

## Psychology of Back Pain

### 1. Psychological factors are commonly associated with chronic low back pain

Psychological and social factors not only affect back pain itself but also how much the pain impacts on one's life. For example, the presence of depressive symptoms can make back pain worse and increase the disability associated with back pain [16]. People with back (or neck) pain are more likely than people without back pain to meet criteria for common mental health problems, including major depressive episode, anxiety disorders (odds ratio vary from 2.1 to 2.8) [12]. The co-existence of mental health conditions with back pain is associated with impaired quality of life and increased risk of chronicity [5; 29; 33]. While mechanisms underlying these associations are not fully understood, treatments of chronic back pain have expanded to include relevant psychological processes.

#### Some well-known psychological risk factors for back pain onset and maintenance

### 2. Avoidance behavior in response to chronic pain may be unhelpful and contribute to pain maintenance

Many people with back pain will avoid certain movements or activities because they worry about injury or increased pain. These reactions can be helpful in response to acute injury to protect body tissues during the healing process. However, these same avoidance behaviours in response to chronic pain become unhelpful because protection and healing are no longer needed. Avoidance then becomes part of the cycle of pain maintenance [27; 41]. In turn, this avoidance can lead to cycles of increasing pain and disability, as described in the Fear Avoidance Beliefs Model (FABM) [10]. A variety of self-report questionnaires can be used to assess avoidance-related beliefs and behaviors in the context of back pain [15], and there are several treatment strategies that specifically aim to reduce fear of pain and reinjury [28].

### 3. Behavioral overactivity and dysfunctional persistence can also hinder healing process and increase functional limitations

Just as avoidance behaviors can lead to pain chronicity, so can the opposite patterns. It appears that behavioral overactivity and dysfunctional persistence with activities despite severe pain [2; 3] can hinder healing process and lead to increased pain and functional limitations [7; 14; 17; 18; 39; 40].

### 4. High levels of catastrophizing and low self-efficacy are both risk factors for development and maintenance of chronic low back pain

Pain catastrophizing is defined as “an exaggerated negative mental set brought to bear during actual or anticipated painful experience” [37] characterized by a preoccupation with worrying, distracting, and distressing thoughts about pain. The Pain Catastrophizing Scale (PCS) was developed as a self-report questionnaire to assess this phenomenon for use in research and clinical care [38]. The PCS includes three subscales: rumination (“I can't stop thinking about how much it hurts”), magnification (“I worry that something serious may happen”), and helplessness (“It's awful and I feel that it overwhelms me”) [38].

Self-efficacy is “concerned with judgments of how well one can execute courses of action required to deal with prospective situations” [4]. This concept appears to be consistently associated with

various aspects of the pain experience including severity, disability and affective distress among individuals with chronic pain (83 studies including 23 studies in low back pain) [21]. People who lack confidence in their ability to do things despite pain, or their ability to manage their own pain, are typically more disabled by it and in more pain, than those who are confident they can do things despite their pain.

**5. Psychological distress is a common reaction to chronic low back pain that can in turn contribute to increased disability**

Both acute and chronic back pain can be associated with psychological distress in the form of anxiety (worries, stress) or depression (sadness, discouragement). Psychological distress is a common reaction to the suffering aspects of acute back pain, even when symptoms are short-term and not medically serious [35]. In turn, this distress is associated with hormonal and neural processes consistent with protection ourselves. Through these processes, distress usually makes pain worse over time, and increase the disability caused by pain [16; 24; 30]. This means that when people with back pain are also distressed, treating their distress should also help their back pain [42].

**Selected psychological approaches in global back pain treatment**

It is important to include psychosocial screening and diagnostics when assessing an individual with back pain. This can support better tailoring of treatment to patient needs. For example, the PCS scale has been used to screen patients for pain beliefs that can complicate treatment or contribute to poor outcomes [44]. Some psychological treatments for back pain management are specifically designed with the goal of reducing pain catastrophizing and improving function [32; 36].

**6. Multidisciplinary biopsychosocial rehabilitation for chronic low back pain may be considered for individuals presenting with significant psychosocial impact.**

Multidisciplinary biopsychosocial rehabilitation for chronic low back pain was found to be more effective than usual care or physical treatment alone in reducing low back pain and disability. Effect sizes are overall modest however, and there does not seem to be a dose-response effect [22]. There is no evidence that such treatment approach help prevent the transition from acute to chronic low back pain [26].

**7. Cognitive-behavioral approaches can be helpful and delivered at low-cost to manage back pain and associated disability.**

Many psychological risk factors for the maintenance of back pain involve thinking processes (e.g., catastrophizing or self-efficacy) or behaviors (e.g., avoidance). Cognitive-behavioral therapy (CBT) is a form of psychological treatment that targets cognitive and behavioral processes assumed to underlie suffering and disability such as cognitive distortions and maladaptive behaviors. CBT has been studied in the context of many chronic pain conditions [45]. Specific to back pain, a meta-analysis showed that CBT, compared to no treatment or other guideline-based active treatments, leads to long-term improvement in many dimensions of the pain experience, including pain intensity, disability and quality of life [31].

**8. A treatment approach referred to as Mindfulness-Based Stress Reduction (MBSR) may be an effective treatment option for people with chronic low back pain.**

Mindfulness is regarded as an awareness or attention skill that includes being focused in the present, in a way that is open and accepting of experience and includes seeing distinctions between

self and experience. In the context of pain, it includes being directly aware of pain sensations without resistance and without getting caught up in judgments about the pain. RCT evidence shows that people with chronic back pain trained in mindfulness, compared to usual care, report less disability and find their pain less bothersome immediately following treatment and one year later [8]. In this study MBSR appeared as effective as Cognitive Behavioral Therapy. Results in back pain are similar to results from meta-analyses of mindfulness-based approaches to chronic pain in general, where these approaches are found to improve pain, depression, and quality of life (38 RCTs, [19]).

### Psychological protective factors

#### 9. **Accepting pain, or “letting go” of fighting it in some circumstances, can reduce the impacts of back pain.**

Acceptance means to engage in activities that include pain and to do so in a way that does not include resisting the pain or trying to reduce it. Experimental evidence shows that, relative to instructions to attempt to control pain, instructions to accept it lead to better performance in physical tasks [43]. Roughly, accepting pain appears to help because it allows people to do what they want to do rather than struggling with pain. We know that treatment focused on increasing acceptance are effective in chronic pain in general [20], acceptance improves during such treatments and is associated with improvements in outcomes [25; 34], and even treatments not explicitly focused on increasing acceptance show increased acceptance in those people with chronic pain who benefit most [1].

#### 10. **Self-compassion is more recently studied and may be a positive factor in adjusting to back pain particularly in relation to effects of self-criticism or blame**

There are many ways for people with back pain to self-regulate during the inevitable physical, social, and emotional challenges of this condition. One of these includes treating oneself with kindness and understanding in the context of suffering, which is also called self-compassion. Preliminary uncontrolled trial evidence demonstrates that brief self-compassion training is associated with reduced pain and disability, increased self-compassion and interoceptive awareness, decreased evoked pressure pain responses, as well as significant changes on fMRI in response to pain anticipation [6]. These results are consistent with other studies that show that self-compassion is negatively associated with anxiety, depression, stress, pain interference, and work and social adjustment in people with chronic pain [9; 11; 13; 46] and with results from a systematic review of self-compassion interventions in chronic physical health conditions in general [23].

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