



Clinical pain research

Chronic pain disrupts ability to work by interfering with social function: A cross-sectional study



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HIGHLIGHTS

- Social factors are now recognized to play an important role in chronic pain.
- In a chronic pain survey, interference with social function affected work ability.
- Social function was more significant than pain intensity rating in ability to work.
- Pain interventions targeting social function may improve the ability to work.

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ABSTRACT

Background and aims: Some 100 million adults in the United States suffer from chronic pain. While research to date has focused primarily on pain interference with physical and psychological function and its effects on employment, few studies have examined the impact of pain interference on social functioning and its effects on employment. The aims of our study were to (1) evaluate the association between pain interference with ability to work and actual employment status among working age adults with chronic pain; and (2) evaluate pain interference with four types of functioning – cognitive, physical, psychological, and social – as possible mediators of pain interference with the ability to work.

Methods: Data were collected via a self-selected sample of individuals visiting the American Chronic Pain Association (ACPA) website. The final dataset included 966 respondents. We examined the association between pain interference with the ability to work and employment in a population with chronic pain. We then analyzed pain interference with four types of functioning, physical, psychological, cognitive, and social, for their impact on the ability to work.

Results: Pain interference with ability to work was significantly inversely associated with employment status, i.e., the less that pain interfered with one's ability to work, the greater the likelihood of being employed. Moreover, pain interference with ability to work was a stronger predictor of employment status than an individual's rating of their pain intensity. Pain interference with social functioning partially mediated the effects of pain interference with cognitive and physical functioning and fully mediated the effects of pain intensity and pain interference with psychological functioning on pain interference with the ability to work. Results suggest that pain interference with social function may be a significant contributor to pain interference with ability to work in working age adults with chronic pain.

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Conclusions: In the development of effective solutions to address the economic and societal burden of chronic pain, this paper highlights the role of social function as an important, yet frequently overlooked, contributor to chronic pain's effect on the ability to work. Our findings underscore the importance of an integrated biopsychosocial approach to managing chronic pain, especially when addressing ability to work. From a clinical standpoint, assessing and managing pain intensity is necessary but not sufficient in addressing the far-reaching negative consequences of chronic pain.

Implications: The development of interventions that improve social function may improve the ability to work in adults with chronic pain. Likewise, sick leave should be prescribed restrictively in the management of chronic pain since it may further interfere with social functioning.

Perspective: This study highlights the importance of the assessment of pain interference with social function as a part of a comprehensive biopsychosocial approach to the evaluation and management of patients with chronic pain. Interventions that improve social function may improve the ability to work in this population. In addition, sick leave should be prescribed restrictively in the management of chronic pain since it by itself interferes with social functioning.

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1. Introduction

Chronic pain is recognized as a critical public health challenge [1,2]. The treatment of chronic pain is complex, and is further complicated by the risks associated with opioids, which are one of the most commonly prescribed pharmacologic interventions for pain [3]. The burgeoning epidemic of opioid abuse and overdose in the United States and the push for federal legislation to appropriate new funding to address these problems [4] underscores the importance of understanding this public health challenge. Yet effective solutions to the enormous economic and societal burden that is created by chronic pain continue to be elusive. Some 100 million adults in the United States suffer from chronic pain due to common medical illnesses [1], and chronic pain has a deleterious impact on many areas of personal and professional functioning, including the ability to work [2,5,6].

The ability to work is not only influenced by physical function, but also psychological, cognitive, and social functioning, all of which are affected by pain [7]. This effect of pain on function, or "pain interference", has gained increasing interest recently, and measuring aspects of both pain intensity and pain interference may provide a more comprehensive view of the overall "pain experience" [8]. However, research to date has focused primarily on pain interference with physical and psychological function and resulting effects on employment, while few studies have examined the impact of pain interference on social functioning and employment [2,6]. Pain interference with social function has been measured utilizing patient-reported outcomes that assess both the ability of an individual to participate in everyday relationships and activities as well as the degree of satisfaction with the level of participation [6,2].

While chronic pain is caused by a complex interplay of biopsychosocial factors, social factors are now increasingly recognized to play a more important role than previously understood [9]. Social factors appear to impact an individual's experience of chronic pain. For instance, in patients with low back pain, social factors were found to be important contributors to the overall level of distress experienced [10,11]. Additionally, neuroscience has provided some insights into the possible role of shared neural pathways for both physical and social pain by examining pain pathways associated with social loss [12,13]. Based on these links between pain and social factors, the impact of pain interference on employment may be significantly mediated by altered social function associated with pain. Our principal goal was to explore this connection between social function and pain interference with employment further.

We examined pain interference with four types of functioning – physical, psychological, cognitive, and social – and their impact on the ability to work in a population with chronic pain. The aims of this study were to (1) evaluate the association between

pain interference with ability to work and actual employment among working age adults with chronic pain; and (2) evaluate pain interference with four types of functioning – cognitive, physical, psychological, and social – as possible mediators of pain interference with the ability to work. We hypothesized that pain intensity and duration of pain would be major determinants of employment. We also hypothesized that pain interference with all four types of functioning – physical, psychological, cognitive, and social – would correlate with the individual's self-rated ability to work. Furthermore, we predicted that pain interference with social functioning would be the strongest predictor of pain's interference with ability to work.

2. Methods

This study is based on secondary data analysis of a publicly available dataset [14]. Data were collected via a self-selected sample of individuals visiting the American Chronic Pain Association (ACPA) website. Between August 2007 and February 2008, participants responded to the website-based survey that included items eliciting demographic information and chronic pain history [14]. Eligibility criteria stipulated that the respondents must be 21 years of age or older with at least one chronic pain condition for a duration of at least three months prior to taking the survey. Those who met these criteria completed an online informed consent form prior to beginning the survey. The Michigan State University Office of Regulatory Affairs and Human Research Protection Programs has determined this project to be IRB exempt.

Chronic pain. Respondents were asked to report how long they had experienced chronic pain, how long they had been treated by a physician for their chronic pain, and the type of chronic pain conditions they currently had (migraine, rheumatoid arthritis, osteoarthritis, cancer pain, low back pain, neck pain, fibromyalgia, other neurological pain, and other pain). They were also asked to rate their pain level by selecting the one number that best described their pain on average (0 = no pain to 10 = the worst pain).

Pain interference. The Patient-Reported Outcomes Measurement Information System (PROMIS) pain interference scale consists of 47 questions with a one (not at all/never) to five (very much/always) response scale. The questions focus on the extent to which pain interfered with various thoughts and activities in the past 7 days [15]. Items were submitted to a principal components factor analysis with varimax rotation. After examining factor loadings, items that did not cross-load and had a factor loading of greater than .60 were retained and configured into subscales [16]. *Pain Interference with Physical Functioning* resulted in 3 separate subscales, sitting, standing, and day to day activities. Only the "sitting" subscale was selected to represent Pain Interference with Physical Functioning in the following analyses, as it represented the most severe

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