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GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN

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• **FACT SHEET No. 7**

Evidence-Based Biopsychosocial Treatment of Chronic Musculoskeletal Pain

Introduction

- The past several decades have given rise to: advances in knowledge and understanding of the neurophysiological mechanisms involved with nociception and pain; information about pain candidate genes; in sophisticated diagnostic imaging procedures; and the development of innovative interventions. Yet, there are still no treatments available that consistently and permanently alleviate pain for all those afflicted [14,22].
- Diverse responses to objectively similar physical perturbations and identical treatments have been clinically noted, and have been documented in numerous empirical investigations. For example, although they are related, the associations between physical impairments on the one hand, and pain report and disability on the other, are modest at best [e.g., 1,5].
- Pain that persists over time should not be viewed as either solely physical or solely psychological. Rather, the experience of pain is a complex amalgam maintained by an interdependent set of biomedical, psychosocial, and behavioral factors, whose relationships are not static but evolve and change over time [21].
- To understand the variable responses of people to chronic conditions, it is essential that biological, psychological, and social factors each be considered. Moreover, a longitudinal perspective is essential. A cross-sectional approach will only permit consideration of these factors at a specific point in time, and chronic conditions continually evolve [10,21].
- The biopsychosocial model is a conceptual model which proposes that psychological and social factors must also be included, along with the biological variables, in understanding a person's medical illness, in this case chronic musculoskeletal pain [6,10,21].
- In the biopsychosocial model, pain is best viewed as an interactive and dynamic pattern among the set of contributors, and should incorporate genetic factors and prior history, along with the current physical, psychosocial (e.g., individual meaning, beliefs, expectations, socioeconomic circumstances, and contextual factors), and behavioral (e.g., social support, environmental responses) variables [21].

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- Treatment based on the biopsychosocial perspective must not only address the biological basis of symptoms, but must incorporate the full range of social and psychological factors that have been shown to affect pain, distress, and disability. Therefore, treatment should be designed not only to alter physical contributors, but also to change the patient's behaviors regardless of the patient's specific pathophysiology and without necessarily controlling pain per se [6]. Thus, from the biopsychosocial perspective, treatment focuses both on addressing identified physical pathology that may be initiating and perpetuating pain, as well as on providing the patient with techniques to gain a sense of control over the effects of pain on his or her life (by modifying the affective, behavioral, cognitive, and sensory facets of the experience).
- The critical elements of an interdisciplinary treatment approach (based on this biopsychosocial model) are the most clinically-effective and cost-effective approach to use for patients with chronic pain [8].

Psychological Treatments

- Numerous studies support the use of cognitive-behavioral therapy (CBT) and other psychological approaches for the treatment of chronic musculoskeletal pain, often integrated within rehabilitation approaches for adults and children [e.g., 3,11,13, 20,23].
- Studies show that psychological approaches are more effective than wait-list control groups [e.g., 3,12,13,23].
- Different psychological interventions (e.g., CBT, Relaxation, Biofeedback) yield similar outcomes, and are only "moderately" superior to no treatment, placebo control, and wait-list control groups [12,13,23].

Effectiveness of Biopsychosocial-Based Interdisciplinary Treatment

- Comprehensive interdisciplinary programs are most appropriate for patients with complex problems who are not well controlled by monotherapies (e.g., medication, physical therapy) alone [8]:
  - These programs use a team approach, including a physician-nurse team, physical therapists, occupational therapists, psychologists or psychiatrists, and case managers.
  - The programs show substantial improvement in important socioeconomic outcome measures (e.g., return-to-work and resolution of outstanding legal and medical issues), in people with chronic spinal pain [11,12].
  - Rehabilitation approaches are also effective in chronic upper-extremity musculoskeletal disorders, temporomandibular disorders, fibromyalgia, headache, whiplash and neck pain, and repetitive strain disorders [e.g., 7,8,15,16,17].
  - A review [16] directly comparing interdisciplinary to unimodal treatment or no-treatment control patients found greater improvements in a variety of measures, including:
    - return-to-work, 68% interdisciplinary versus 32% unimodal or no treatment;
    - pain reduction, 37% versus 4%;
    - medication reduction, 63% versus 21%;
    - increases in activity, 53% versus 13%.

- Interdisciplinary treatment has also demonstrated long-term effectiveness [e.g., 4,7,17,18]. This is also true in a military population [9]. In this study, it was shown that, relative to standard anesthesia pain clinic treatment, interdisciplinary treatment (at 1-year post-treatment) displayed greater improvement in pain-reduction, decreased use of pain medication, and less medical-board discharge due to pain and disability. A number of other investigations reviewed below also documented the effectiveness of interdisciplinary care.
    - A study comparing efficacy of lumbar spinal fusion to CBT with exercise for back pain patients, with documented underlying pathophysiology, showed similar results at 1-year or 2-year follow-ups, with both groups displaying significant clinical improvements [2].
    - Cost-utility analysis of these data show that, at the 2-year follow-up, even though there were no significant differences in treatment effectiveness between the two groups, the average cost of surgery was £7,830 (approximately US$14,400), compared to only £4,526 (approximately US$8,323) for CBT combined with exercise [19].
    - A study evaluating the rates of low back pain, before and after the availability of two multidisciplinary nonsurgical spine clinics, showed that the annual rate of low back pain-related surgeries for patients in a particular geographical region decreased from about 60–80 per 100,000 before the introduction of multidisciplinary care in 1997, to 40 per 100,000 in 2001 after its introduction [19]. The rates of elective, first-time disk surgeries also decreased by approximately two-thirds.

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