



Catastrophizing is associated with pain intensity, psychological distress, and pain-related disability among individuals with chronic pain after spinal cord injury

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Abstract

Little research has examined the role of patient cognitive and behavioral responses, including catastrophizing, in adjustment to chronic pain associated with spinal cord injury (SCI). The objective of this study was to examine the associations of catastrophizing and specific pain coping strategies with pain intensity, psychological distress, and pain-related disability among individuals with chronic pain and SCI, after controlling for important demographic and SCI-related variables that might affect outcomes. Participants in this study were 174 community residents with SCI and chronic pain who completed a mailed questionnaire that included the SF-36 Mental Health scale, Coping Strategies Questionnaire, and Graded Chronic Pain Scale. The pain coping and catastrophizing measures explained an additional 29% of the variance in pain intensity after adjusting for the demographic and SCI variables ($P < 0.001$). The coping and catastrophizing scales accounted for an additional 30% of the variance in psychological distress ($P < 0.001$) and 11% of the variance in pain-related disability ($P < 0.001$), after controlling for pain intensity and demographic and SCI variables. Catastrophizing, but not any other single pain coping strategy, was consistently strongly and independently associated with the outcome measures. Potentially, the assessment and treatment of catastrophizing may reduce psychological distress and pain-related disability among individuals with chronic pain and SCI. © 2002 International Association for the Study of Pain. Published by Elsevier Science B.V. All rights reserved.

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1. Introduction

The majority of individuals with spinal cord injuries (SCI) experience chronic pain, and this pain can have a substantial negative impact on quality of life (Rintala et al., 1998; Turner and Cardenas, 1999; Turner et al., 2001a). For example, pain can result in psychological distress and limitations in customary activities, above and beyond the impact of the SCI alone (Mariano, 1992; Stormer et al., 1997). It is well-established that the ways in which chronic pain patients without SCI view and cope with their pain are associated significantly with their level of psychological and physical dysfunction (Jensen et al., 1991, 1994b). Some research has also demonstrated the importance of patient beliefs and coping in adjustment to SCI (Kennedy et al., 1995; Shnek et al., 1997). However, very little research has examined the role of patient cognitive and behavioral responses in adjustment to chronic pain

associated with SCI. One of the few such studies found that psychosocial factors but not the physiological factors (level and completeness of lesion, surgical fusion/instrumentation status) assessed were associated significantly with pain severity (Summers et al., 1991). A particularly notable absence in the SCI literature has been research on patient catastrophizing, the phenomenon of expecting or worrying about major negative consequences from a situation, even one of minor importance (Turner and Aaron, 2001). Numerous studies of chronic pain patients without SCI have found catastrophizing to be associated with increased pain and physical and psychosocial dysfunction (Sullivan et al., 2001).

The primary objective of this study was to examine the association of catastrophizing with pain intensity, psychological distress, and pain-related disability (three major outcome domains of interest to patients, clinicians, and researchers) among individuals with chronic pain and SCI. A secondary objective was to examine the association of specific pain coping strategies with these outcome variables.

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It was hypothesized that increased catastrophizing would be associated significantly with increased pain intensity, psychological distress, and pain-related disability, even after controlling for important demographic and SCI-related variables that might affect these outcomes. Prior research has yielded conflicting findings regarding the association of specific pain coping strategies (e.g. coping self-statements, ignoring pain) with pain intensity and functioning; thus, we made no specific hypotheses regarding these associations in our sample of individuals with pain and SCI. Because catastrophizing and pain coping strategies may influence the experience of pain (Sullivan et al., 2001), we first examined the extent to which catastrophizing and coping were associated with pain intensity. However, it is also the case that pain may influence catastrophizing, coping, psychological distress, and pain-related disability. Therefore, we examined the roles of catastrophizing and coping in psychological distress and pain-related disability controlling for level of pain intensity as well as demographic and SCI-related variables.

2. Methods

2.1. Participants and procedure

The sample for this study consisted of 174 individuals with a spinal cord injury and chronic pain. To obtain a sample representative of the population of Pacific Northwest community residents with SCI, study participants were recruited primarily from the community, rather than from a particular clinic or hospital. Most study participants were solicited through the mailing list for the Northwest Regional Spinal Cord Injury System (NWRSCIS), a comprehensive, interdisciplinary service delivery model system funded in part by the National Institute of Disability and Rehabilitation Research. In addition, notices about the study were placed in Seattle-area clinics serving patients with SCI and in the NWRSCIS newsletter. Invitations to participate in the study, consent forms, and questionnaires were mailed to individuals who were on the mailing list or who had called in response to a notice. Participants were paid \$20 for completing and returning the consent form and questionnaire. The study questionnaire and protocol were approved by the University of Washington Human Subjects Review Committee. Other findings from the first 163 subjects enrolled in this study were reported previously (Warms et al., 2002).

Questionnaires were mailed to 420 individuals. Twenty questionnaires were returned due to incorrect addresses; nine were returned because the addressee was deceased; 14 were returned with a note indicating the addressee did not have a spinal cord injury; and 16 were returned with a note indicating the individual declined to participate in the survey. Completed questionnaires were returned by 230 individuals with SCI (61% of questionnaires mailed,

excluding those mailed to an incorrect address, deceased person, and person without SCI).

The participants in the present study were the 174 (75.7%) questionnaire respondents who reported a current pain problem. In this sample, 123 (70.7%) were men, 51 (29.3%) were women, 93 (54.1%) were tetraplegic, and 79 (45.9%) were paraplegic (data on tetraplegia versus paraplegia were missing for two study participants). The mean age was 41.5 years (standard deviation, SD = 13.6; range = 18–77). The mean time since spinal cord injury was 8.1 years (SD = 9.3; range = 0.5–48.4). Other subject characteristics are shown in Table 1.

2.2. Measures

The questionnaire included the following measures.

2.2.1. Demographics

Respondents were asked to provide information concerning their age, sex, ethnic/racial group, education, and marital status.

Table 1

Sociodemographic and SCI characteristics of 174 respondents with SCI who reported current pain problems^a

| | |
|---------------------------|---|
| Ethnic group | 84.8% Caucasian |
| | 3.5% Native American |
| | 4.1% African American |
| | 4.7% Hispanic |
| | 1.2% Asian |
| | 1.8% Other |
| Marital status | 34.5% Married |
| | 34.5% Never married |
| | 14.9% Divorced |
| | 9.8% Living with partner |
| | 2.9% Widowed |
| | 3.4% Separated |
| Education (highest level) | 9.2% Grade 11 or lower |
| | 20.1% High school/GED |
| | 6.3% Vocational/technical/business school |
| | 32.2% Some college |
| | 18.4% College graduate |
| | 13.8% Graduate/professional school |
| Cause of SCI | 49.4% Motor vehicle accident |
| | 19.0% Fall |
| | 6.9% Sport accident |
| | 5.2% Diving |
| | 6.9% Gunshot wound |
| | 12.6% Other |
| Level of SCI | 20.3% C1–4 (high tetraplegia) |
| | 33.7% C5–8 (low tetraplegia) |
| | 5.8% T1–5 (high paraplegia) |
| | 32.0% T6–12 (paraplegia) |
| | 8.1% L1–S4/5 (low paraplegia) |

^a GED, General Educational Development diploma; and SCI, spinal cord injury.

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