

Original Article

Pain Catastrophizing and Pain-Related Fear in Osteoarthritis Patients: Relationships to Pain and Disability

Tamara J. Somers, PhD, Francis J. Keefe, PhD, Jennifer J. Pells, PhD, Kim E. Dixon, PhD, Sandra J. Waters, PhD, Paul A. Riordan, BA, James A. Blumenthal, PhD, Daphne C. McKee, PhD, Lara LaCaille, PhD, Jessica M. Tucker, MS, Daniel Schmitt, PhD, David S. Caldwell, MD, Virginia B. Kraus, MD, PhD, Ershela L. Sims, PhD, Rebecca A. Shelby, PhD, and John R. Rice, MD

Duke University Medical Center, Durham, North Carolina, USA

Abstract

This study examined the degree to which pain catastrophizing and pain-related fear explain pain, psychological disability, physical disability, and walking speed in patients with osteoarthritis (OA) of the knee. Participants in this study were 106 individuals diagnosed as having OA of at least one knee, who reported knee pain persisting for six months or longer. Results suggest that pain catastrophizing explained a significant proportion (all P s ≤ 0.05) of variance in measures of pain (partial r^2 [pr^2] = 0.10), psychological disability (pr^2 = 0.20), physical disability (pr^2 = 0.11), and gait velocity at normal (pr^2 = 0.04), fast (pr^2 = 0.04), and intermediate speeds (pr^2 = 0.04). Pain-related fear explained a significant proportion of the variance in measures of psychological disability (pr^2 = 0.07) and walking at a fast speed (pr^2 = 0.05). Pain cognitions, particularly pain catastrophizing, appear to be important variables in understanding pain, disability, and walking at normal, fast, and intermediate speeds in knee OA patients. Clinicians interested in understanding variations in pain and disability in this population may benefit by expanding the focus of their inquiries beyond traditional medical and demographic variables to include an assessment of pain catastrophizing and pain-related fear. J Pain Symptom Manage 2009;37:863–872. © 2009 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Key Words

Pain catastrophizing, pain-related fear, osteoarthritis

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Address correspondence to: Francis J. Keefe, PhD, Duke University Medical Center, P.O. Box 90399, Durham, NC 27708, USA. E-mail: keefe003@mc.duke.edu

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Introduction

Recent advances in cognitive-behavioral pain theory and research suggest that pain cognitions, that is the way an individual thinks about and interprets pain, may be very important in explaining variations in pain and disability in patients with osteoarthritis (OA). Recent studies of OA patients suggest that

two pain-related cognitions in particular may be especially important predictors of pain and disability: pain catastrophizing and pain-related fear. *Pain catastrophizing* refers to the tendency to focus on and magnify pain sensations, and to feel helpless in the face of pain.¹ Pain catastrophizing has been studied in arthritis patients suffering from both OA and rheumatoid arthritis.^{2,3} Studies of OA samples have found that patients who engage in pain catastrophizing not only report higher levels of pain but also have much higher levels of psychological disability.^{2,4} OA patients who catastrophize about pain also have been found to have higher levels of physical disability,² although these findings are not as strong and consistent as those regarding the relation of catastrophizing to pain and psychological disability.^{2,4} What makes these findings regarding catastrophizing impressive is that they have been obtained even after controlling for demographic variables and medical status variables that are important in explaining pain and disability.

The term *pain-related fear* refers to an excessive and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to pain.⁵ The impact of pain-related fear on pain and disability has been shown in studies of patients with chronic nonmalignant pain conditions (e.g., low back pain),^{5,6} but has only recently been investigated in patients with disease-related pain conditions, such as arthritis. Individuals who experience pain-related fear are likely to engage in avoidance behaviors, specifically avoidance of movement and physical activity. Maintaining a sufficient level of activity and exercise is critical to managing the pain and disability associated with OA;⁷ however, OA patients who fear engaging in painful movements may be hesitant to initiate or engage in daily activity or exercise. In this way, pain-related fear contributes to a vicious cycle of a more restricted and physically inactive lifestyle adopted to avoid pain, paradoxically leading to increased pain and disability. To date, only one study has examined the relationship of pain-related fear to pain and disability in persons with OA.⁸ In this study, 254 patients with radiographic evidence of OA were administered measures of fear of pain, pain, and physical disability. Results indicated that pain-related fear explained

a significant proportion of variance in physical disability even after controlling for pain and radiographic findings. Interestingly, radiographic findings of OA were not predictive of disability.

To understand the role of pain cognitions in OA patients, several basic questions need to be addressed. First, there is a need to determine whether these cognitions can explain pain and adjustment over and above what can be explained on the basis of demographic variables (age, sex, race) and medical status variables (disease severity, body mass index [BMI]) believed to be important in understanding adjustment to OA. A second basic question that arises when studying pain-related cognitions is their relative importance in explaining indices of pain and adjustment. To our knowledge, no studies have simultaneously tested the effects of pain catastrophizing and pain-related fear in OA patients, which would help to identify the unique effects of each variable. Finally, it is unknown how important pain cognitions such as catastrophizing and pain-related fear are in explaining variations in objective measures of walking speed. The effects of pain cognitions on objective markers such as walking speed are important because physical activities such as walking are important in managing pain and disability in OA patients.^{9,10} Understanding the relative importance of these two pain cognitions is important for two reasons. First, it may help focus psychosocial assessment efforts on the most critical cognitions. Second, it could have implications for treatment interventions that could be used to improve pain and adjustment.

The goal of the present study was twofold. First, we wanted to examine the degree to which pain catastrophizing and pain-related fear explained pain and disability in overweight or obese OA patients after controlling for demographic and medical status variables. We hypothesized that both pain catastrophizing and pain-related fear would be related to pain severity, psychological disability, physical disability, and gait velocity assessments (e.g., walking speeds) after controlling for demographic and medical status variables. Second, we wanted to examine the unique predictive value of each of these two types of pain-related cognitions. Based on findings from prior research, we hypothesized that 1) pain

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