

ORIGINAL ARTICLE

Association of Pain and Depression in Those With Chronic Low Back Pain

The Mediation Effect of Patient Sexual Functioning

Amir H. Pakpour, PhD,*† Mehdi Nikoobakht, MD,‡ and Paul Campbell, PhD§

Objectives: One theoretical model suggests that the pathway from pain to depression is through the disruption of social and relationship function. This study sought to test this hypothesis by considering the mediating effect of sexual functioning on the association between pain intensity and depressive symptoms in sexually active patients with chronic low back pain.

Materials and Methods: This was a cross-sectional study on consecutive patients attending a chronic pain management clinic in Iran. All measures (pain intensity, depressive symptoms, sex-specific sexual function) were obtained by a self-report questionnaire, completed by patients while attending the clinic. Sobel testing, including bias-corrected bootstrapping, was used to produce 95% confidence intervals (95% CI) to test the mediating effect of sexual function.

Results: A total of 742 patients (351 men, 391 women) took part in this study. Both the male and female mediation models showed a significant association between pain intensity and depressive symptoms, and both the models were significantly mediated by sexual functioning ($P < 0.001$). Effect size calculations show a medium to large effect on male patients (κ^2 0.23; 95% CI, 0.15-0.39) and a medium effect for female patients (κ^2 0.16; 95% CI, 0.06-0.28). Both the models accounted for over 50% of the variance in depressive symptoms (model R^2).

Discussion: This study has shown that sexual functioning significantly mediates the relationship between pain intensity and depressive symptoms in sexually active patients with chronic low back pain. Clinicians may wish to consider the assessment of sexual functioning within this patient group and align treatments that address sexual dysfunction and general pain management.

Key Words: back pain, sexual function, depression, mediation, sex
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Back pain is common and is considered a major health concern with lifetime prevalence estimated at over 70% in industrialized nations.¹ The recent burden of disease findings showed that back pain is the leading cause of disability-adjusted life years in Western Europe and Australia,

and is ranked sixth of the top 25 diseases for disability burden globally.² Disability associated with back pain can have widespread effects on both the economy, because of extensive health care costs and absence from work,^{3,4} as well as on the individuals and their family.^{5,6} Similar evidence on low back pain prevalence, disease burden, and associated risk factors have also been reported in populations in Iran.^{7,8}

Pain has consistently been shown in prospective epidemiological studies to be a risk factor for the development of depression,^{9,10} with people reporting disabling spinal pain having over double the risk for developing depression.¹¹ Evidence indicates that psychological factors such as depression can represent a significant barrier to recovery,¹² and psychological interventions are now part of biopsychosocial treatment strategies for chronic pain conditions such as back pain.^{13,14} Therefore, a reduction in the development of depression would be an important outcome for those who experience back pain.

The factors and mechanisms linking physical disorders such as back pain with psychological disorders such as depression are multifaceted. A model developed by Cohen and Rodriguez¹⁵ suggests biological, behavioral, cognitive, and social pathways by which physical disorders such as pain can lead to affective disturbances such as depression. One specific pathway they suggest is that in those who experience pain, interruption, and disruption of normal social relationships (eg, interaction with partners, family members) can lead to the development of depression. Certainly, there is robust evidence that pain severity and disability is associated with relationship difficulties and marital discord,^{16,17} which in turn has been shown to be associated with depression and chronicity within the person in pain.¹⁸ One of the key determinants of depression within couples (with or without pain) is their level of intimacy and sexual function.¹⁹ Evidence from studies on chronic pain, and back pain populations, show a considerably higher prevalence of sexual dysfunction compared with the population norms.^{20–23} Despite strong evidence of associations between pain and sexual dysfunction, and pain and depression, no study to date has considered whether sexual dysfunction influences the relationship between pain and depression. Information such as this would be beneficial within clinical settings where there is an increasing awareness of psychosocial influences on pain and disability,¹⁰ and where the consideration of relationship issues (eg, partners or family members) within treatment paradigms are becoming more common.^{24,25}

The aim of this study was to test whether the association between pain severity and depressive symptoms is mediated by the level of sexual dysfunction in those who report back pain (Fig. 1). Furthermore, given the evidence

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From the *Social Determinants of Health Research Centre; †Department of Public Health; ‡Department of Neurosurgery, Qazvin University of Medical Sciences, Qazvin, Iran; and §Research Institute for Primary Care and Health Sciences, Keele University, Keele, Staffordshire, UK.

The authors declare no conflict of interest.

Reprints: Paul Campbell, PhD, Arthritis Research UK Primary Care Centre, Research Institute for Primary Care and Health Sciences, Keele University, Keele, Staffordshire ST5 5BG, United Kingdom (e-mail: p.campbell@keele.ac.uk).

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