

Reported Pain and Fatigue Behaviors Mediate the Relationship Between Catastrophizing and Perceptions of Solicitousness in Patients With Chronic Fatigue

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Abstract: Catastrophizing is associated with negative outcomes in chronic pain and illness. The communal coping model (CCM) and cognitive behavioral (CB) formulations provide differing accounts of the function of catastrophizing in these contexts. In the present study we examined predictions from CCM and CB theoretical models in a sample of 116 patients with chronic fatigue to test 1) whether patient-reported solicitous responses from significant others mediate the relationship of catastrophizing with patient-reported pain and fatigue behaviors, as predicted by the CCM; and 2) whether pain and fatigue behaviors mediate the relationship of catastrophizing with solicitous responses, consistent with a CB model. This work is a secondary data analysis in which the strength of the indirect (ie, mediating) effects among study variables was examined. Consistent with CB models, pain and fatigue behaviors were associated with catastrophizing and solicitous responses, and there was a significant indirect effect of catastrophizing on solicitous responses through pain and fatigue behaviors. Results were inconsistent with the CCM; catastrophizing was not significantly associated with solicitous responses, nor did solicitous responses mediate the relationship between catastrophizing and pain or fatigue behaviors. These findings highlight the importance of behavioral expressions of pain and fatigue in understanding the relationship of catastrophizing to solicitous responses in chronic fatigue.

Perspective: This study of chronic fatigue patients tested CB and CCMs of catastrophizing, pain, and fatigue behaviors, and solicitous responses by significant others. Results were more consistent with CB formulations, which highlighted the importance of behavioral expressions of pain and fatigue in understanding the relationship of catastrophizing to solicitous responses.

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Key words: Catastrophizing, chronic fatigue, solicitousness, partner responses, pain and fatigue behavior.

Catastrophizing, defined as an exaggerated negative mental set,⁴⁵ has been consistently associated with negative outcomes in chronic pain and illness.^{12,34,40,45} However, an understanding of why

people catastrophize has proven elusive, despite the apparent negative effects of this cognitive style. The communal coping model (CCM)⁴³ and cognitive behavioral (CB) formulations provide differing accounts of the potential function of catastrophizing in the context of chronic pain and illness.

The CCM proposes that patients who prefer to deal with stress in an interpersonal manner will catastrophize as a strategy to elicit social support.⁴³ In this theoretical model, catastrophizing would be associated with perceived support, and associations between catastrophizing and pain behavior would be mediated by perceptions of available support, such as solicitousness by significant others (SOs). Consistent with the CCM, a number of studies have reported positive associations

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between catastrophizing and solicitous SO responses.^{7,17,32} However, this association is not always found,⁵ and some research indicates that the role of catastrophizing in SO responses might depend on factors such as belief in entitlement to support.⁸ To our knowledge, no study to date has directly examined whether SO responses perceived as solicitous mediate the association between catastrophizing and pain behavior.

Instead of positing that catastrophizing stems from a preference for interpersonal approaches to coping, CB models posit that people catastrophize when they appraise a stressor as posing a threat that exceeds their coping capacity. Catastrophizing, in turn, might lead to greater distress and higher levels of pain or illness behaviors, which then elicit support (such as solicitous responses) from others.^{22,23,43-45} CB theory would also posit that greater levels of pain and illness behaviors would be elicited in the presence of reinforcing social responses to pain and illness behaviors.^{14,37,39} Nonetheless, the hypothesis that pain behavior mediates the association between catastrophizing and solicitous responses requires further examination.

The social context of pain and illness behaviors has also been investigated in patients with cancer¹⁷ and chronic fatigue (CF).^{35,38} There appears to be important parallels and overlaps between CF and chronic pain, and psychosocial factors might play an important role in adjustment and function in both conditions.^{1,6,9,13} Lukkahatai and Saligan²⁶ noted that a significant association between catastrophizing and fatigue was found in patients with cancer, CF syndrome (CFS), multiple sclerosis, and fibromyalgia. Catastrophizing has also been related to worse functional disability in patients with CF.³³ Despite these parallels and findings, the extent to which the CCM and CB models can elucidate the role of catastrophizing in the context of CF has not yet been examined.

With these considerations, we tested predictions derived from 2 theoretical models (CCM and CB) in a sample of patients with CF. We assessed 2 study questions: 1) whether perceived solicitous responses mediate the relationship of catastrophizing to self-reported pain and fatigue behaviors, as predicted by the CCM; and 2) whether self-reported pain and fatigue behaviors mediate the relationship of catastrophizing to perceived solicitous responses, as predicted by a CB model.

Methods

Participants

Participants in the current study were originally recruited for an investigation of illness behaviors and their relationship with partner responses.³⁵ The current study represents a secondary data analysis of this sample. Readers are referred to Romano and colleagues³⁵ for a detailed description of the original recruitment procedures. Briefly, in that study 117 participants were recruited from patients aged 18 to 70 years who were evaluated at a referral clinic for CF and met the case definition for CFS ($n = 111$) or idiopathic CF ($n = 6$) established

by the Centers for Disease Control and Prevention.¹⁶ For CFS, the case definition includes new, persistent, or relapsing fatigue lasting 6 months or more, significant fatigue-related functional impairment, body mass index of 45 or less, and endorsement of 4 of 8 minor criteria (cognitive problems, sore throat, lymphadenopathy, myalgia, arthralgia, new headaches, unrefreshing sleep, and prolonged postexertional fatigue).¹⁶ For idiopathic CF, the case definition includes new, persistent, or relapsing fatigue lasting 6 months or more, significant functional impairment, body mass index of 45 or less, and fewer than 4 of the 8 minor criteria listed for CFS. As previously described,³⁵ participants were asked to identify the SO who knew them best (the spouse or partner if in a coupled relationship, or the person closest to them if not) and to answer questions regarding SO responses with that person in mind. One participant was eliminated from the current study for noncompletion of 1 measure used in the data analyses, leaving a final sample of 116 (111 CFS; 5 CF).

The final sample was predominantly female (108 of 116 participants; 93%). Racial identity was self-described as American Indian or Alaska Native (2%), black or African American (1%), multiracial (1%), and white (96%). The average age was 44.34 years (SD 10.56). Most participants were married or living with a partner (71%). Slightly more than one-third were currently employed (17% full time, 21% part time) and 21% were receiving disability payments.

Questionnaire Measures

Pain Intensity

Average pain intensity over the previous 2 weeks, ranging from 0 (no pain) to 10 (pain as intense as it could be), was assessed using an 11-point scale. Such numeric ratings of pain intensity have shown good validity relative to other pain intensity measures and sensitivity to changes in pain after treatment.²¹

Fatigue Severity

Fatigue at the time of evaluation was measured using the fatigue severity rating from the Multidimensional Assessment of Fatigue,^{4,55} which is elicited by a single item: "How severe is the fatigue you are experiencing right now?" Responses range from 1 (mild) to 10 (severe).

Pain and Fatigue Behaviors

A modified form of the Pain Behavior Checklist (PBC)^{24,50} was used to assess pain and fatigue behaviors. The PBC consists of 17 items used to assess pain behavior in 4 categories: distorted ambulation, facial or audible expressions, affective distress, and help-seeking, and has shown good reliability and validity.^{24,36,50} We modified the PBC by adding the word "fatigue" to items that mentioned pain. For example, an item that asked about taking medication for pain was altered to include medication "for fatigue or pain." This modification affected 3 items: taking medication, asking for help when in fatigue or pain, and talking about fatigue or

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