Original Article

Depression and Coping Behaviors Are Key Factors in Understanding Pain in Interstitial Cystitis/Bladder Pain Syndrome

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Abstract:

Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) is a urologic chronic pelvic pain syndrome with suboptimal treatment outcomes. Catastrophizing is an empirically supported risk factor for greater IC/BPS pain. In this study, a moderated multiple mediation model is tested in which several additional psychosocial risk factors (depression, illness and wellness-focused behavioral coping strategies) are proposed as mediators or moderators in the existing relationship between catastrophizing and IC/BPS pain. The present questionnaire study employed a cross-sectional design. Female patients with an IC/BPS diagnosis ($n = 341$) were recruited at tertiary care sites. Participants completed questionnaires assessing pain, catastrophizing, behavioral coping strategies, and depressive symptoms. Aggregate factor scores were calculated following exploratory factor analyses. It was found that patients with a greater tendency to catastrophize were more likely to engage in illness-focused coping strategies, which contributed to the reporting of greater sensory and affective pain. Furthermore, this mediating effect of illness-focused coping on affective pain was more likely to occur in those patients reporting greater depressive symptoms. Illness-focused behavioral coping is an important mechanism between maladaptive pain cognition and aspects of patient pain, with patients reporting greater depressive symptoms at increased risk for elevated pain. Patient management techniques, including screening for catastrophizing, coping, and depression, are recommended to enrich IC/BPS management.

North American Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) point prevalence estimates range from 2.7%-6.5% (Berry et al., 2011; Nickel, Teichman, Gregoire, Clark, & Downey, 2005) and the female-to-male ratio is as high as 9:1 (Nickel et al., 2005). IC/BPS is a chronic pelvic pain syndrome characterized by persistent pain localized to the bladder and the urologic symptoms of urgency, frequency, and dysuria (Nickel, Shoskes, & Irvine-Bird, 2009). Many patients report comorbid pain throughout the body; estimates suggest that 75% of patients experience pain beyond the primary IC/BPS site (i.e., vagina, lower abdomen, lower back, pelvis, and buttocks; Tripp et al., 2012). There is no present consensus on IC/BPS etiology (Davis, Brady, & Creagh, 2014) and no consistently effective treatment (Giannantoni et al., 2012).

The clinical phenotyping system (UPOINT) proposed by Shoskes et al. (Shoskes, Nickel, Rackley, & Pontari, 2009) suggests that psychosocial risk factors, in particular pain catastrophizing, play a meaningful role in IC/BPS pain and patient quality of life (Nickel et al., 2009). Higher levels of catastrophizing and depression are associated with greater pain severity and greater comorbid pain sites (Tripp et al., 2012). Other factors such as illness-focused behavioral coping strategies are also associated with greater pain and reduced quality of life in other urologic chronic pelvic pain syndromes (Krsmanovic et al., 2014).

According to transactional models of coping and its outcomes, the way an individual appraises a stressful situation influences his or her coping choice, with some strategies associated with negative outcomes (Lazarus & Folkman, 1984; Lethem, Slade, Troup, & Bentley, 1983). Catastrophizing is one of the most common appraisals of a pain experience associated with poorer patient outcomes (e.g., greater pain, distress). Additionally, although many coping strategies exist, behavioral coping strategies, described as either wellness-focused coping (WFC) or illness-focused coping (IFC) strategies, are notable. WFC strategies, such as task persistence and exercise, are strategies encouraged in the multidisciplinary treatment of pain. In contrast, IFC strategies, such as pain-contingent rest, are discouraged (Jensen, Turner, Romano, & Strom, 1995).

Taken together, these transactional models suggests that coping behavior can act as a mediator between appraisals (i.e., catastrophizing) and patient outcomes (i.e., pain). Accordingly, individuals who catastrophize in regard to pain may engage in more IFC strategies (e.g., avoiding daily activities) and less WFC strategies (e.g., relaxation, stretching), resulting in greater pain. Thus, as a mediator, coping behaviors may act as a mechanism between catastrophizing and IC/BPS pain. Furthermore, with catastrophizing, depression, and IC/BPS pain robustly associated (Tripp et al., 2012), depression should be considered as a moderator of effects between catastrophizing and pain. As a moderator, depression may strengthen the predictive relationship between catastrophizing and each of the two behavioral coping strategies, as well as the relationship between each coping strategy and IC/BPS pain.

As with other chronic pain conditions, IC/BPS pain can be assessed along sensory and affective domains. Sensory pain and affective pain are distinct but correlated dimensions of pain. *Sensory pain* refers to physical sensations associated with pain (e.g., throbbing), whereas *affective pain* relates to the unpleasantness of the pain experience (e.g., cruel; Jensen & Karoly, 2011). Any model examining pain should examine sensory and affective pain independently.

The present study aimed to test two models in which the relationship between catastrophizing and sensory/affective pain was mediated by IFC and WFC strategies. These models are designed to examine if IFC and WFC strategies act as mechanisms through which catastrophizing negatively affects pain. Furthermore, the mediating roles of the two behavioral coping strategies were predicted to strengthen when depressive symptoms were elevated. Although there are many possible configurations that model the interrelationships between catastrophizing, behavioral coping strategies, depression, and sensory/affective pain, the two predicted models are theoretically justified as the logical extensions of several eminent transactional models of coping and patient outcomes (Lazarus & Folkman, 1984; Lethem et al., 1983). Furthermore, these predicted models may provide important clinical implications for conceptualizing and managing IC/BPS patient pain.

METHODS

Procedure

This questionnaire study employed a cross-sectional design. All participating sites obtained research ethic boards clearance. At the primary site, the study was granted clearance by the General Research Ethics Board according to Canadian research ethics principles (http://www.ethics.gc.ca/default.aspx) and Queen's University policies (http://www.queensu.ca/urs/research-ethics). The study recruited women diagnosed with IC/BPS and engaged in outpatient treatment at a tertiary care clinical center (see Appendix for a list of the tertiary care clinical centers). To be eligible for the study, participants had to be diagnosed with IC/BPS by an attending urologist according to the