

Fear of pain and movement in a patient with musculoskeletal chronic pain

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Abstract

Pain-related fear may pose a serious barrier in the management of patients with chronic musculoskeletal pain, resulting in severe functional impairment in many cases. The paper describes the cognitive-behavioural therapy of a patient with a specific phobia (fear of pain and movement). The principal objective of the therapy was to educate the patient in strategies and skills to manage his fear and to verify the effect of the therapy. Both group and individual therapy was used. Group multimodal therapy of pain was provided by an interdisciplinary team of health care providers, specialising in pain management (psychotherapist, doctors and physiotherapists). The programme was based on operant therapy principles and included pacing and graded exercising and walking, relaxation, group education about ergonomics, and fear and pain relapse prevention. Reduction in the fear of pain and movement was achieved, and social bonds and physical and social activities improved after the psychotherapy, while the results were stable for two years.

INTRODUCTION

Fear is an integral and adaptive component in the development of any individual, and it is also a normal reaction to any actual or potential danger. Phobia is an escalated form of fear. Up to 17-30% patients with chronic pain suffer from specific phobias which may pose a serious therapeutic barrier (Frombach *et al.* 1999). Irrational and disproportionate pain-related fear comprises three essential categories: 1. Fear of pain (algophobia,

odynophobia); 2. fear of potential impairment and other potential surgery; and 3. fear of physical activity (kinesiophobia). One of the essential characteristics of fear is the tendency to avoid and escape the perceived threat. The experience of pain raises the need to escape and avoid the pain. The fear-avoidance model of Vlaeyen and Linton (2000), supported by the work of Lethem *et al.* (1983), Philips (1987) and Waddell *et al.* (1993), is based precisely on this fact. The model presumes two different behavioural reactions to

pain: confrontation or avoidance. However, chronic pain cannot be avoided; only activities that could, as the patient believes, increase pain intensity or cause a potential injury can be avoided. Therefore a decrease in activity and functional capacity can be seen. The model explains why chronic pain develops in a minor group of patients with acute back pain (Leeuw *et al.* 2007). Pain-related fear thus occurs in various patient groups with chronic musculoskeletal pain in the locomotor system (Buer & Linton 2002).

There are broader mutual biopsychosocial connections between fear and pain. Pain related fear probably develops due to an unpleasant experience associated with pain, an injury, surgery, medical procedures, and the behaviour of family and healthcare professionals during surgery or convalescence. Contact with the phobic situation or activity (for example, walking, lying down, sitting down, bending forward, standing for a prolonged period, rehabilitation exercises, but also the thought or notion of such activities) may induce panic; the patient then experiences severe anxiety accompanied by *somatic symptoms* (tachycardia, rapid breathing, tremor, sweating, dry mouth and pain). The fear of pain is related to general anxiety sensitivity (Taylor & Asmundson 2004). Patients fear their somatic symptoms related to anxiety, associated with secondary factors such as fear of dying or loss of self-control. A higher anxiety level may influence the intensity of pain and pain behaviour. Also, anxious patients selectively choose the stimuli related to their fear and pay increased attention to somatic signals from their own body. The phobic reaction is maintained through *cognitive distortion*: patients overestimate the risk of an injury or increased pain while underestimating their ability to manage the situation. Fear of pain results in *movement avoidance*, thereby the fear is maintained. Through operant conditioning patients learn to avoid situations and activities in which they have experienced pain, thereby achieving a reduction in their pain. However, changes in the cardiovascular system, deteriorated physical condition, loss of social roles, depression and permanent complaints of somatic symptoms may occur due to limited activity. Cognitive-behavioural therapy techniques are used in the treatment of pain-related fear in patients with chronic musculoskeletal pain: verbal reassurance, education, graded activities and exercises, as well as exposure in vivo (Picavet *et al.* 2002; Vlayen *et al.* 2012).

CASE STUDY

The case study describes the therapy used for fear of pain and movement. The patient cannot be directly identified. The patient was a 43-year-old male, married for the second time, who suffered from lifelong headaches and back pain. Three years ago, after lifting a load at work, he started suffering from a severe, shooting pain in his right lower limb and back. The patient was

a cutter by profession. He complained that even after 3 years of examinations and treatment of his pain he had not been given an adequate somatic diagnosis which would explain the pain– which increased his concerns. There was a lack of understanding between him and doctors; the patient did not understand why they could not help him. He was in constant pain and preferred lying down.

The patient completed a psychological assessment at the Pain Treatment Centre. His pain intensity reached a score of 4 on the Visual Analogue Scale (0–10). As a rule, the patient did not let his pain “fully develop” and would rather immediately lie or sit down or stand on the other leg. An intensity score of 10 was achieved for fear of pain and movement, also measured on the Visual Analogue Scale. The patient was not depressive (Beck Depression Inventory; RS=8), was considerably anxious (Knobloch N5 Questionnaire; RS=17/31). His pain was a mystery to him and he did not understand why he was suffering from the pain (Pain Beliefs and Perceptions Inventory; Mystery RS=3). An indicative assessment of cognitive functions provided normal results (Raven test; IQ=113).

Pain triggers were as follows: 1. When the patient was standing on the leg for more than two minutes; 2. when he put full weight on the leg after walking two steps; 3. when he remembered he should step on the leg, or walk or stand for a prolonged time. The pain was improved by lying down and resting. No pain was felt during swimming. A short-term improvement of the pain was achieved with analgesics which the patient was not taking on a regular basis though.

The patient felt strong, disproportionate and irrational fear of pain and movement associated with pain. Development of the fear of pain and movement seemed to be related to his lifelong back pain and headaches (vertebrogenic algic syndrome and spine dynamics and statics disorder) since his youth, but it may also have been affected by the behaviour of healthcare professionals; the patient was “difficult”, which they let him know. The development of pain also seemed to be related to his physically demanding profession and increasing in avoidance behaviour on the part of his overprotective wife. The patient was more anxious than normal, was afraid of his symptoms of fear and pain, which could have social, somatic or psychological consequences, and fear of death and loss of self-control were present as secondary factors. The patient paid increased attention to his own body and was more vulnerable to pain. He exhibited a tendency to catastrophic interpretation (“I must not move, otherwise it will hurt more.”), overestimated the threat of pain (although the pain itself was not of a high intensity), and underestimated his own ability to manage the situation. Fear of pain had a function and also specific consequences in his life. Based on operant conditioning and negative reinforcement, his avoidance behaviour (resting, lying in bed, lying down) increased because it removed his anxiety: he

felt less pain; but this approach also resulted in greater muscle weakness, reduced physical performance, loss of hobbies, loss of social activities and social responsibility. His avoidance behaviour (lying down, resting) was reinforced by his wife who recommended that her husband should rest and felt sorry that he was ill. The fear associated with pain and movement led not only to functional impairment (weakened muscles, reduced performance), but also to increased use of medical care and medications. His avoidance behaviour was maintained also by cognition ("I won't be able to manage it anyway! It is pointless to try and do something... it will hurt in any case!"), and the anxiety and stress only further reinforced the idea that "some impairment" must exist which causes the pain. This is how cognitive mistakes, errors, negative evaluation and avoidance were created, which maintained the vicious circle.

Based on personal experience with the multidisciplinary pain management programme at the Pain Management Centre in Seattle, US, and the Pain Management Unit at St. Thomas' Hospital in London, UK, we have designed an outpatient multimodal group programme of pain management. The therapy utilized the following cognitive and behavioural methods for improvement of fear of pain and movement: graded exercising and walking, relaxation, group education about ergonomics, and fear and pain relapse prevention. The group therapy comprised five daily blocks at weekly intervals, in a group of 4–6 patients. Fear of pain and movement associated with pain gradually decreased during therapy, and pain intensity assessment also changed. Checks were carried out after three, six and nine months and two years, while the therapeutic plan was followed by the patient throughout the whole period. Minimum pain (intensity 2–3) and minimum fear of pain and movement (VAS intensity 1–2) were experienced by the patient at the check-up after two years; the patient was not depressive, but was still anxious. The patient went swimming 3 times a week. He was able to do shopping, help around the house, and had a part-time job of 4 hours a day at his original place of work.

DISCUSSION

What were the effective factors that played a role in the success of reducing the fear of pain and movement? Besides cognitive-behavioural therapy techniques, the therapeutic result may have also been influenced by the therapeutic relationship, the patient's personality and relationships within the group. The condition was not complicated by any judicial process, dependence or a claim for social benefits, which are always contraindications of success of psychotherapy in patients with chronic pain (Eccleston 2001). The change in the *cognitive sphere* was apparently caused by education (Roth & Geisser 2002). A significant reduction of *fear of pain and movement* was achieved as measured on the Visual

Analogue Scale, i.e. from intensity 10 to 1–2, which is explained by extinction (the patient was repeatedly exposed to situations he feared without experiencing the feared consequences) and habituation (exposure reduced the intensity of his fearful reaction). The reduction in fear was certainly also due to changes in the cognitive sphere; in the estimation of his self-efficacy, the patient gradually gained self-confidence regarding his ability to work, do shopping and help around the house, although the pain was still present. The change in his *behaviour* (not lying down when it hurts; increased activity...) was achieved through a systematic change of the consequences of his altered behaviour (the ability to achieve more, increased self-confidence, greater trust in himself, more social contacts...), and through the removal of the undesirable behaviour maintenance factor: the fear of pain. No significant change in pain intensity was achieved; the intensity decreased only by 10% (from 4 to 2–3). The mean reduction in pain intensity after multimodal therapy has been described as 10–20% (from 0% to 60%) (Lebovits & Bassman 1996; McCracken 2005). Thus his fear of pain and movement decreased significantly, and his catastrophic interpretation of somatic symptoms – both of chronic pain and anxiety – was also reduced. These changes evidently also resulted in reduced pain intensity, enhanced activity and self-confidence.

CONCLUSION

The cognitive-behavioural therapy resulted in a significant reduction of fear of pain and movement in the patient which was positively reflected in the general quality of his life.

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REFERENCES

- 1 Buer N, Linton SJ (2002). Fear-avoidance beliefs and catastrophizing: occurrence and risk factor in back pain and ADL in the general population. *Pain*. **99**(3): 485–491.
- 2 Eccleston Ch (2001). Role of psychology in pain management. *Br J Anaesth*. **87**(1): 144–152.
- 3 Frombach I, Asmundson G, Cox B (1999). Confirmatory factor analysis of the fear Questionnaire in injured workers with chronic pain. *Depress. Anxiety*. **9**: 117–121.
- 4 Lebovits A, Bassman E (1996). Psychological Aspects of Chronic Pain Management. In: Lefkowitz M Lebovits A, editors. *Practical Approach to Pain Management*. 1st edition. New York: Little Brown and Company. p. 115–124.

- 5 Leeuw M, Goossens ME, Linton SJ, Crombez G, Boersma K, Vlaeyen JW (2007). The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. *J Behav Med.* **30**(1): 77–94.
- 6 Lethem J, Slad P, Troup J, Bentley G, et al (1983). Outline of fear-avoidance model of exaggerated pain perception. *Behav Res Ther.* **21**: 401–408.
- 7 McCracken M (2005). *Contextual Cognitive Behavioral Therapy for Chronic Pain*. 1st ed. Seattle: IASP Press.
- 8 Philips H (1987). Avoidance behaviour and its role in sustaining chronic pain. *Behaviour Res Ther.* **25**: 273–279.
- 9 Picavet HS, Vlaeyen JW, Schouten JS (2002). Pain catastrophizing and kinesiophobia: predictors of chronic low back pain. *Am. J. Epidemiol.* **156**(11): 1028–1034.
- 10 Roth R, Geisser M (2002) Educational Achievement and Chronic Pain Disability: Mediating Role of Pain-related Cognition. *Clin J Pain.* **18**: 286–296.
- 11 Tailor S, Asmundson GJG (2004). *Treating health anxiety*. 1st ed. New York: The Guilford Press.
- 12 Vlaeyen JWS, Linton SJ (2000). Fear-avoidance and its consequences in chronic musculoskeletal pain: A State of the art. *Pain.* **85**(3): 317–332.
- 13 Vlaeyen JWS, Morley S, Linton SJ, Boersma K, de Jong J (2012). *Pain-Related Fear: Exposure-Based Treatment for Chronic Pain*. 1st ed. Seattle: IASP Press.
- 14 Waddell G, Newton M, Henderson I, Somerville D, Main C (1993). Fear avoidance beliefs questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. *Pain.* **52**: 157–168.