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## Cognitive-behavioral interventions in rheumatic diseases

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**ABSTRACT.** *Rheumatic diseases, like many other chronic diseases, represent an important public health burden. To reduce the social and economic impact of these pathologies, an appropriate management of these conditions should be encouraged based on the use of established intervention strategies. The aim of this article is to describe the content of Cognitive-Behavioural Therapies (CBTs) for patients with rheumatic diseases aimed at managing pain, disability and quality of life. These interventions involve education, training in various types of relaxation approaches and other coping skills, and the application of these skills in the patient's home and work environment. CBT include the teaching of life and coping skills that can assist the patient in productive problem solving and prevention or minimization of future pain episodes and stressful events. Moreover, several studies suggest that the cognitive-behavioural approach is efficacious in rheumatoid arthritis, osteoarthritis and fibromyalgia in improving not only the psychological adjustment during the course of the disease but also physical function.*

**Key words:** *psychologic management of rheumatic disease, pain management interventions, Cognitive-Behavioural Therapies*

**RIASSUNTO.** **INTERVENTO COGNITIVO COMPORTAMENTALE NELLE MALATTIE REUMATOLOGICHE.** Le malattie reumatiche, al pari di molte altre malattie croniche, rappresentano un'importante problema di salute pubblica. Al fine di ridurre l'impatto sociale ed economico di queste patologie, dovrebbe essere incoraggiata una gestione appropriata di queste condizioni attraverso l'adozione di strategie d'intervento riconosciute. Lo scopo di questo articolo è di descrivere il contenuto delle Terapie Cognitive-Comportamentali (CBT) per pazienti con malattie reumatiche mirato alla gestione del dolore, disabilità e qualità della vita. Questi interventi comprendono istruzione, training in vari tipi di approcci di rilassamento, ed altre abilità di coping ed infine ripetizione di queste abilità in ambiti familiare e di lavoro. La CBT include l'insegnamento di abilità di vita e di coping che possono aiutare il paziente in problem solving produttivi e prevenzione o minimizzazione di futuri episodi di dolore e di eventi stressanti. Inoltre, vari studi suggeriscono che l'approccio Cognitivo Comportamentale in corso di artrite reumatoide, osteoartrite e fibromialgia è efficace nel migliorare non solo l'adattamento psicologico, ma anche la funzione fisica.

**Parole chiave:** gestione psicologica nella malattia reumatica, gestione del dolore, terapia cognitivo comportamentale.

### Introduction

A rheumatologic condition is one of many systemic inflammatory diseases that may affect the skin, joints, muscles, and internal organs. Common symptoms are pain, swelling and stiffness. While the underlying causes of rheumatologic conditions are not entirely understood, some rheumatologic diseases are typically autoimmune in nature (1). This means that the body's immune system attacks itself. As a result of the immune system dysfunction, widespread inflammation can result. The Cognitive-Behavioral Therapy (CBT) in patients with rheumatologic disorders has been used primarily to address the problems of excessive pain (2).

However, the management of musculoskeletal pain is made difficult by incomplete understanding of the causes of the factors that determine patients' pain experiences. For many of these illnesses, such as rheumatoid arthritis and osteoarthritis, pain is clearly associated with nociceptive transmission arising from inflammation or degeneration of joints and soft tissue. In contrast, the widespread pain and tenderness that characterizes fibromyalgia is usually independent of tissue damage (3).

It is clear, then, that although musculoskeletal pain is influenced by rheumatologic disease activity and tissue damage, many other biologic processes such as infection or inflammation and psychosocial factors such as emotional responses (eg, anxiety, depression), cognition (eg, belief in one's ability to manage pain) and environmental events (eg, learned associations between environmental stimuli and pain) may contribute to the persistence of pain and patients' perceptions of the intensity and the sensory and affective qualities of their pain experiences (4).

The CBT attempts to foster adaptive thoughts and behaviors among patients to their disease and its accompanying pain.

Although there are variations among these CBT interventions, all include treatment components involving education, skills acquisition, cognitive and behavioral rehearsal, generalization and maintenance and relapse prevention (ie, strategies designed to help patients retain their coping skills and avoid increases in pain or other symptoms after treatment). These components can vary considerably although relaxation techniques are frequently included as a behavioral component (5).

Evidence suggests that CBT is effective in treating persistent disease-related pain conditions such as arthritis, teaching patients to manage their pain experiences and distress and maintain improvement in functional ability.

The CBT may be used as a single adjunct treatment to standard medical care or it may be combined with other interventions, such as exercise, for a multi-modal approach to the management of chronic pain.

### Aims of Cognitive-Behavioral Treatment

Persons with disabling painful arthritis may have declined their personal efficacy or confidence in view of their accompanying physical impairments and pain. In addition to their physical limitations and the magnitude of persistent pain experienced, they might be particularly impaired by poor psychological adjustment due to fear, anxiety and lack of confidence in their prevailing abilities (6).

In particular, they might exhibit poor pain coping skills and mood fluctuations congruent with their perceived diminished ability to perform basic functions of daily living, the fatigue related symptoms and their accompanying feelings of demoralization and helplessness (7, 8).

Living with persistent pain conditions requires considerable emotional resilience and tends also to deplete psychological capacity of family, friends and employers to provide support.

The diagnosis of any potentially chronic illness has enormous ramifications for a person's life and it is well documented that many people become depressed even early in the disease course. The cognitive behavioural approaches can improve coping and adjustment to illness (9).

The role of the clinical psychologist in the management of rheumatic disease is to assist the patient and family in managing emotional and psychological distress and to facilitate living and coping with painful, chronic and sometimes disabling disease. Based on evaluation, the clinical psychologist tailors a treatment plan to meet the needs of the patient.

Cognitive-behavioral therapy is designed to help patients identify, evaluate, and correct maladaptive conceptualizations and dysfunctional beliefs about themselves and their plight.

In addition, patients learn to recognize the connections linking cognition, affect and behavior along with their joint consequences. The implication is that controlling these components the individuals can do something to alleviate the quantity and intensity of discomfort experienced even if they cannot exert total control over their disease and physical limitations.

### Pain Management

Patients with rheumatologic disease have made experiences of helplessness because they believe that they have no control over their pain. As a result, no or only inadequate coping strategies can be developed.

Therefore, it is the main goal of cognitive-behavioural interventions to reduce these feelings of helplessness and not being able to control pain and to promote the patient's personal activity. The treatment approach is designed to foster an increased sense of self-efficacy and the emphasis

is on helping patients to reconceptualize their situation and their own role in improving their physical functioning as well as in positive adaptation to limitations imposed by their physical impairments.

Specific components of Cognitive-Behavioral Treatment for pain management are four: 1) cognitive restructuring; 2) cognitive and behavioral pain coping strategies; 3) skills consolidation and 4) generalization and maintenance.

The reconceptualization includes a treatment rationale that helps patients understand that cognitions and behavior can affect the pain experience and emphasizes the role that patients can play in controlling their own pain. Thus, it is useful for patients learn to monitor their thoughts, feelings, behaviors and physiology and learn interrelationships among these. A diary is used to record frequency, severity of every pain episode, including the situation at the time of the pain and thoughts, feelings, behaviors that precede, accompany and follow a pain episode. Once specific associations of thoughts, emotions and pain are identified as maladaptive, the patient learn to use alternative thoughts and strategies that might be used for adaptive response to problems associated with pain. Cognitive restructuring focuses on identification of habitual, automatic but ineffective behavioral responses, shifting the patient toward systematic problem solving and planning, control of affect, behavioral persistence or disengagement when appropriate. Moreover, the cognitive intervention helps examine how such habitual thoughts intensify and maintain stress and physical symptoms.

Typical maladaptive thoughts on pain experience are as the following:

"I can't take that anymore" (belief of uncontrollability)

"I don't see how this pain is ever going to get better" (negative prediction)

"This pain in my knee means my condition is getting worse" (catastrophizing)

"I can't do anything when my pain is bad" (belief of helplessness)

"The failure of this strategy means I can't use anything else" (overgeneralization).

These maladaptive thoughts affect pain perceptions and disability.

The second component of CBT for pain management is coping skills training. Training is provided in wide variety of cognitive and behavioral pain coping strategies, that can be broadly categorized as self-management and are used to help patients control and manage pain, elements that trigger pain and distress associated with the pain. Relaxation techniques can be used in any situation in which adaptive coping is required and not only to manage pain. There are different relaxation techniques (e.g., progressive muscle relaxation, autogenic training, controlled breathing, biofeedback, hypnosis, imagery) and they can be used to decrease muscle tension (for reduction of generalized arousal), reduce emotional distress, divert attention from pain and increase the patient's sense of control and self-efficacy. Relaxation exercises are learned by al-

most all patient because appear to be physically oriented and thus credible. Moreover, relaxation includes active efforts, engaging patient in a range of pleasurable activities that are consistent with patient's interests and physical limitation. Physical exercise and activities are used to help patients increase the level and range of their activities, but also achieve a sense of control over their physical functioning. In addition, physical activity may facilitate the release of endorphins and consequently reduce perception of pain.

Cognitive coping skills training include various means of distracting oneself from pain. People with persistent pain often try to distract themselves by reading books, watching television, engaging in hobbies or listening to music. One of the most commonly used means of diverting attention from an unpleasant stimulus is imaging a pleasant scene. The more involving the image is, the less attention the patient can give to other events and therefore the less pain he will experience. Training in distraction techniques such as pleasant imagery, counting methods and use of focal point helps patients learn to divert attention away from their bodily symptoms and severe pain episodes.

Finally, communication skills training and assertiveness can modify adverse relational consequences that pain, injury and disability can have on patients: isolation, relational conflicts, losses of relational roles.

The third component of CBT involves the application and rehearsal of these newly learned skills in patients' home and work environments. An important feature of rehabilitation process is patients' ability to make use of skills learned during treatment in their natural environment. Thus, patients should be asked to record any problems that might interfere with home practice of skills learned during the treatment. The problems should be discussed and resolved with the psychotherapist. Finally, it is useful to engage the patient in mental rehearsal, during which the patient imagines using the skills in different situations, role playing and role reversal. The therapist may introduce the role playing to assess the patient's motivation and ability to implement the training regimen and to assess understanding of treatment components.

The last phase of therapy involves the generalization and maintenance of treatment gains. Specifically, relapse prevention is designed to help patients retain their coping skills and avoid increases in pain or other symptoms after treatment.

The psychotherapist anticipates and subsumes into treatment the patient's possible reactions to the likely recurrence of pain. He can reanalyze with the patient previous reactions that followed relapses or can call upon imaginary pain patients and suggest to the patient the types of thoughts and feelings they had upon the reexperience of pain and what they did to cope with them. It is helpful to assist patients to anticipate future problems, stress and symptom exacerbating events and to plan coping and response techniques before these problems occur.

The goal during this phase is to learn patients to develop a problem-solving perspective in which they believe that

they have the skills and competencies within their repertoires to respond appropriately to life events that may be problematic.

A review with patients of what they have learned from treatment and how they have changed from pretreatment phase can encourage the recognition of how the patients' own efforts contributed to this change. By this type of discussion and the successful responses of patients should enhance patients' sense of competence, self-efficacy and mastery.

It is important for patient to acknowledge that in future, there will be good and bad days as everyone experiences and that the key to consistent recovery is not the absence of symptoms but the willingness to manage their adverse conditions even after a flare-up.

All of these components of CBT with rheumatologic patients are considered necessary to teach patients to reduce or better manage their chronic illness, the pain experiences and distress and maintain improvement in functional ability.

### **Studies supporting treatment efficacy**

A substantial number of CBT interventions for patients with persistent musculoskeletal pain have been evaluated using randomized, clinical trial methodology. A review (2), that used the American Psychological Association's criteria (10) for empirically validated treatments to evaluate the related literature on this topic, noted that CBT interventions and the Arthritis Self-Management Program (ASMP) met criteria for well-established treatments for both rheumatoid arthritis and osteoarthritis (11).

In rheumatoid arthritis, CBT interventions, compared with attention-placebo, consistently produced significant reductions in patients' pain ratings or displays of pain behavior and generally they produced significant reductions in joint counts. In addition, these interventions frequently improved patients' beliefs in their abilities to manage symptoms and reductions in medical service costs that persisted at least 12 to 15 months after treatment (12). A meta-analysis of randomized controlled trials also examined effect sizes for studies were cognitive-behavioral and compared these with studies that tested any other intervention (13). As shown in figure 1, across these two intervention categories, differences were observed only for the outcomes of pain, whereas for disability and psychological status the effects were quite comparable.

Authors concluded that their analysis comparing cognitive behavioral interventions to other treatment type was inconclusive. Because many of these treatment were multimodal and was also difficult determine whether particular components or certain combinations of modalities may have been responsible for the observed effects.

Research has demonstrated that CBT directed at symptom management is effective in improving psychopathology, levels of pain, disability, joint function and even biological indicators of disease, such as erythrocyte sedimentation rate (14). For disability, analyses indicated that whereas fifty-two percent of the patients receiving standard care had become worse over time, that was true for only thirteen percent of the patients receiving CBT (Fig. 2).

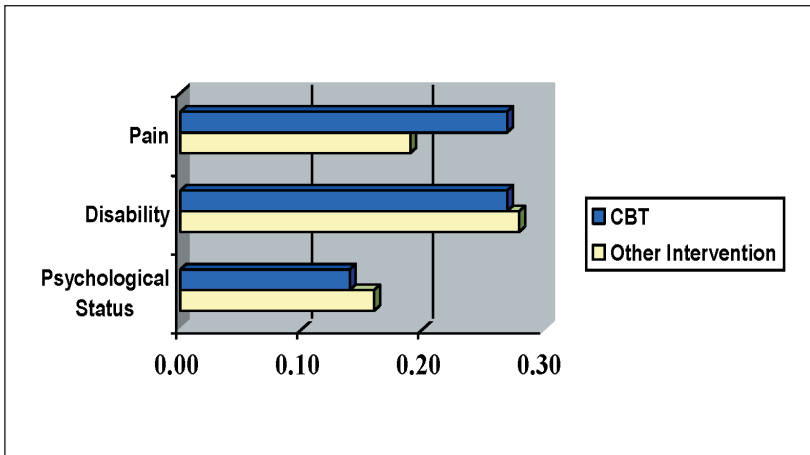


Figure 1. Effect sizes by intervention type

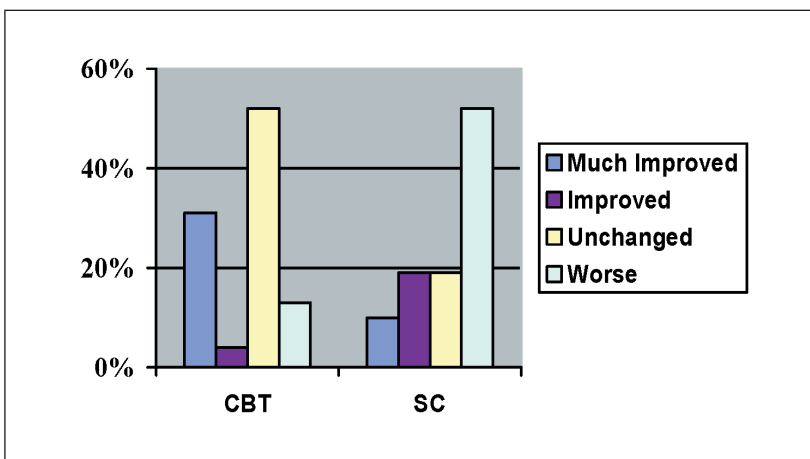


Figure 2. Proportion of participants from standard care (SC) and CBT groups showing different changes in disability

Several recent studies have documented that the components of CBT intervention are most effective when delivered as part of a comprehensive package that includes relapse prevention (3, 15).

In osteoarthritis, it has been shown that CBT intervention, compared with attention-placebo, produces significant reductions in patients' ratings of pain and psychologic disability that are maintained for at least 6 months posttreatment. In addition, CBT produces significant improvements in patients' ratings of physical disability from posttreatment to 6-month follow-up (16).

In particular, the application of self-efficacy theory to arthritis management has been found to be a potent predictor of the overall health status of the person with arthritis (3). Several reports indicated a strong relationship between levels of perceived self-efficacy and compliance with exercise and medication regimes, treatments elements of great import to the preservation of joint health and general well-being in chronic arthritis (8).

Although pain can surely diminish one's self-efficacy for performance of tasks, regardless of the presence of arthritis, further support for the role of efficacy-enhancing strategies in mediating arthritis outcomes stems from findings that levels of perceived self-efficacy are predictive of several arthritis related outcome variables, such as fatigue and pain (11).

A study evaluated the long-term effects of CBT in conjunction with spouse-assisted coping skills intervention for patients with osteoarthritis of the knees. The researchers concluded that spouse-assisted CBT could enhance self-efficacy and improve the coping abilities of patients in the long term.

Some evidence also suggests that CBT can help patients with fibromyalgia. Although CBT interventions conducted in the mid-1990s for fibromyalgia patients have failed to produce similar improvements in pain and psychological distress, recent studies have achieved long-term improvements in physical functioning with these patients (17, 18). Twenty-five percent of the patients receiving CBT were able to achieve clinically meaningful levels of longterm improvement in physical functioning, whereas only twelve percent of the patients receiving standard care achieved the same level of improvement (Fig. 3).

**Conclusion**

The Cognitive-Behavioral Therapy is a know effective method for dealing with chronic pain from rheumatic disease. It enhances the patients' belief in their own abilities,

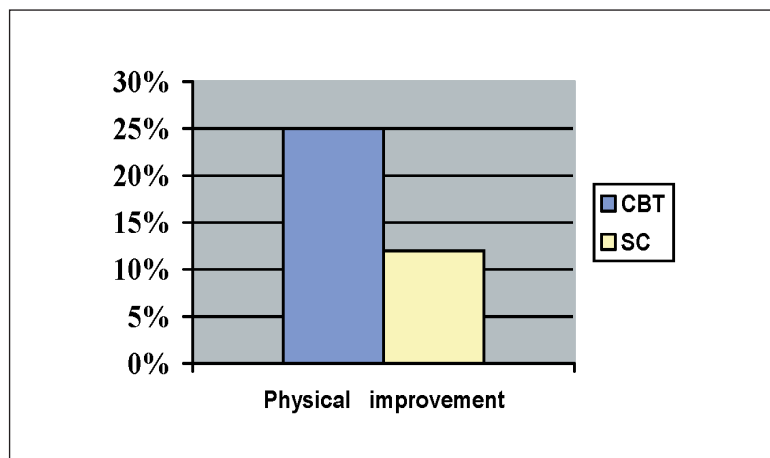


Figure 3. Lasting improvements in physical functioning

reduces catastrophizing and develops methods for dealing with stressful situations. Using specific tasks, self-observation and coping strategies, patients gradually shift their fixed ideas that they are helpless against the pain that dominates their lives to the perception that pain is only one negative factor and, to a degree, a manageable experience among many positive ones. Moreover, the use of a cognitive-behavioral intervention facilitates the adjustment early in the disease course to diagnosis, subsequent illness and possible disability. An intervention aimed at training patients in self-management skills, which they can subsequently use to cope with challenges imposed upon them by their illness, is likely to improve not only psychological adjustment, but also long-term physical function. Unfortunately, it is unclear from our review whether certain of these interventions are more or less effective than others. Although it appears that complete intervention programs are most effective, further research should directly compare these different interventions against one another. In addition, it would be interesting to design trials that directly compared such psychological treatments to pharmacologic approaches.

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