



## Backing up the stories: The psychological and social costs of chronic low-back pain

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### Abstract

**Background:** Chronic low-back pain is a widespread condition whose significance is overlooked. Previous studies have analyzed and evaluated the medical costs and physical symptoms of chronic low-back pain; however, few have looked beyond these factors. The purpose of this study was to analyze and evaluate the personal and psychosocial costs of chronic low-back pain.

**Methods:** To measure the various costs of chronic low-back pain, a questionnaire was generated using a visual analog scale, the Depression Anxiety and Stress Scale, the Short Form 36 Health Survey, and the 1998–1999 Australian Bureau of Statistics Household Expenditure Survey (for demographic questions). The comprehensive survey assessing physical, mental, emotional, social, and financial health was administered to 30 subjects aged 18 years or older who had visited a tertiary spine service with complaints of chronic low-back pain.

**Results:** It was found that subjects scored significantly higher on scales for depression, anxiety, and stress after the onset of chronic low-back pain than before the onset of back pain. Subjects also reported a reduction in work hours and income, as well as a breakdown in interpersonal relationships, including marital and conjugal relations.

**Conclusion:** Chronic low-back pain affects the ability of a patient to work, creating both financial and emotional problems within a home. Relief is delayed for patients because of the sparse allocation of resources for chronic spinal care and inadequate prevention education. Despite this, many patients are exhorted to return to work before they are physically, mentally, or emotionally free of pain, resulting in poor outcomes for recovery. Ultimately, this aggregates into an adverse macrosocial effect, reducing not only the quality of life for individuals with chronic low-back pain but also workforce productivity.

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**Keywords:** Chronic low-back pain; Cost; Depression

An often overlooked medical condition, chronic low-back pain, debilitates many people and contributes to the number of disability-adjusted life-years globally. Work-related low-back pain alone results in approximately 800,000 disability-adjusted life-years annually.<sup>1</sup> In 2004–2005, 15% of Australians reported having chronic low-back pain<sup>2</sup>; Walker et al.<sup>3</sup> estimated that approximately 8 of 10 Aus-

tralian (79.2%) will have back pain at some point during their lifetimes. Furthermore, 10% of Australian adults have debilitating low-back pain. Globally, there has also been an increase in the prevalence of chronic low-back pain, highlighting the need for action.<sup>4</sup>

The vast majority of low-back pain cases consists of low-intensity back pain; however, the aggregate economic burden of this condition is staggering: \$8.15 billion in lost productivity (certificated and non-certificated costs included)<sup>5</sup> was estimated for the year 2001 in Australia alone. The documented and recorded costs comprise the certificated costs; those not explicitly recorded comprise the non-certificated costs. Most of the cost is attributable to indirect costs rather than direct costs. Direct costs include expenses for diagnosis, treatment, and rehabilitation; indirect costs include all other costs, such as lost productivity.<sup>6</sup> This economic burden underscores the need to retrench lost

The Harvard Global Health Initiative provided funds to Justin Mathew and Samantha Singh, and Synthes Asia Pacific provided a research grant to the University of New South Wales for this study.

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hours in productivity and to prevent the onset of chronic low-back pain. A focused effort on chronic low-back pain will likely address other issues as well because it has a high comorbidity, often associated with conditions such as depression.<sup>7</sup>

Chronic low-back pain poses unique problems because over one-third of patients do not achieve a full recovery from an episode of chronic low-back pain, and most of these individuals return to the workforce a mere 12 months after the first episode of pain.<sup>8</sup>

In examining the degree of cost attributable to chronic low-back pain, Dagenais et al.<sup>6</sup> performed a systematic review of the cost of illness studies related to low-back pain. Their publication dealt with the direct and indirect costs of low-back pain and identified, as a third type of cost, the intangible costs of illness, which are inherently more difficult to quantify because they reflect a reduced enjoyment of life because of illness. This often-overlooked category comprises the attendant costs on the individual and his or her household—including costs, such as an inability to interact meaningfully with others. A limited number of studies have focused on the aspects of chronic low-back pain contributing to the personal burden of the condition and one's psychological well-being—in addition to the commonly assessed financial costs. Buchbinder et al.<sup>9</sup> argue that although the burden of a disease is defined in terms of death, morbidity, cost, disability, and quality of life, none of these suffice for assessing the overall burden of chronic low-back pain from the perspective of affected individuals. Buchbinder et al. sought to create a more accurate conceptual framework with which one could analyze the impact of chronic low-back pain, through the concept mapping and cluster analysis. Statements were first collected from individuals with chronic low-back pain regarding its effects on the lives of people around them, as well as their own. These individuals were then asked to group their statements into clusters. The issues in each cluster were to be more closely related to each other than they were to issues in other clusters. The participants were then asked to repeat the entire process, this time working in groups of individuals with chronic low-back pain. The clusters made by the groups of patients were analyzed by multidimensional scaling and cluster analysis and made into 2-dimensional graphs depicting the statements and their relationships. The process was repeated at an international forum of various health specialists. After collecting their concept maps, Buchbinder et al. integrated these clusters together to produce a concept map that contained 4 overarching clusters—psychosocial, treatment, employment, and physical—each with anywhere between 2 and 6 subclusters. The study demonstrates how chronic low-back pain affects individuals, highlighting a loss of independence, anxiety about the future, and negative or discriminatory actions by others as major areas of concern to patients. However, lacking is a quantitative-analysis method of the problems associated with chronic low-back pain. The study of Buchbinder et al focuses on identifying

problems associated with chronic low-back pain and creating a valid theoretic model for questionnaires to measure pain; although it did identify what lines of questioning are necessary, the study did not illustrate the extent to which individual persons are affected and/or continued to be affected because of back pain. Providing a quantitative analysis of these costs will enhance the understanding of chronic low-back pain and how it manifests.

The aims of this article are to analyze not only monetary but also psychological and social costs to individuals with chronic low-back pain—a number of which were identified in the 2011 study by Buchbinder et al.<sup>9</sup>

## Methods

This prospective study based on patient recall was conducted after we received the approval of the Human Research Ethics Committees of the University of New South Wales and Harvard University. Thirty consecutive eligible patients were randomly recruited from the Spine Service at St George Hospital Campus in Sydney, Australia, in February 2008. To be eligible, all subjects must have been at least 18 years old, able to read and speak English, and have had chronic low-back pain with or without leg pain in excess of 3 months. Chronic low-back pain was defined as pain exceeding 3 months in the area bounded superiorly by T12 and inferiorly by the gluteal crease.<sup>10</sup> Within the sample population, the duration of symptoms before the study ranged from 6 to 712 months; on average, patients had pain for 161 months before the study.

An 8-page questionnaire, which included questions from 4 different scales and profiles for physical and mental health, was administered. The visual analog scale measured a subject's perceived intensity of back and leg pain. The Short Form 36 Health Survey measured the physical and mental health of patients across 8 dimensions: physical functioning, role limitations because of health problems, bodily pain, social functioning, general mental health, role limitations because of emotional problems, vitality, and perceptions of general health.<sup>11</sup> The Depression Anxiety Stress Scale (DASS-21) assessed the psychological and emotional states of the subject before and after the onset of pain. The questionnaire incorporated questions that evaluated the extent to which a subject's interpersonal relationships had changed since the onset of chronic low-back pain. Also included in the questionnaire were demographic questions (age, sex, number and ages of children, occupation, income, etc.), as well as an excerpt from the 1998–1999 Australian Bureau of Statistics Household Expenditure Survey to measure financial stress and hardship. Each of these tools identified changes in the physical, mental, social, and financial health of the subject that can be attributed to chronic low-back pain to determine both the direct and indirect costs of the condition.

Statistical analysis was performed on the data from the questionnaire in the form of *t* tests for the sample mean

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