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# Cognitive functional therapy: A multidimensional, patient-centred intervention for chronic low back pain

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## Abstract

The biomedical approaches managing low back pain have led to an exponential increase in health-care costs, with a concurrent increase in disability and chronicity, due to the lack of person-centred management and the failure to adopt a biopsychosocial framework based on contemporary evidence. The need of potential treatments to take the complexity of low back pain into account and encompass a representative range of medical disciplines and disciplines allied to medicine, combined so as to offer maximum benefit to patients has emerged. Cognitive Functional therapy is a multidimensional, patient-centred intervention that directly explores and manages cognitive, psychological and social factors deemed to be barriers to recovery in chronic low back pain. This review presents a new treatment method of chronic low back pain, cognitive functional therapy and describe the principals of this approach. This approach could potentially help physiotherapists who seek to treat chronic low back pain in a more multidisciplinary way.

**Keywords:** Cognitive functional therapy; Cognitive therapy; Cognitive component; Chronic pain; Low back pain

## 1. Introduction

Low back pain (LBP) is the leading cause of years lived in disability in high-income and middle-income countries [1]. Nonspecific LBP represents 90% to 95% of cases, with other causes being specific spinal pathology (,1% of cases) and radicular syndrome (approximately 5–10% of cases) [2]. The global point prevalence of activity-limiting LBP lasting more than 1 day is estimated to be 12% [3]. Although most patients with acute LBP show rapid improvements in pain and disability within 1 month, between 4% and 25% of patients drift to chronicity [4]. The prevalence of chronic LBP (CLBP) increases linearly from the third decade of life until the age of 60 years, with CLBP being more prevalent in women [4]. CLBP prevalence was 4.2% in individuals aged between 24 and 39 years old and 19.6% in those aged between 20 and 59 [5]. The proportion of people presenting to primary care with a specific identifiable cause of LBP is estimated to be 0-7%, 4.5% with osteoporotic vertebral fractures, 5% with inflammatory spondyloarthropathies, 0.0-0.7% with malignancy, and 0.01% with infections [6].

Persistent LBP or persistent non-specific LBP (NSLBP) represents a complex interaction of physical, psychological, social and environmental components, including both genetic and cultural factors [7-8]. Psychological factors have an important role in an individual's experience of LBP and its impact on their functioning and quality of life. Fear avoidance beliefs, depression, anxiety, catastrophic thinking, and familial and social stress are highly prevalent in adults with chronic LBP [9] and can increase the risk of physical disability [10-11], manifesting as reduced functional capacity, avoidance of usual activities including work, and impaired societal and recreational participation [12]. Fear avoidance beliefs can also mediate the relation between pain and disability in individuals with LBP [13-14], and have an important influence on physical health related quality of life and health service usage in this population [15]. Consequently, consideration of psychological factors might be important in the management of LBP [16].

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The biomedical approaches to managing LBP have led to an exponential increase in health-care costs, with a concurrent increase in disability and chronicity [17-18]. It has been proposed that this is due in part to the lack of person-centred management based on a validated approach to deal with heterogeneity in the LBP population, and the failure to adopt a biopsychosocial framework based on contemporary evidence [19]. The need of potential treatments to take the complexity of LBP into account and encompass a representative range of medical disciplines and disciplines allied to medicine, combined so as to offer maximum benefit to patients [20] has emerged.

### 1.1. Cognitive Functional Therapy

A novel multidisciplinary strategy for LBP has been developed incorporating the biopsychosocial model [21]. This system is integrated within the Quebec classification system [22]. This intervention is called classification-based cognitive functional therapy (CFT) as it directly challenges these behaviours in a cognitively integrated, functionally specific and graduated manner [23]. CFT is a multidimensional, patient-centred intervention that directly explores and manages cognitive, psychological and social factors deemed to be barriers to recovery in CLBP [23-28]. This approach is an integrated behavioral approach for individualizing the management of people with disabling LBP [29] once serious (eg, malignancy, infection, inflammatory disorder, and fracture) and specific pathology (eg, nerve root compression with progressive neurological deficit with or without cauda equina symptoms) has been excluded [30]. The approach centers on the retraining of maladaptive movement patterns, reconceptualizing patient pain beliefs, and addressing any relevant cognitive, psychological, social or lifestyle factors [21]. It combines a functional behavioral approach of normalizing provocative postures and movements while discouraging pain behaviors, with cognitive reconceptualization of the NSCLBP problem [31].

The principles of CFT can be applied for many people with LBP. In more details, it uses a multidimensional “clinical reasoning framework” to identify key modifiable targets for management on the basis of careful listening to the individual’s story and examining the individual’s behavioral responses to pain [30]. This approach has evolved from an integration of foundational behavioral psychology and neuroscience within physical therapist practice. It is underpinned by a multidimensional clinical reasoning framework to identify the modifiable and nonmodifiable factors associated with an individual’s disabling LBP [30]. This approach enables the treating clinician to take individuals on a journey to effectively self-manage their disabling LBP with a program that is tailored to their unique clinical presentation and context.

CFT retains an emphasis on physical rehabilitation similar to many traditional exercise-based rehabilitation approaches to the treatment of CLBP [32]. It also incorporates other recent innovations in pain management including (i) how thoughts can affect actions similar to cognitive behavioural therapy, (ii) a strong focus on education about pain neurophysiology, (iii) the use of mindfulness and (iv) the potential harm associated with trying to “fight” pain, similar to acceptance and commitment therapy [33].

### 1.2. Cognitive Functional Intervention

CFT program consists of screening questionnaires, interview and three basic components. Prior to the interview, individuals with disabling LBP complete a body pain chart and a multidimensional screening questionnaire that can provide valuable insight into their perception of their pain [34]. The interview allows the individuals to disclose in their own way how they make sense of their pain in a sensitive, nonjudgmental questioning and careful prompting facilitate disclosure of various dimensions (table 1) [30].

**Table 1** Interview dimensions

| | |
|---|---|
| 1. | Pain history and the presence of contextual factors |
| 2. | Pain provocation and easing responses |
| 3. | Individual’s schema about their pain |
| 4. | Emotional responses to pain |
| 5. | Behavioural responses to pain |
| 6. | Painful, feared, and avoided valued functional activities |
| 7. | General health, levels of fatigue, and health comorbidities |
| 8. | Perceived barriers to engaging in a healthful lifestyle |
| 9. | Personally relevant goals, perceived barriers to achieving goals, and expectations |

Initially, four main components were employed to change the cognitive and functional aspects of an individual's response to pain, namely "making sense of pain," "functional movement training," Targeted functional integration" and "lifestyle change" [35]. Lately functional movement training, and Targeted functional integration were combined as one, "Exposure with control" (table 2). These components were created in order to guide clinicians to provide people with evidence-informed education and care for LBP, to explore patients' concerns, fears and beliefs about LBP, which provides an opportunity for constructive discussion underpinned by motivational techniques, and to coach people to confidently engage with variable postures, movement, graded loading, physical activity, healthy living, social and work engagement, can build a positive mindset regarding LBP [36]. The *cognitive component* ("making sense of pain") will focus on the factors identified from the examination that are considered to contribute to their pain disorder. It highlights the importance of sense-making processes in facilitating a mind-set change in people with pain [37]. This will include discussing the multidimensional nature of persistent pain as it pertains to the individual—and how beliefs, emotions and behaviours (movement and lifestyle) can reinforce a vicious cycle of pain sensitisation and disability [37*]. Exposure with control* is a process of behavioral change through experiential learning, in which sympathetic responses and safety behaviors that manifest during painful, feared, or avoided functional tasks are explicitly targeted and controlled [29]. This approach enables individuals to gradually return to their valued functional activities without pain escalation and associated distress [29]. *Lifestyle change* includes promotion of gradually increasing physical activity based on their preference and presentation, advice on sleep hygiene, stress management strategies and social re-engagement [21, 23, 38].

**Table 2** Cognitive functional therapy components

| | |
|---|---|
| 1. | Cognitive component ('making sense of the pain') |
| 2. | Exposure with control (functional movement training and targeted functional integration) |
| 3. | Lifestyle change |

This approach has good inter-tester reliability [39-40] with a number of studies supporting the validity of the different subgroups on the physical domains [41-46] as well as cognitive domains [23]. It has been more effective at reducing pain, disability, fear beliefs, mood and sick leave at long-term follow-up than Manual Therapy and exercise [23]. Although this approach provides statistically and clinically significant improvements in disability, pain and a variety of cognitive and psychosocial variables among patients with CLBP, further research is needed [23, 48].

## 2. Conclusion

All the accumulated knowledge about LBP confirms that there is a need for new multidisciplinary and patient-center approaches. CFT is an integrated behavioral approach for individualizing the management of people with disabling LBP, which centers on the retraining of maladaptive movement patterns, reconceptualizing patient's pain beliefs, and addressing any relevant cognitive, psychological, social or lifestyle factors. CFT program consist of screening questionnaires, interview, and three basic components (making sense of the pain, exposure with control, lifestyle change). While this approach presents good inter-tester reliability and statistical improvements in disability, pain and a variety of cognitive and psychological variable, further research is required to provide evidence of the effectiveness and feasibility of this approach.

## Compliance with ethical standards

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### *Disclosure of conflict of interest*

The authors declare that they have no conflict of interesting.

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