehabilitation, KU Leuven, Leuven, Belgium.

P. O'Sullivan, PhD, School of Physiotherapy and Exercise Science, Curtin University.

K. O'Sullivan, PhD, Department of Clinical Therapies, University of Limerick.

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Chronic low back pain (CLBP) is a common condition that frequently causes considerable distress and disability.¹ Many common interventions for CLBP, based on the premise that structural or anatomical dysfunction underlies the pain experience, have failed to consistently produce significant long-term reductions in pain or improvements in function.²⁻⁵ However, a wide range of biological, psychosocial, behavioral, and lifestyle factors are now known to interact in a self-perpetuating cycle in the evolution and persistence of CLBP.⁶⁻¹¹

Cognitive functional therapy (CFT) is a comprehensive biopsychosocial approach that aims to address the mechanisms driving CLBP and associated disability.¹² Its focus is on reconceptualizing pain as a biopsychosocial problem, functionally retraining maladaptive and feared postures and movement patterns and addressing contributing lifestyle factors.¹² Cognitive functional therapy retains an emphasis on physical rehabilitation similar to many traditional exercise-based rehabilitation approaches to the management of CLBP. However, CFT also incorporates other recent innovations in pain management, including: (1) how thoughts can affect actions similar to cognitive-behavioral therapy, (2) a strong focus on education about pain neurophysiology, (3) the use of mindfulness, and (4) the potential harm associated with trying to “fight” pain, similar to acceptance and commitment therapy.¹³ This approach provides statistically and clinically significant improvements in disability, pain, and a variety of cognitive and psychosocial variables among patients with CLBP.^{12,14} Further details on the components of the CFT intervention have been published in a recent article in this journal.¹² However, although quantitative methods are essential to elucidate the efficacy of this approach, they cannot give an account of the context, interactions, interpretations, and experiences that are integral to the treatment process.^{15,16} Qualitative methods allow these intricacies to be explored and are used to guide both research and the implementation of interventions such as CFT.

The perspectives of individuals undergoing biopsychosocially oriented interventions for chronic pain are beginning to be investigated.¹⁷⁻¹⁹ These studies yielded insight into both the practical elements and cognitive shifts required for successful intervention, which included the formation of a supportive and motivating bond with the therapist, provision of accessible education, pain redefinition, fear deconstruction, and the restoration of hope and an acceptable sense of self.¹⁷⁻¹⁹ The knowledge generated may be useful in treatment planning and execution. However, these interventions varied in content from CFT and were not outlined in detail. Secondary quantitative outcome measures in the aforementioned CFT studies^{12,14} suggest that the meaning of CLBP, the perceived danger of physical activity, self-efficacy, mood, anxiety, and catastrophizing change over the course of CFT treatment. However, further qualitative research is warranted in order to establish how these reported quantitative changes after CFT overlap with the qualitative insights reported above from other research on CLBP.

The aim of this study was to compare and contrast the perspectives of participants who reported differing levels of improvement after CFT. The objectives were to elucidate the key requirements in achieving a successful outcome with CFT and to provide comprehensive and practical insights for clinicians wanting to implement this approach in a patient-centered and effective manner.

Method Design

This was a noninterventional, cross-sectional qualitative study.

Procedure

Interpretive description was the method by which inquiry was guided.²⁰ This is a paradigm developed specifically to guide health care-oriented research, conducted by researchers who are necessarily knowledgeable in the field of investigation.²⁰ The aim of interpretive description is to create credible, rigorous, and valid knowledge that elucidates shared realities while maintaining an appreciation for the individual nature of

health and illness experiences.²¹ Ultimately, results should contribute to a framework by which assessment, planning, or interventions may be guided.²¹ This framework was deemed appropriate for the research aims and objectives as outlined above.

Researchers

All authors are physical therapists with clinical and research interests in the biopsychosocial management of CLBP.

Participants

Cognitive functional therapy. All participants had undergone CFT for CLBP with experienced musculoskeletal physical therapists, 2 of whom were coauthors (K.O. and P.O.). Details of this intervention are provided elsewhere.¹² The treatment was individualized to the patient and consisted of 4 components:

1. Pain education: focused on reconceptualizing pain within a biopsychosocial context related to the individuals' story.
2. Specific posture or movement retraining: graduated retraining and graded exposure to previously pain provocative tasks in a relaxed, confident, mindful manner.
3. Functional integration: incorporating learned functional behaviors into daily tasks.
4. Physical activity and lifestyle training: increasing physical activity levels in a relaxed, confident, mindful manner while developing skills to enhance sleep and stress coping.

All aspects of the intervention were underpinned by a strong therapeutic alliance, with an emphasis on an open and motivational communication style.

Sampling. Individuals who had participated in a CFT intervention in 2 settings, 1 in Ireland and 1 in Australia, were eligible for participation. These 2 settings were chosen for convenience to the authors and to capture a wide diversity in experience of the CFT intervention. Three to 6 months after the intervention, 9 individuals from the Irish setting were

sampled purposively to ensure a sample with an even representation of sex (male/female) and a range of disability outcomes postintervention (</>30% reduction on Oswestry Disability Index at 3 months postintervention) (Table). Purposive sampling based on disability aimed to capture a range of experiences of CFT. Disability scores were only used to recruit a sample of improvers and non-improvers, not to define the groupings described in the qualitative analysis. Indeed, the researchers who performed the interviews and conducted the data analysis were blinded to the treatment outcome status of each participant when they were recruited for participation.

Semistructured interviews were conducted initially with these 9 participants. To test emerging concepts from analysis of these 9 interviews, 5 additional individuals who had undergone CFT treatment with diverse outcomes were recruited from the Australian setting. The Australian participants were not recruited based on Oswestry Disability Index scores postintervention, but rather on levels of pain-related fear as measured by the Tampa Scale of Kinesiophobia to assist in our understanding of the emerging theme “changing pain beliefs.” These individuals were taking part in a concurrent study being conducted by 2 of the coauthors exploring changes in pain-related fear in people with CLBP and high pain-related fear undergoing a range of interventions for CLBP as part of their usual care. A full description of the study was published recently by Bunzli et al.²² Two individuals who were recruited experienced improvements in pain-related fear so that they no longer met the criteria for high fear following CFT. Three individuals who were recruited reported improvements in pain-related fear following CFT but still met the criteria for high fear.

Recruitment stopped once we had sufficient data to provide practical insight for clinicians wanting to implement CFT. All individuals in Australia who were invited agreed to participate, and 14 participants in Ireland were contacted in order to recruit the 9 individuals who were interviewed. Of the 5 Irish individuals who refused to participate (3 male, 3 with

changes >30% on the Oswestry Disability Index), 2 could not attend for logistical reasons, 1 was ill, and 2 did not reply to telephone messages. All individuals provided written informed consent to participate and have their interviews recorded.

Data Collection

One-on-one, face-to-face interviews were conducted by one author in each setting (S.M. or S.B.). The interviewers were not previously known to the participants and were unaware of their disability outcomes prior to the interview. Semistructured interviews opened with questioning about the context of the participants’ lives, the circumstances of their CLBP, the impact it had on their lives, and previous interventions they had received before the CFT intervention. Subsequent questions included those concerning the CFT intervention itself. These questions included their expectations, initial reaction, and evolving opinion of treatment. The knowledge they had gained and their physical and emotional journey through treatment were explored. Finally, their current understanding and coping strategies, along with their hopes and expectations for the future, were outlined. Example interview questions are provided in the Appendix. Either party was free to diverge where other relevant topics emerged in order to retain the inductive approach.²³ The interviews were conducted in either a university room designated for qualitative research or in the participants’ home and lasted between 20 minutes and 1 hour. All interviews were voice recorded and transcribed verbatim.

Data Analysis

Data collection and data analysis occurred concurrently. The earliest stages of analysis involved repetitive reading of the transcripts to gain a broad sense of the data in context.²¹ Two authors (S.B. and S.M.) independently analyzed each transcript. The first question asked of the data was: “Did this individual experience an improvement in his or her pain experience through CFT?” Codes were identified inductively from the raw data rather than deductively from pre-existing theory by asking broad questions such as “What is going on

here?”²¹ Two authors (S.B. and S.M.) independently performed initial coding, and resultant code lists were then compared to reassure that interpretations were justifiable and grounded in the raw data rather than a priori beliefs. Although some variation in terms existed between the 2 coders, the meaning of the codes was consistent. Through a process of constant comparative analysis (cycling between the code book and raw data) and discussion between authors, a comprehensive codebook was compiled that was able to describe all raw data. Once all interviews had been completed, each transcript was recoded with the comprehensive codebook.

During the coding of each transcript, the participants’ experiences were initially interpreted by 2 separate authors as reflecting an improved pain experience (improvers) or not (unchanged). Improvers were defined as individuals who described having experienced an improvement in physical and psychosocial functioning after CFT intervention. Scores on quantitative outcome measures were not used for determining improver status; the interpretations remained grounded in the individual participants’ experiences. However, it became clear during this process that not all participants could be easily described as improvers or unchanged. For example, 2 participants reported a positive response to some aspects of the intervention (altered pain beliefs) but a poor response to other aspects of the intervention (they described limited pain self-efficacy). As such, we further divided the “improvers” category into “large improvers” and “small improvers.” This subdivision was felt to be reflective of reality, defined as “complex, contextual, constructed and ultimately subjective” by Thorne et al.²¹ The 2 authors were consistent in their identification of large improvers, small improvers, and unchanged participants based on their independent analysis of interview transcripts. Transcripts were thereafter grouped by improver status. Patterns of experiences were identified across groups and then compared within groups. Codes occurring in more than two-thirds of a group were termed “key codes.” These codes were used to give a

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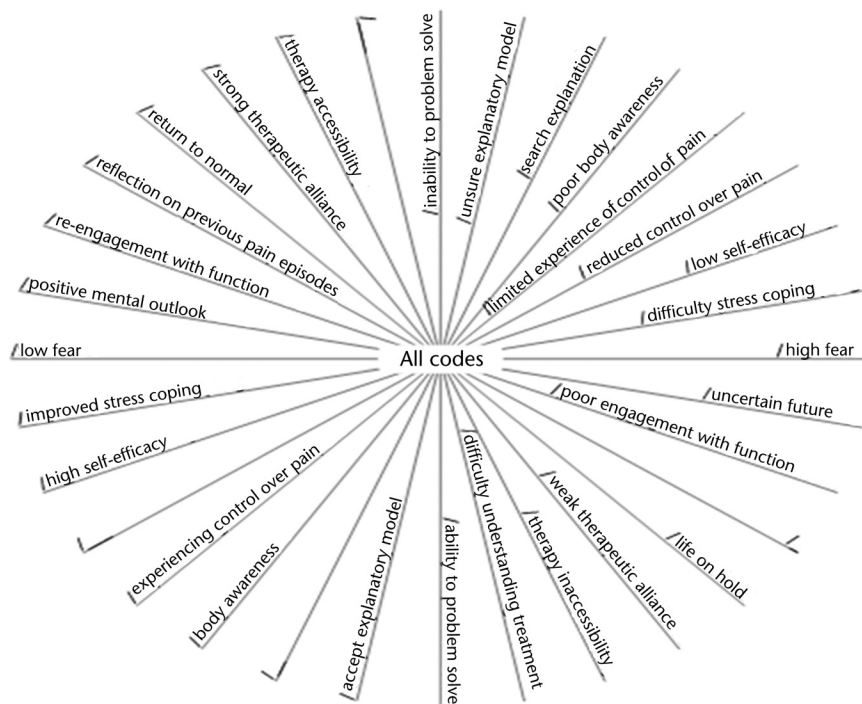


Figure 1. Code plot, a visual representation of the sorted data produced by Codesort, containing complete list of codes used in the coding of raw data.

sense of the defining characteristics of each group.

Coded data were inserted into computer-assisted software (Codesort, developed by S. Bunzli and P. Buenzli, 2013) purpose designed by one author (S.B.) to sort the extracts by code. The software produced a PDF document with hyperlinks among 3 levels of context: (1) the original transcript, where coded extracts were highlighted; (2) the extracts grouped by code; and (3) a graphic representation (code plot) of all the codes appearing in each transcript. The PDF could be shared between authors and assisted in the identification of emerging patterns. Through repetitive interpretation, synthesizing, and theorizing, these codes were grouped into common themes that were all considered to be representative of the participants' experiences.²¹

The interpretations presented represent our attempts to inform clinical physical therapist practice; however, alternative interpretations of the participants' experiences are possible, as with any qualita-

tive investigation. Through offering a "believable, confident representation of the participants experiences, supported by meaningful data and well-qualified themes,"^{24(p25)} the findings described in this study yield insights to inform clinical practice.

Results Participants

The demographic details of the participants are displayed in the Table. The final sample was 57% female, with a mean of 42 years of age and a mean CLBP duration of 9 years. Six of the 14 participants were working full time at the time of the study.

Main Findings

In analyzing the narratives of participants, the codes that appeared important in achieving an optimal outcome were grouped into 2 themes: (1) changing pain beliefs and (2) achieving independence. Each of these themes then contained several different codes. Changing beliefs included the codes therapeutic alliance, body awareness and pain control. Achieving independence included

the codes problem solving, self-efficacy, fear, stress coping, and normality.

The specific codes that were noted for each participant are presented in the eAppendix (available at ptjournal.apta.org), although it is important to highlight that the eAppendix indicates the frequency but not the salience of these codes for each participant. In Figure 1, the code plot containing the full list of codes in the code book is presented. Figures 2 and 3 are code plots that illustrate the experiences of 2 participants coded as unchanged and 2 participants coded as large improvers, respectively. A "branch" of the code plot is present when the corresponding code appears in the individual's transcript. In Figure 2, the dominance of negative codes, such as "low self-efficacy" and "inability to problem solve," on the right is shown. In Figure 3, the dominance of positive codes, such as "accept explanatory model" and "high self-efficacy," on the left is shown. Nevertheless, it is acknowledged that even in both of these example figures, some contradictory information was evident among both groups. For example, participant 9 (unchanged) reported enhanced body awareness and some ability to control pain while simultaneously reporting difficulties controlling pain, strong biomedical beliefs, and an interference of pain in activities of daily living.

A description of the themes identified is provided below, with supporting extracts labeled by participant code, improver status (large improvers=LI, small improvers=SI, and unchanged=U), and the line number where the extract occurred in the interview transcript.

Theme 1: Changing Pain Beliefs

In general, participants entered the intervention with strong biomedical beliefs regarding the cause of their pain. Acceptance of a biopsychosocial model for their pain differentiated the large improvers and small improvers from the unchanged participants. All large improvers demonstrated biopsychosocial beliefs after intervention. Although the large improvers still acknowledged their biomedical diagnoses, these diagno-

Table.
Participant Characteristics^a

Participant No.	Nationality	Sex	Age (y)	Duration of CLBP (mo)	Leg Pain	ODI Score (Change From Baseline)	TSK Score (Change From Baseline)	Employment Status
Large Improvers								
1	Irish	M	43	9	Yes	10 (-60%)	N/A	Part-time employed
2	Irish	F	40	276	No	7 (-78%)	N/A	Employed
3	Irish	F	45	120	Yes	2 (-91%)	N/A	Employed
6	Irish	M	22	36	Yes	8 (-88%)	N/A	Student (on disability benefit before treatment)
11	Australian	F	33	144	Yes	N/A	15 (-22%)	Employed
13	Australian	M	42	24	No	N/A	14 (-20%)	Employed
Unchanged								
4	Irish	M	54	40	Yes	38 (-25%)	N/A	Part-time employed (unemployed before treatment)
8	Irish	M	57	456	Yes	30 (-27%)	N/A	Part-time employed (disability scheme)
9	Irish	M	32	25	Yes	36 (-17%)	N/A	Unemployed (on disability benefit)
10	Australian	F	39	6	Yes	N/A	24 (35%)	Employed
12	Australian	F	25	6	No	N/A	0 (0%)	Employed (on sick leave)
14	Australian	F	61	120	No	N/A	15 (22%)	Part-time employed
Small Improvers								
5	Irish	F	50	240	Yes	18 (-43%)	N/A	Employed
7	Irish	F	50	36	Yes	26 (-51%)	N/A	Unemployed

^a CLBP=chronic low back pain, ODI=Oswestry Disability Index, TSK=Tampa Scale of Kinesiophobia, N/A=not applicable, M=male, F=female. Negative value for ODI change indicates less disability after treatment; negative value for TSK change indicates less fear after treatment.

ses appeared to be part of their pain history and no longer caused them distress:

There can be pain without being physical or structural problems. . . . When there is something going on in someone's life, you know it can manifest in any in any area. . . . There is more to it than just the structure. [P11, LI, line 600]

Although small improvers also described their current pain predominantly in biopsychosocial terms, they found the idea of an underlying sinister cause more difficult to relinquish:

When you're in pain, it's still very hard to let go of that [the concept of disk herniation] at times, and that will be a constant battle, I think. [P5, SI, line 135]

Although all participants in the unchanged group indicated that they understood the biopsychosocial concepts, they did not appear to attribute these concepts to their pain experience and remained in search of a biomedical explanation:

I don't know, I'm still, baffled over it. . . . any scans, like, they just show it was only muscle, . . .but I, myself, think that there is more there. [P9, U, line 172]

Therapeutic alliance. Therapeutic alliance appeared to play a role in challenging pre-existing beliefs. The establishment of a trusting relationship with the therapist appeared to be important in facilitating effective communication in which individuals felt comfortable airing their concerns and doubts, with the

underlying faith that the therapist had their best interests at heart:

I found myself questioning it a couple of times. . . . But I think that you just have to have that communication, that comfortable atmosphere has to be there. [P1, LI, line 196-205]

I think knowing that you have someone that cares about your condition is great. [P11, LI, line 592]

On the contrary, those who were unchanged appeared less likely to describe a strong relationship with the therapist than large improvers:

The other [physical therapist] kind of laughed at me sometimes. . . . He was like, "Oh, your pain is silly. Don't worry about it. Just relax." And I was like, "I can't really do that." [P12, U, line 74]

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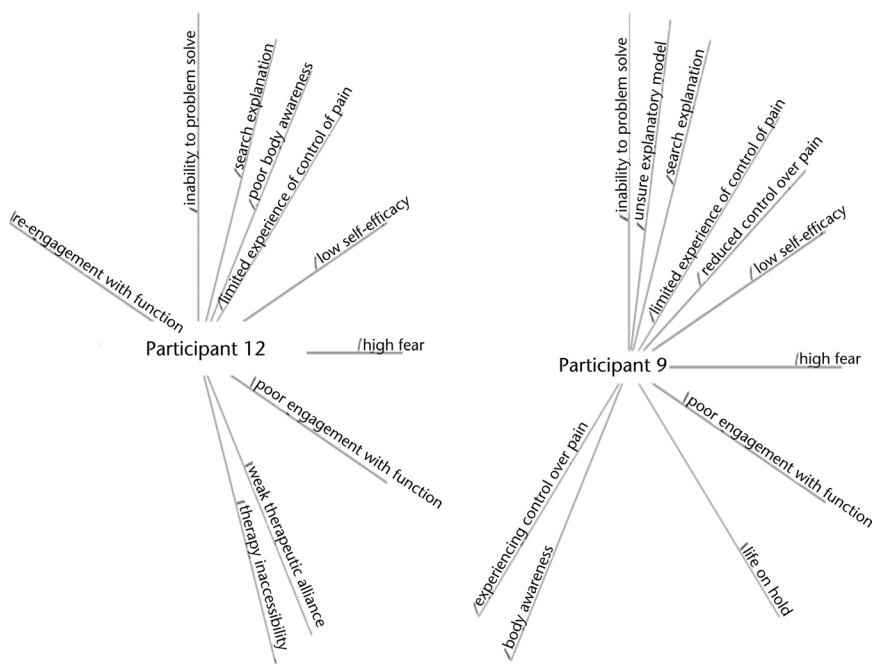


Figure 2.
Code plots of codes used in the coding of 2 sample unchanged participants.

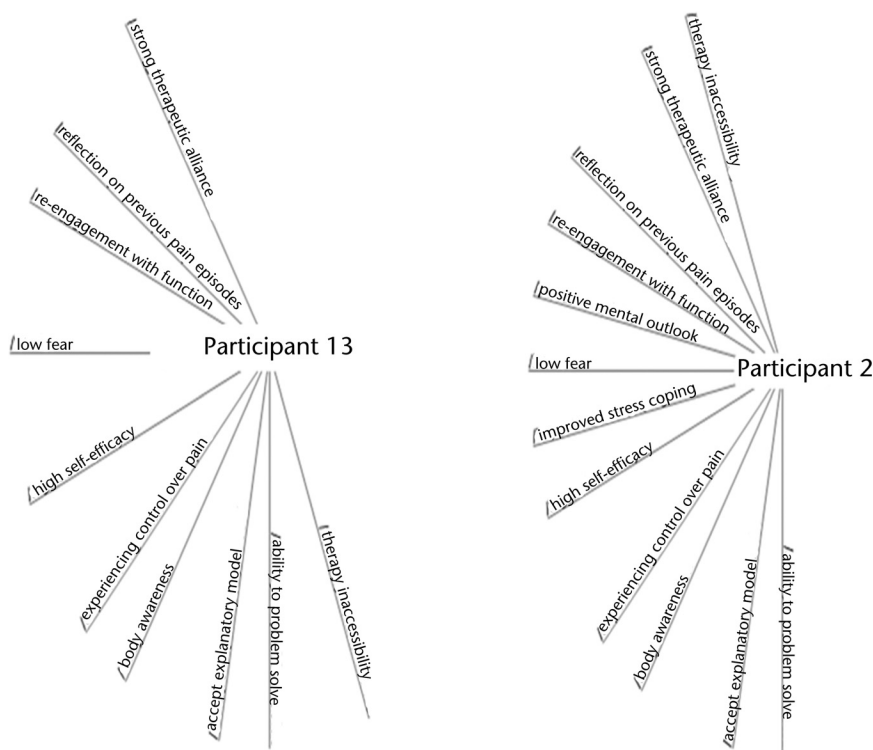


Figure 3.
Code plots of codes used in the coding of 2 sample large improvers.

However, interestingly, the small improvers also reported a strong therapeutic alliance, suggesting that the establishment of a trusting relationship and open communication may have set the scene for improvement but alone may not be enough to bring about large improvements in the pain experience:

He was great, and it made it very easy. You know, it wasn't like a doctor-patient thing, and I didn't feel ever, at any time, that I was a nuisance. Sometimes, I would feel that I was going on and on, and he was very easygoing and very relaxed. . .like, I would get worked up, and he would just calm it down. He had a very good way of being able to do that. [P5, SI, line 207]

Body awareness. Large improvers and small improvers described how the therapist assisted them to gain a new perspective of the self both physically and mentally. This new “body awareness” was crucial in providing a rationale for their pain and increasing their faith in the new explanatory model:

I realized how stiff I moved. . .holding your breath, moaning as you did something. . .totally unknownst to myself. [P2, LI, line 105]

When you're stuck in things you can't see clearly, and you need someone to guide you. [P5, SI, line 232]

Although some participants who were unchanged reported an improved awareness of how they moved, they appeared not to be empowered by this experience, as the large improvers were. Instead, they continued to search for a biomedical explanation for their pain:

It helped me so much, . . .but there is something else, you could say, that is causing it, the whole thing to come back. [P9, U, line 189]

Experiencing pain control. Armed with new information and improved body awareness, large improvers and small improvers could experience control over their pain. Both large improvers and small improvers cited the experience of control over pain as the key to the consolidation of their new belief system:

I think you build up confidence in your body when the worst happens and then you get through it. [P13, LI, line 270]

If you feel like you can cope with the pain, or you feel you have a way of relieving it, it doesn't make it half as bad. . . . I started back work again, and before I couldn't bake at the table longer than a couple of hours, whereas now I'm doing 24 hours straight. [P2, LI, line 141]

On the contrary, those who were unchanged did not experience significant control over pain, which had the effect of confirming their doubts:

If I was going away, long distance, I don't know if I could manage it. . . . I try and relax, but it seems, 20 minutes, half an hour at the most, I'd be crippled. [P 9, U, line 89]

Theme 2: Achieving Independence

The second pivotal step was achieving independence, graduating from the support of one-on-one therapy to self-management.

Problem solving and self-efficacy. Independent self-management was built on the foundation of sound problem-solving skills. Large improvers felt that they now understood their pain, and because they had previously achieved control, they did not doubt their capacity to deal with further pain experiences:

Like, I think you kind of got that knowledge of what was really happening within yourself, . . .and by that, like, I mean, if I got a pain again, which I have done, on and off, that I'm able to check myself. . .and see [if I can] unravel it myself. [P1, LI, line 110]

The high pain self-efficacy described by large improvers contrasted with the low pain-self efficacy described by small improvers, who appeared to have residual concerns about their ability to cope with a relapse:

I had to go back and ring X again, I tried to manage for, I'd say, maybe a month, . . .and I wasn't winning, and my thinking got negative again, and so I had to ask for help. [P5, SI, line 163]

As those who were unchanged did not believe they had found the cause of their pain, they felt unable to problem solve new episodes:

For a while there, I was so sore, and this was about 3 months ago, . . .and I was like, "Why am I so sore? I don't understand." [P14, U, line 57]

Fear. Due to an understanding of the cause of their pain and greater confidence in their ability to control it, large improvers reported less fear in the face of new pain episodes:

I wasn't as scared that it was going to last forever and that that was the end of my activities, like, you know? [P3, LI, line 84]

In contrast, both small improvers and those who were unchanged reported fear in the face of new pain experiences. This small improver believed she could slip back into a cycle of fear if her pain returned:

At the moment, if it stays away, I am not panicking. But if it got worse now, if the stress thing went and the pain was still there. . .? [P7, SI, line 344]

This individual in the unchanged group, however, remained fearful of performing movements that increased pain intensity:

It hurts, and I am scared I am going to hurt it more. [P10, U, line 011]

Stress coping. Not only was it important that participants learned the effect of stress and lifestyle on the experience of pain, it was imperative that they learned how to deal with these stressors in order to achieve lasting control over pain. Large improvers acknowledged these stressors as contributors to their pain experience and found active coping mechanisms to reduce their impact:

I mean, I was in agony those couple of days, but it wasn't until I came back to the basics that I got my whole body to relax. For me anyway, it was stemming from an emotional incident that tensed up the whole back. [P2, LI, line 246]

Although small improvers found it difficult to manage stressors, they at least

acknowledged their presence compared with the unchanged group, who did not appear to link stress events with new episodes of CLBP at all:

Stress causes a lot of it, . . .and I'm still not good with managing stress. I still need help with that, and that comes from all angles in my life. [P5, SI, line 84]

Well, it's more of a physical thing with me than a mental thing, really. [P8, U, line 115]

Normality. The concept of becoming "normal" again recurred frequently. Confident in their ability to control pain, large improvers were no longer defined by their CLBP, and they returned to normal activities with renewed optimism for the future:

I'm back to work 3 days a week, in a different job now, fair enough. . . . I do my 3 miles every day. . . . I'm back playing the golf now. . .the gardening. . .and I'm back coaching the soccer again, . . .so I'm back living almost a normal life again. [P1, LI, line 116]

Although the small improvers were satisfied that they were coping better than previously and had achieved many of their goals, their pain relapses seemed to remind them that they were not "normal," and consequently they adjusted their expectations for the future:

I did so well at the start of the course, I thought maybe I can be normal again. Now, I don't think that I'll ever be fully normal again, but a lot better than what I was, . . .so you know I'm pretty pleased with what I have. [P5, SI, line 184]

Finally, the unchanged retained a feeling of abnormality where they felt defined by their CLBP, had limited participation in everyday life, and were uncertain as to their future prognosis:

The thing is, I can't see the end of the tunnel anymore. . . . I have tried the [rehabilitation]. It hasn't worked. What next? [P10, U, line 367]

Discussion Summary of Findings

The results suggest that improvement after a CFT intervention depends on: (1)

the degree to which patients adopt biopsychosocial beliefs and (2) their ability to independently self-manage their condition. Changing beliefs was associated with a strong therapeutic alliance, development of body awareness, and the experience of pain control. Achieving independence was associated with the development of problem solving skills and self-efficacy, reducing fear, improving stress coping, and a return to normality.

Theme 1: Changing Pain Beliefs

Attaining a working biopsychosocial understanding of the individual experience of CLBP appeared to be critical in achieving an optimal outcome. Changing pain beliefs accounts for a large proportion of the improvements in physical disability, depressive symptoms, and pain intensity after intervention.²⁵ Participants in this study held strong biomedical pain beliefs before the CFT intervention, in line with the belief patterns of the wider CLBP population.²⁶ After CFT treatment, large improvers were confident in their understanding of the diverse physical, psychological, and social factors that could contribute to their pain. In contrast, the unchanged participants continued to adhere to biomedical beliefs. The experiences of small improvers served to outline the importance of not only a logical understanding of the multifaceted nature of pain but also a deep visceral confidence in new beliefs. These findings suggest that changing participant beliefs should be a priority for treatment. These results concur with those reported by Toye and Barker,¹⁷ who found the acceptance of a biopsychosocial explanation of pain to be necessary for restoring hope and achieving a successful outcome. Similarly, Coutu et al²⁷ suggested that transforming beliefs about low back pain is an important step for injured workers on the return to work pathway. A novel aspect of this study is in exploring the learning process that cultivates these new beliefs and understandings, which patients may find difficult.^{28,29} The codes that emerged as key to changing beliefs were: therapeutic alliance, enhanced body awareness, and experiencing control over pain.

A strong therapeutic alliance has been found to predict positive outcomes in CLBP interventions.³⁰ The findings suggest that an open, trusting, nonjudgmental relationship enhanced adherence in the early stages of therapy, creating an atmosphere in which participants felt comfortable in challenging the explanations provided by the therapist. This questioning and discussion helped to reconcile misgivings and clarify understandings, thus facilitating the acceptance of new explanatory models. Matthias et al¹⁹ similarly found that “brainstorming” and mutual discussion with the care provider (a nurse) was pivotal in facilitating patient learning and helps drive an effective learning process.³¹ In this study, the unchanged participants described a more complex patient-therapist relationship. Issues such as the polarity of their beliefs and the extent to which they were aware of these differences, their lack of readiness for change, and the low quality of the communication between patient and therapist affected their alliance and impeded their successful progression through the intervention. However, although a strong therapeutic alliance seemed to be a necessary prerequisite to successful rehabilitation, it should be noted that it was not always sufficient, as some small improvers also reported a strong therapeutic alliance yet did not achieve as successful an outcome. This finding may reflect the lack of independence among the small improvers group, despite changed beliefs.

Enhancing body awareness involves the practical application of new beliefs, such that participants gained a new perspective on their movement patterns, muscle tension, thought processes, lifestyle, and external stressors and how these factors influenced their pain. For large improvers and small improvers, this new perspective improved their perceived control over pain. It provided them with a firm rationale for, and trust in, strategies such as relaxation, adaptive movement patterns, and changes to lifestyle and external stressors. To the unchanged participants, who continued to search for an underlying anatomical pain driver, these strategies were insufficient. Providing people with pain control strategies may

be critically important because a lack of such strategies has been linked to the maintenance of high pain-related fear²² and to feelings of despair.³² Improved body awareness facilitated independent problem solving, a core skill for self-management. Participants described developing these skills through guided reflective problem solving^{33,34} in which they applied their new knowledge to explain previous painful episodes, suggesting these skills may be useful in achieving independent self-management.

Experiencing control over pain using new reasoning and behaviors was cited by most large improvers as key to the full integration of biopsychosocial beliefs. Experiencing control over pain provided indisputable proof of self-efficacy, and a lack of experience confirmed their doubts and increased the risk of abandonment of new beliefs. Experience has long been accepted as the cornerstone of learning, providing validation and subjective meaning to abstract concepts.³⁵ The experience of control is known to be a predictor of decreased disability in future pain episodes.³⁶ A previous qualitative study exploring patient experiences of an exercise intervention for CLBP showed that the intervention failed to increase participants’ perception of control over pain, who instead appeared to attribute any improvement to the presence of the physical therapist.³⁷ This finding contrasts with the descriptions provided by improvers in this study, in which the CFT therapist appeared to successfully reassure them that any experiences of control were attributed to the participants’ own reasoning and actions rather than those of the therapist. Thus, in addition to cementing new beliefs, control over pain appeared to provide the bridge to the second phase: achieving independence.

Theme 2: Achieving Independence

Achieving independence was defined as the ability to carry over the positive results of CFT to independently self-manage new pain episodes and to translate new learned behaviors into meaningful activity. The key codes linked to this process were: “strong self-efficacy,” “decreased fear,” and “improved stress

copings.” These key codes allowed large improvers to return to “normality,” breaking the chronic pain and disability cycle.

Self-efficacy is a person’s confidence in his or her ability to achieve a desired outcome.³⁸ Self-efficacy may mediate the link between pain intensity and CLBP disability, with higher self-efficacy correlating with lower levels of disability.^{39,40} Large improvers felt confident in their own ability to manage their pain. This improved self-efficacy reduced distress caused by the pain relapses and was reinforced by their independent mastery of the same. This finding was in contrast to those individuals who were unchanged who, while benefiting in part from treatment, neither understood their pain nor experienced the ability to control it. Therefore, the unchanged group continued to seek biomedical treatment.

The divide between large improvers and small improvers was most apparent in their experiences after treatment. Residual fears of a sinister pathology and a difficulty in coping with external stressors contributed to the inconsistent self-efficacy of small improvers. These participants appreciated the behaviors required in achieving control but had difficulty implementing them. Primary among these behaviors was the management of stress and anxiety. Stress and anxiety are associated with increased pain intensity and disability and prevent participation in active coping strategies.^{7,41,42} Ongoing stress and anxiety appear to have interacted to render small improvers less able to independently manage pain relapses. This interaction, in turn, reinforced anxieties about an underlying sinister pathology. Becoming independent, therefore, requires not only the provision of self-management strategies but also positive experiences that may be attributed to them.^{7,43} Regardless of positive experiences within treatment, independent experiences of self-management appeared to be central to achieving autonomy.

Return to Normality and Restoration of Self

The cumulative effects of CFT treatment allowed large improvers to return to

meaningful activity, in contrast to the unchanged participants, who continued to describe avoidance behavior. Small improvers returned to function, but their experiences were inconsistent. Activities such as work, exercise, fulfilling family roles, and socializing are known to be important, not only to prevent pain-related deconditioning⁴⁴ but also to improve mood and reduce distress and frustration.²⁶ Negative affective states such as these are known to adversely affect pain and disability.⁷ Therefore, participation in meaningful activity may be crucial in maintaining the benefits gained from treatment. The importance of returning to meaningful activity and re-establishing an acceptable self-definition was emphasized by Matthias et al,¹⁸ who found that the realization that activities could be enjoyed despite pain was a valued result of treatment. Consistent with our findings, Toye and Barker¹⁷ found that the reconstruction of an acceptable self-identity was the final contributor to the restoration of hope in large improvers, who gradually returned to meaningful activities, unlike the unchanged participants, who could not reconcile short-term pacing with long-term gains. Ensuring patients have the confidence and ability to return to meaningful activity through treatment appears essential to ensure the maintenance of results achieved through treatment.

Design Considerations

The classification of one participant, P11, warrants further consideration. This participant was classified as a large improver by both of the coauthors who independently conducted the data analysis. However, as shown in the [eAppendix](#), although the majority of codes in the interview transcript of P11 were positive, a considerable number of negative codes also were present in the transcript. Unlike the small responders and nonresponders in this study, for each negative code in the transcript of participant P11, an opposite positive code was present, such as “inability to problem solve” and “ability to problem solve.” To illustrate using these codes, participant P11 described a rare situation where she found it difficult to problem solve and described consistently being able to effectively problem solve on a daily basis.

This example highlights the difference between the occurrence of a code and the meaning extracted from the whole.

Two of the researchers (K.O. and P.O.) were involved in delivering the CFT intervention to the participants in this study. Although 2 other researchers (S.B. and S.M.), independent to the intervention and unknown to the participants, invited them to participate and conducted the interviews, participants were aware that their clinicians were involved in this study. Therefore, it is possible that social desirability forces may have resulted in an inflation of positive responses. To limit any bias from the treating clinicians during the process of data analysis, the first 2 researchers (S.B. and S.M.) performed all data coding with input from the other 2 researchers (K.O. and P.O.) only during the interpretive stages.

A key limitation of the study design is that interviews were conducted at a single point in time; therefore, we were reliant on memory recall, which may be influenced by mood states and pain levels. Future qualitative studies in this area would benefit from repeated interviews (such as at baseline and during and at completion of the study) to explore how temporal fluctuations in the pain experience may affect the participants’ perceptions of CFT. A longer follow-up period also may be useful to understand whether and how improvements in the CLBP experience due to CFT may be sustained over time.

Another limitation of this study is the lack of disability data for the Australian participants. In contrast to the Irish participants, the Australian participants were all employed, with only one on sick leave, suggesting that they may have been a less disabled subgroup. However, we reiterate that the Australian sample was included to test emerging concepts related to improvement status following participation in CFT. A lower disability status, therefore, is unlikely to have influenced the study findings.

It is acknowledged that the sample size for this study was small. The division of the improver category meant that the

small improver “group” comprised only 2 individuals. However, the finding that some individuals may experience a positive response to some aspects of the CFT intervention but not to others highlights the value of qualitative research in understanding responses to treatment that may not be reflected in the effect sizes of large randomized controlled trials.

Clinical Insights

The age, sex, disability, and CLBP duration of this sample are representative of the wider population of people participating in CFT for CLBP.^{12,14} Therefore, the insights gained from the experiences described by this sample may be considered transferable to the clinical setting.

The findings of this study emphasize the role of the physical therapist as a mentor in equipping patients with the knowledge and independent problem-solving skills required for self-management. Patients do not passively acquire these skills but are involved in an active and challenging mode of therapy. Participants valued being actively engaged in the clinical reasoning process. Therapists needed to challenge old beliefs, encourage discussion, and resolve cognitive dissonance, but to do so in a motivational, empathetic manner. Learning based on personal experience and meaningful activities, which demonstrated how their bodies moved and reacted, was appreciated. Effective progression to independent self-management required strong problem-solving skills to cope with new pain experiences and confidence in returning to meaningful activities. The predischarge identification of patients who appear to be uncertain in their own capabilities or who are at risk of long-term stress or anxiety may highlight those patients who will struggle with independent self-management. The role of the therapist in these situations may include raising awareness of their impact on the pain experience, onward referral for multidisciplinary care, and the maintenance of contact and follow-up as required to optimize function.

Future Research

The results need to be replicated in future prospective studies involving larger samples. To investigate the poten-

tial mediating role of the 2 central themes from these findings, future randomized controlled trials might consider including quantitative measures such as the Back Beliefs Questionnaire,⁴⁵ the Pain Self-Efficacy Questionnaire,⁴⁶ the Tampa Scale of Kinesiophobia,⁴⁷ and the Working Alliance Inventory⁴⁸ at intervals throughout the trial period.

In conclusion, the results of this study suggest that the outcomes of patients who participate in a CFT intervention diverge according to the degree to which they adopt biopsychosocial beliefs and are able to achieve independent self-management. Successful progression appears to be dictated by the quality of the patient-therapist alliance, establishment of body awareness, and the experience of control over pain, evolving self-efficacy, decreased fear, improved stress coping, and returning to “normality.” These insights may be valuable in guiding the optimal implementation of CFT.

Ms McEvoy, Dr Dankaerts, Dr P. O’Sullivan, and Dr K. O’Sullivan provided concept/idea/research design. Dr Bunzli and Ms McEvoy provided writing and data collection. Dr Bunzli, Ms McEvoy, and Dr P. O’Sullivan provided data analysis. Dr Bunzli and Dr K. O’Sullivan provided participants. Dr Bunzli, Dr Dankaerts, Dr P. O’Sullivan, and Dr K. O’Sullivan provided consultation (including review of manuscript before submission).

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References

- 1 Hong J, Reed C, Novick D, Happich M. Costs associated with treatment of chronic low back pain: an analysis of the UK General Practice Research Database. *Spine (Phila Pa 1976)*. 2013;38:75–82.
- 2 van Tulder M, Malmivaara A, Esmail R, Koes B. Exercise therapy for low back pain: a systematic review within the framework of the Cochrane Collaboration Back Review Group. *Spine (Phila Pa 1976)*. 2000;25:2784–2796.
- 3 Rubinstein SM, Terwee CB, Assendelft WJ, et al. Spinal manipulative therapy for acute low back pain: an update of the Cochrane review. *Spine (Phila Pa 1976)*. 2013;38:E158–E177.
- 4 Yousefi-Nooraie R, Schonstein E, Heidari K, et al. Low level laser therapy for non-specific low-back pain. *Cochrane Database Syst Rev*. 2008;2:CD005107.

- 5 Heymans MW, van Tulder MW, Esmail R, et al. Back schools for nonspecific low back pain: a systematic review within the framework of the Cochrane Collaboration Back Review Group. *Spine (Phila Pa 1976)*. 2005;30:2153–2163.
- 6 Wand BM, Parkitny L, O’Connell NE, et al. Cortical changes in chronic low back pain: current state of the art and implications for clinical practice. *Man Ther*. 2011;16:15–20.
- 7 Truchon M. Determinants of chronic disability related to low back pain: towards an integrative biopsychosocial model. *Disabil Rehabil*. 2001;23:758–767.
- 8 Dankaerts W, O’Sullivan P, Burnett A, et al. Discriminating healthy controls and two clinical subgroups of nonspecific chronic low back pain patients using trunk muscle activation and lumbosacral kinematics of postures and movements: a statistical classification model. *Spine (Phila Pa 1976)*. 2009;34:1610–1618.
- 9 Chou R, Shekelle P. Will this patient develop persistent disabling low back pain? *JAMA*. 2010;303:1295–1302.
- 10 Melloh M, Elfering A, Egli Presland C, et al. Identification of prognostic factors for chronicity in patients with low back pain: a review of screening instruments. *Int Orthop*. 2009;33:301–313.
- 11 Björck-van Dijken C, Fjellman-Wiklund A, Hildingsson C. Low back pain, lifestyle factors and physical activity: a population-based study. *J Rehabil Med*. 2008;40:864–869.
- 12 O’Sullivan K, Dankaerts W, O’Sullivan L, O’Sullivan PB. Cognitive functional therapy for disabling nonspecific chronic low back pain: multiple case-cohort study. *Phys Ther*. 2015;95:1478–1488.
- 13 McCracken LM, Vowles KE. Acceptance of chronic pain. *Curr Pain Headache Rep*. 2006;10:90–94.
- 14 Vibe Fersum K, O’Sullivan P, Skouen J, et al. Efficacy of classification based cognitive functional therapy in patients with non-specific chronic low back pain: a randomized controlled trial. *Eur J Pain*. 2013;17:916–928.
- 15 Johnson R, Waterfield J. Making words count: the value of qualitative research. *Physiother Res Int*. 2004;9:121–131.
- 16 Pope C, Mays N. Qualitative research: reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ*. 1995;311:42–45.
- 17 Toye F, Barker K. “I can’t see any reason for stopping doing anything, but I might have to do it differently”: restoring hope to patients with persistent non-specific low back pain: a qualitative study. *Disabil Rehabil*. 2012;34:894–903.
- 18 Matthias MS, Miech EJ, Myers LJ, et al. “There’s more to this pain than just pain”: how patients’ understanding of pain evolved during a randomized controlled trial for chronic pain. *J Pain*. 2012;13:571–578.

- 19 Matthias MS, Miech EJ, Myers LJ, et al. An expanded view of self-management: patients' perceptions of education and support in an intervention for chronic musculoskeletal pain. *Pain Med.* 2012;13:1018-1028.
- 20 Thorne S, Kirkham SR, MacDonald-Emes J. Focus on qualitative methods: interpretive description: a noncategorical qualitative alternative for developing nursing knowledge. *Res Nurs Healthb.* 1997;20:169-177.
- 21 Thorne S, Kirkham SR, O'Flynn-Magee K. The analytic challenge in interpretive description. *Int J Qual Methods.* 2008;3:1-11.
- 22 Bunzli S, Watkins R, Smith A, et al. What do people who score highly on the Tampa Scale of Kinesiophobia really believe? *Clin J Pain.* 2015;31:621-632.
- 23 Britten N. Qualitative research: qualitative interviews in medical research. *BMJ.* 1995;311:251-253.
- 24 Snelgrove S. Conducting qualitative longitudinal research using interpretive phenomenological analysis. *Nurs Res.* 2014;22:20-25.
- 25 Turner JA, Holtzman S, Mancl L. Mediators, moderators and predictors of therapeutic change in cognitive-behavioural therapy for chronic low back pain. *Pain.* 2007;127:276-286.
- 26 Bunzli S, Watkins R, Smith A, et al. Lives on hold: a qualitative synthesis exploring the experience of chronic low-back pain. *Clin J Pain.* 2013;29:907-916.
- 27 Coutu M, Baril R, Durand M, et al. Transforming the meaning of pain: an important step for the return to work. *Work.* 2010;35:209-219.
- 28 Toye F, Barker K. "Could I be imagining this?" The dialectic struggles of people with persistent unexplained back pain. *Disabil Rehabil.* 2010;32:1722-1732.
- 29 Slade SC, Molloy E, Keating JL. Stigma experienced by people with nonspecific chronic low back pain: a qualitative study. *Pain Med.* 2009;10:143-154.
- 30 Ferreira PH, Ferreira ML, Maher CG, et al. The therapeutic alliance between clinicians and patients predicts outcome in chronic low back pain. *Phys Ther.* 2013;93:470-478.
- 31 Kolb AY, Kolb DA. Learning styles and learning spaces: enhancing experiential learning in higher education. *Academy of Management Learning and Education.* 2005;4:193-212.
- 32 Corbett M, Foster NE, Ong BN. Living with low back pain: stories of hope and despair. *Soc Sci Med.* 2007;65:1584-1594.
- 33 Donaghy ME, Morss K. Guided reflection: a framework to facilitate and assess reflective practice within the discipline of physiotherapy. *Physiother Theory Pract.* 2000;16:3-14.
- 34 Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. *Adv Health Sci Educ.* 2009;14:595-621.
- 35 Kolb DA. *Experiential Learning: Experience as the Source of Learning and Development.* Vol. 1. Englewood Cliffs, NJ: Prentice-Hall; 1984.
- 36 Main CJ, Foster N, Buchbinder R. How important are back pain beliefs and expectations for satisfactory recovery from back pain? *Best Pract Res Clin Rheumatol* 2010;24:205-217.
- 37 Cook F, Hassenkamp A. Active rehabilitation for chronic low back pain: the patients' perspective. *Physiotherapy.* 2000;86:61-68.
- 38 Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1977;84:191.
- 39 Costal Lda C, Maher CG, McAuley JH, et al. Self-efficacy is more important than fear of movement in mediating the relationship between pain and disability in chronic low back pain. *Eur J Pain.* 2011;15:213-219.
- 40 Arnstein P, Caudill M, Mandle CL, et al. Self efficacy as a mediator of the relationship between pain intensity, disability and depression in chronic pain patients. *Pain.* 1999;80:483-491.
- 41 Moix J, Kovacs FM, Martín A, et al; Spanish Back Pain Research Network. Catastrophizing, state anxiety, anger, and depressive symptoms do not correlate with disability when variations of trait anxiety are taken into account. a study of chronic low back pain patients treated in Spanish pain units [NCT00360802]. *Pain Med.* 2011;12:1008-1017.
- 42 Schermelleh-Engel K, Eifert GH, Moosbrugger H, et al. Perceived competence and trait anxiety as determinants of pain coping strategies. *Pers Individ Dif.* 1997;22:1-10.
- 43 Asante AK, Brintnell ES, Gross DP. Functional self-efficacy beliefs influence functional capacity evaluation. *J Occup Rehabil.* 2007;17;1:73-82.
- 44 Vlaeyen JW, Linton SJ. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain.* 2000;85:317-332.
- 45 Symonds T, Burton AK, Tillotson KM, et al. Do attitudes and beliefs influence work loss due to low back trouble? *Occup Med.* 1996;46:25-32.
- 46 Nicholas MK. The Pain Self-Efficacy Questionnaire: taking pain into account. *Eur J Pain.* 2007;11:153-163.
- 47 Roelofs J, Sluiter JK, Frings-Dresen MH, et al. Fear of movement and (re)injury in chronic musculoskeletal pain: evidence for an invariant two-factor model of the Tampa Scale for Kinesiophobia across pain diagnoses and Dutch, Swedish, and Canadian samples. *Pain.* 2007;131:181-190.
- 48 Hall AM, Ferreira ML, Clemson L, et al. Assessment of the therapeutic alliance in physical rehabilitation: a RASCH analysis. *Disabil Rehabil.* 2012;34:257-266.

Appendix.

Example Interview Questions

Can you please tell me the story of your low back pain? What had you been told? How did this affect you?
What treatments had you received before treatment here? What would you have understood about the cause of your pain before you started this treatment?
Can you please describe your experience of treatment here, starting from the beginning? Prompt: expectations, facilitators/barriers to engagement, relevance, key moments
Has your pain experience changed in any way since participating in treatment here? How? Why? Prompt: Change in symptoms? Disability? Beliefs? Behavior?
What are your expectations for the future? How confident are you that you can cope with your pain and live a normal life? Why?